FEWS NET

Famine Early Warning Systems Network

Democratic Republic of the Congo

Livelihood Zone Baseline Profiles Report



2024

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Acronyms

Acted	Agency for Technical Cooperation and Development
APROBES	Action pour la Promotion du Bien Être Social
AVEC	Associations Villageoises d'Épargne et de Crédit
BSS	Baseline Storage Spreadsheet
CAID	Cellule d'Analyses des Indicateurs de Développement (Development Indicators Analysis Unit)
CDF	Congolese francs
CHIRPS	Climate Hazards Group InfraRed Precipitation with Station data
DAP	Diammonium phosphate
DRC	Democratic Republic of the Congo
FARDC	Armed Forces of the Democratic Republic of the Congo
FDLR	Democratic Forces for the Liberation of Rwanda
FEG	Food Economy Group
FEWS NET	Famine Early Warning Systems Network
FEWS NET KB	FEWS NET 8 Knowledge Base
FHH	Female-headed household
FINCA	Foundation for International Community Assistance
HH	Household
HEA	Household Economy Analysis
HPP-Congo	Humana People to People Congo
INERA	Institut National pour l'Étude et la Recherche Agronomique
IPC	Integrated Food Security Phase Classification
LIAS	Livelihoods Impact Analysis Spreadsheet
LQAA	Livelihoods quality assurance advisor
LST	Land surface temperature
MINAGRISA	Ministry of Agriculture and Food Security
mm	Millimeters
NatLIAS	National Livelihoods Impact Analysis Spreadsheet
OVDA	Office des Voies de Desserte Agricole
PARRSA	Programme d'appui à la réhabilitation et à la relance du secteur agricole
PPR	Peste des petits ruminants

PROSANA	Programme de Sécurité Alimentaire et Nutritionnelle (Food Security and Nutrition Program)
TSS	Tablet Storage Spreadsheet
RISD	Research Initiatives for Social Development
RN	Route Nationale
RP	Route Provinciale
USD	U.S. dollar
WFP	World Food Programme

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Implementing Partners

Food Security and Nutrition Program (PROSANA), Ministry of Agriculture and Food Security

Research Initiatives for Social Development (RISD)

Agency for Technical Cooperation and Development (Acted) and IMPACT

Food Economy Group (FEG)

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challenging aspects of our implementation — thank you to each of them for being an indispensable part of our journey and for their continued support and dedication.

The FEWS NET KB technical team would also like to thank the Research Initiatives for Social Development (RISD) for supporting our work. They have provided excellent logistical and technical support in data collection and analysis. We are grateful for their patience, flexibility, and professionalism throughout the project.

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Field Teams

The FEWS NET 7 Pillar 3 Task Order 1 team, in collaboration with technical partners from FEG, facilitated nine baseline training sessions across the implementation period, training over 70 Congolese nationals in HEA data collection and analysis. The technical team also conducted three team leader training sessions, building the capacity of 15 Congolese nationals to lead HEA data collection teams. All capacity strengthening exercises were managed by the FEWS NET 7 Pillar 3 Task Order 1 team; Alexandra King, the livelihoods quality assurance advisor; and Demba Toure and

Naiban Mingueyambaye, the national livelihoods coordinators. FEG consultants led all training. All baseline analysis spreadsheets were reviewed and finalized by senior consultants from FEG. Baseline reports were produced by FEG and Chemonics International. The FEWS NET KB technical team is extremely grateful for the contributions all implementing and technical partners, including each member of the field teams.

Introduction

Background to the Assessment

The Famine Early Warning Systems 8 Knowledge Base (FEWS NET KB) project aims to develop and maintain an up-to-date repository of information on livelihoods and market systems that form the foundation for FEWS NET's early warning analyses of acute food insecurity. The livelihoods component of FEWS NET KB focuses on understanding the causes of recurring food insecurity through a livelihoods perspective.

The livelihood zone baseline profiles presented in this report fall under the FEWS NET KB project, carrying forward the work started by FEWS NET 7 Pillar 3 Task Order 1. Using the Household Economy Analysis (HEA) framework, the baselines include detailed information about local livelihoods that allow FEWS NET and other acute food insecurity early warning analysts to understand the basic components of household economies in typical years, determine which hazards are most likely to undermine these economies, and identify ways to support local livelihoods so households can survive and recover from future shocks. Using local livelihoods — sources of food, sources of income, expenditures, and coping strategies — as the basis for identifying gaps in minimum food needs allows analysts to compare the severity and breadth of these gaps across different geographies and over time.

This report presents new and updated baselines of 33 rural and one peri-urban livelihood zones in the Democratic Republic of the Congo (DRC). The baseline information was gathered during fieldwork from February to September 2024.

Uses of the Livelihood Zone Baselines

The livelihood zone baselines in this report offer details for a geographic analysis of livelihoods and food security. The report includes a narrative for each livelihood zone that includes a quantitative sketch of the economic interactions of rural Congolese households across the wealth spectrum over a 12-month consumption period. These baselines will prove useful for multiple purposes across humanitarian and food security sectors.

An Introductory Guide to Food Security and Livelihood Patterns

The HEA livelihood zone baselines offer a useful overview for new users who need to understand the food security conditions in the DRC. Humanitarian and emergency response planners can also benefit from these baselines. One key objective is to reduce people's vulnerability to hazards and strengthen their capacity to survive, cope, and recover. An important first step is understanding who is vulnerable to which hazards and why. Likewise, efforts to reduce acute food insecurity require understanding how the poorest households normally survive and the reasons for their poverty.

Early Warning and Food Security Monitoring

Most early warning and food security monitoring systems draw heavily from two information sources: crop and livestock production data, and market price information for staple foods. Given the predominance of production data, local food security is often equated with production outcomes. But production data alone rarely present the whole story. A full account of the household economy includes what food people produce *and* what money people earn to purchase food and other essential items. Thus, data on casual employment, self-employment, assistance from relatives, or fishing are likely equally as important as data on crop and livestock production for understanding how much food a household can access and for how long. HEA baseline information — which includes both crop/livestock data as well as market price data — is useful for identifying key indicators relevant for monitoring.

The HEA baseline information allows analysts to explore the capacities of households to adapt to stresses that affect their ability to access food or income to purchase food, accounting for household activities at different periods in the consumption year. This information feeds directly into FEWS NET's analysis of need, helping to answer key questions like: Which areas and what types of households are likely to cope should a specific hazard strike, and which will face food deficits without external assistance? What types of interventions are most appropriate, and when and for how long should they be implemented?

Acute food insecurity analysts use information about seasonal food access from livelihood zone baselines to answer these questions, using scenario modeling to understand the impact of a shock on household options for acquiring food and earning income. FEWS NET KB supports these efforts by deepening available data and information for food insecurity projections. Access to accurate and up-to-date livelihood baselines is critical for scenario development, Integrated Food Security Phase Classification (IPC) analysis,[1] food assistance outlooks and updates, U.S. government humanitarian assistance programming decisions, and efficient resource use.

Policy Development and Advocacy

Disaster management has been the main impetus behind the spread of early warning systems. The rationale in early warning is to improve efficiency in the scale and timing of emergency assistance. However, planners are increasingly looking at alternatives to food aid in early emergency intervention, which often requires changes in policy and practice. Analysis of livelihoods can project the likely effects of interventions on the capacities of different households to weather a crisis. Such analyses can also recommend the optimum timing for intervention.

Livelihood analysis is useful for understanding the impact of policy changes, poverty alleviation efforts, and safety nets. HEA livelihood zone baselines can aid in measuring the effectiveness, appropriateness, and impact of response programs or policy changes on household economies.

[1] The IPC is a multipartner initiative for improving food security and nutrition analysis and decision-making. For more information visit: https://www.ipcinfo.org/.

Particularly relevant to decision-making, they enable the ranking of food security needs across populations.

Methodology

Household Economy Analysis

A livelihood is the sum of ways in which households make ends meet from year to year and how they manage through difficult times. Livelihoods analysis serves as an established lens for understanding household livelihood strategies and informing intervention design across the humanitarian response continuum.

HEA is a livelihoods-based framework for analyzing how people gain access to the resources they need to survive and prosper. It takes a systems-based approach to understanding livelihoods rather than a correlative one. In other words, HEA provides a holistic view of how households make ends meet, which comprises multiple interconnected relationships (e.g., interhousehold, market, environment).

The rationale behind the HEA approach is that a good understanding of how people have survived in the past provides a sound basis for projecting into the future. Three types of information are combined: baseline information on access to food and income, information on hazards (i.e., factors affecting access to food and income, like crop/livestock production or market prices), and information on response strategies (i.e., the sources of food and income that people turn to when exposed to a hazard). The HEA approach is summarized in Figure 1.[2]

Figure 1. HEA Approach

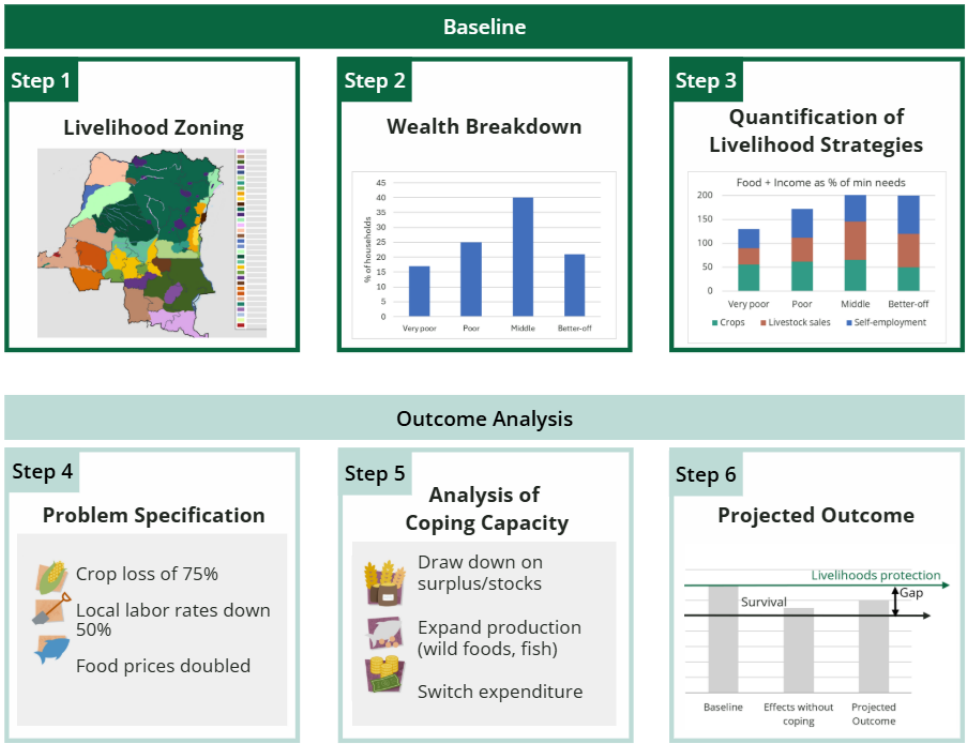


The HEA analytical framework consists of two components: the baseline component and the outcome analysis component. The baseline consists of three steps: livelihood zoning, socioeconomic classification (i.e., wealth group breakdown), and a livelihood strategy analysis (i.e., analysis of sources of food, income, and expenditure) for each identified wealth group. It requires primary data collection with different types of informants living in the zones under analysis. The resulting baseline presents a picture of the household economy in each geographic area, at different socioeconomic levels, and for a given period known as the reference year. This report presents the baselines for the 34 DRC livelihood zones.

[2] Unless otherwise noted, all maps, graphs, and other figures were made by the FEWS NET team using primary data.

The second component of the HEA analytical framework is the outcome analysis. This investigates how baseline food access and income may change because of a specific hazard, like a drought or flood, and considers the extent to which households can meet their basic survival needs and protect their livelihoods after the hazard ends. Figure 2 shows a brief, illustrated description of the HEA analytical framework. More information on the HEA analytical framework and detailed descriptions of the work required for each step are included *The Practitioner's Guide to the Household Economy Approach*,[3] a how-to guide for those participating in fieldwork and analysis of a household economy assessment.

Figure 2. HEA Analytical Framework



Baseline Development Process in the DRC

Livelihood Zoning

The 2024 DRC baseline development process was built on a first-draft livelihood zone map developed in 2016 that divided geographic areas within the DRC into zones where most of its residents share similar livelihood patterns and access to markets. The 2016 exercise was carried out in three phases with support from the DRC Vulnerability Assessment Committee. In association with the Southern African Development Community and the Cardno regional office in Gaborone, the DRC Vulnerability Assessment Committee implemented a livelihood zoning exercise for most western provinces. FEWS NET complemented this initiative by providing technical direction for the livelihood

[3] Tanya Boudreau, et al., *The Practitioner's Guide to the Household Economy Approach* (Food Economy Group, 2015), https://fews.net/sites/default/files/2024-10/The-Practitioners-Guide-to-HEA.pdf.

zoning workshops in the country's eastern half. FEWS NET consolidated the results to develop the livelihood zone map that served as the starting point for the livelihood zone baseline profiles found in this report. During the 2024 livelihood zone baseline assessment, data collection teams verified zone boundaries with local officials to ensure they were still accurate.

Baseline Assessment Training

FEWS NET and technical partners conducted fieldwork in the 34 livelihood zones in the DRC. Before teams embarked on weeks-long field assessments, each member participated in a six-day baseline training program. This comprehensive training follows the Food Economy Group (FEG) HEA Baseline Assessment training curriculum.[4]

In February 2024, three data collection teams of six individuals each were trained by West African HEA specialists in Bukavu, Kalemie, and Gbadolite. Trainees consisted of Ministry of Agriculture and Food Security (MINAGRISA) staff from the Programme de Sécurité Alimentaire et Nutritionnelle (Food Security and Nutrition Program, or PROSANA) and the NGO Agency for Technical Cooperation and Development (Acted)/IMPACT. In May and June 2024, FEWS NET organized six baseline training sessions in Goma, Kananga, Kisangani, Lubumbashi, Matadi, and Mbandaka. Africa-based HEA experts led all baseline training sessions, supported by the newly trained Congolese team leaders (detailed below). The project trained 66 participants from PROSANA, Research Initiatives for Social Development (RISD), and Acted/IMPACT. Overall, nine baseline training sessions for more than 80 technicians were held throughout the implementation period.

Team Leader Training

FEWS NET specialists and HEA consultants facilitated two HEA Baseline Assessment Team Leader training workshops that localized technical capacity for data collection in the DRC. One was held in May 2024, following the first two rounds of data collection, and another in August 2024, to prepare team leaders for fieldwork and data analysis. A total of 12 team leaders were trained and led baseline fieldwork and analysis in subsequent zones: six from Acted/IMPACT and six from PROSANA.

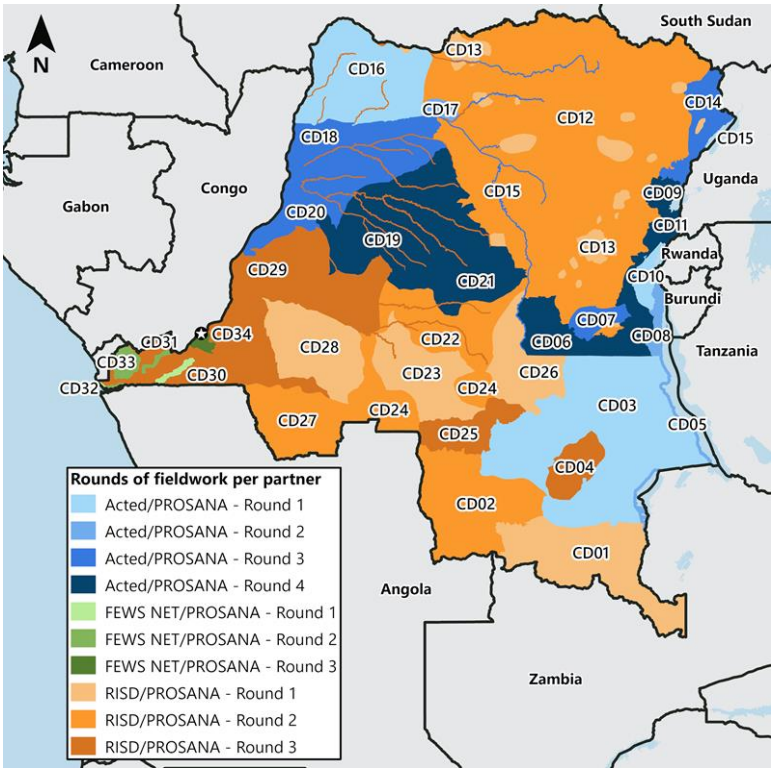
These five-day workshops enabled qualified participants to lead teams undertaking HEA baseline fieldwork and analysis. The training focused on building and strengthening leadership capacity as well as proper data collection and analysis.

Field Data Collection

The information in the livelihood zone baseline profiles in this report was gathered in representative villages via focus groups, key informant interviews, and other "traditional" data collection methods described in *The Practitioner's Guide*.[5]

[4] "Training," Food Economy Group, https://foodeconomy.com/household-economy-analysis-services/training/.
[5] See Annex: Data Collection Tools for the interview forms (in French) used to collect data for the livelihood zone baseline profiles in this report.

Figure 3. DRC Fieldwork Conducted by Implementing Partners



At the planning stages of the baseline assessment process, the FEWS NET team identified several challenges associated with data collection, including poor infrastructure, accessibility issues, conflict, and seasonal factors. To mitigate these challenges, the team coordinated with PROSANA. The FEWS NET team also subcontracted two implementing partners who had experience in conducting field research in the DRC — Acted/IMPACT and RISD. Initially, experienced HEA practitioners from West Africa trained the data collectors and led the baseline fieldwork and analyses. Toward the end of the fieldwork, the data collection teams, including the team leaders, were all Congolese.

Data collection in the DRC was completed by FEWS NET and implementing partners across several rounds, from February through September 2024 (see Figure 3 and Table 1).

Table 1. DRC Fieldwork Timeline

Months (2024)	Implementing Partner	Round #	Livelihood Zones
February–March	Acted/IMPACT and PROSANA	1	CD03, CD10, CD16
April–May	Acted/IMPACT and PROSANA	2	CD05, CD08, CD17
June–July	Acted/IMPACT and PROSANA	3	CD07, CD14, CD15, CD18, CD20
	RISD and PROSANA	1	CD01, CD13, CD23, CD26, CD28
	FEWS NET and PROSANA	1	CD30, CD32
	FEWS NET and PROSANA	2	CD31, CD33
August–September	Acted/IMPACT and PROSANA	4	CD06, CD09, CD11, CD19, CD21
	RISD and PROSANA	2	CD02, CD12, CD22, CD24, CD27
	RISD and PROSANA	3	CD04, CD25, CD29
	FEWS NET and PROSANA	3	CD34

The number of livelihood zones per round — and total number of rounds — were determined by implementing partner capacity and coverage of all 34 zones. Each zone was covered by a data collection team of six people, including a trained team leader. Team leaders for data collection in

sixteen zones (CD04, CD06, CD07, CD09, CD11, CD14, CD15, CD18, CD19, CD20, CD21, CD25, CD29, CD30, CD31, and CD34) were newly trained Congolese nationals.

Throughout the data collection rounds, the technical team and implementing partners leveraged the expertise and local knowledge of the data collectors. Employing data collectors who spoke the local language and had a strong understanding of the often complex security situation was vital to the project's success.

Baseline Data Synthesis

Data collected was shared among team members daily, allowing for cross-pollination of experiences, interview methods, and opportunities to identify data gaps within the team. Teams utilized a Baseline Storage Spreadsheet (BSS) to organize data for analysis. About halfway through the data collection program in each zone, a one-day mini-analysis allowed the teams to conduct an initial review of the information collected and identify emerging trends and the reasons for them. The analysis provided an opportunity for team members to share challenges and potential solutions to the data collection approaches. The result of this analysis was a first draft of the local livelihoods that was further defined in the second half of fieldwork.

At the end of the data collection phase in each livelihood zone, each team participated in a three to four-day data analysis and consolidation session. These sessions were scheduled on a rolling basis, from March to September 2024. The analysis involved compiling the findings from the various interviews, summarizing the results, and conducting a series of cross-checks. Team members triangulated secondary data, qualitative documentation in field forms, and information collected at the market, community, and wealth group levels to develop food, income, and expenditure summaries for each wealth group. The teams also finalized seasonal calendars and drafted notes to be used for the livelihood zone baseline profiles. Congolese team leaders led the baseline analysis of 16 livelihood zones with remote support from the FEWS NET national technical coordinator and the livelihoods quality assurance advisor (LQAA). Africa-based team leaders led analyses for the remaining 18 zones.

The LQAA reviewed the BSSs to check the team's analysis and identify inconsistencies, following methods in *The Practitioner's Guide*. Any questions or concerns were communicated to the teams to maintain data quality and integrity.

Once finalized, the LQAA prepared the BSSs for integration into the DRC Livelihoods Impact Analysis Spreadsheets (LIASs) and eventually, the National LIAS (NatLIAS).[6] A total of 15 LIASs were created in November 2024 to cover all 34 DRC livelihood zones, grouping zones that shared similar characteristics. For example, agricultural zones were paired with zones with similar seasonality. Building the LIASs involved cross-tabulating livelihood zones with administrative boundaries, adding

[6] The NatLIAS is a consolidation of all the LIASs for a given country, allowing for national-level analyses.

population data, preparing seasonal calendar analyses, and organizing all food sources, income sources, and expenditure categories.

Report Writing

Each field team produced a BSS containing field interview data and their baseline analysis, plus detailed notes for use in report writing. Upon completion of the data analysis for each zone, the LQAA worked with a team of technical writers and the product support specialist to develop the livelihood zone product deliverables, including 34 livelihood zone baseline profiles, country report, attribute maps, and fact sheets. This process took place on a rolling basis, from April to December 2024. The product support specialist then worked with a team of editors to standardize the language and style of the baseline profiles and derived products.

Validation

Upon completion of the baseline analysis, the FEWS NET team organized validation of results workshops in October 2024 to share key findings and conclusions of the HEA baseline work and seek the endorsement of the findings through discussion and consensus among key stakeholders. The validation conferences provided an opportunity to address questions, receive feedback, and gain insights from key government and food security stakeholders. It also gave these actors a better understanding of the livelihoods baseline information and its usefulness in their work.

The team conducted two validation conferences, one in Goma, which covered the eastern livelihood zones, and another in Kinshasa, which covered the western livelihood zones. In the eastern validation, 25 participants from organizations including the World Food Programme (WFP), the Development Indicators Analysis Unit (CAID), PROSANA, the Provincial Inspection of MINAGRISA, and the implementing organizations RISD and Acted/IMPACT reviewed and validated 15 livelihood zones. In the western validation, 35 participants reviewed and validated 19 livelihood zones. Participants in the western validation represented organizations such as the Food and Agriculture Organization, WFP, MINAGRISA, CAID, and others. Members of the FEWS NET team and their implementing partners also participated in the validation discussions. All feedback from validation conference participants was incorporated into the finalized livelihood zone products in this report.

Limitations

The implementation of the livelihood zone baselines in the DRC under FEWS NET 7 Pillar 3 Task Order 1 faced several limitations that affected the project's timeline, scope, and operational efficiency. These limitations are outlined below.

Security constraints. Security challenges were a persistent and significant limitation throughout the implementation period. Armed conflict in eastern DRC, including M23 rebel activity, bomb attacks, and civil unrest, led to evacuations, rerouting of staff, and delays in fieldwork. The attempted coup in Kinshasa and violent transportation strikes further disrupted operations. These incidents required

rapid adaptation and implementation of stringent security protocols, including curfews, restricted travel, and emergency evacuation plans.

Infrastructure and transportation challenges. DRC's underdeveloped infrastructure posed major logistical hurdles. Poor road conditions, unreliable flight schedules, and limited transportation options delayed fieldwork and increased operational costs. Teams frequently encountered mechanical issues, road closures, and had to rely on motorcycles and boats to access remote areas. Despite contingency planning, these challenges resulted in a 60-day delay across all teams.

Limited operational capacity. Although the project doubled its standard in-country operations team by hiring two operations and logistics assistants (one in Kinshasa and one in Goma), the vast geographic scope and complexity of the DRC required more robust operational support. The lean staffing model constrained the ability to respond swiftly to logistical and security challenges, especially in remote and high-risk areas.

Language and cultural diversity. With over 200 languages spoken in the DRC, communication barriers slowed data collection and increased the need for translation and cultural interpretation. Although mitigated by integrating over 60 local facilitators and provincial ministry agents, the diversity of languages and customs added complexity to fieldwork and necessitated additional time and resources.

Partner coverage limitations. No single implementing partner had the capacity to cover all 34 livelihood zones across the DRC, given the country's vast geographic scope, diverse operating environments, and complex logistical demands. This limitation led the project to issue multiple Requests for Proposals to identify and onboard a combination of international NGOs, local research bureaus, and civil society organizations with complementary strengths. The selected partners — Acted and RISD — were strategically chosen based on their geographic presence, operational capacity, and experience with HEA and IPC-related work. However, this multipartner approach introduced considerable time and complexity into the implementation process. The project team had to manage parallel contracting processes, including negotiations, compliance checks, and onboarding procedures for each partner. Once contracted, each partner required tailored training to ensure alignment with HEA methodology and data collection standards. Planning fieldwork across multiple zones also demanded extensive coordination to harmonize schedules, allocate resources, and ensure consistent supervision and quality assurance. Regular communication and troubleshooting between the technical team, operations staff, and implementing partners were essential to maintain methodological rigor and data integrity across all zones.

Time sensitivity and political context. The December 2023 elections and subsequent travel bans narrowed the window for fieldwork, which compressed the timeline for orientation workshops and baseline activities. The project had to mobilize quickly to avoid disruptions from anticipated civil unrest, which placed additional pressure on planning and execution.

Lessons Learned

Despite the challenges, the DRC livelihood zone baseline implementation yielded valuable lessons that can inform future activities in similar contexts.

Strategic partner engagement is foundational. Early engagement with government counterparts, particularly PROSANA, was instrumental in securing access, building local buy-in, and ensuring sustainability. The execution of a memorandum of understanding with PROSANA facilitated collaboration, capacity strengthening, and integration of HEA into national systems.

Adaptability is essential for success. The ability to pivot in response to security threats, logistical delays, and infrastructure failures was critical. Teams adjusted travel routes, modified study areas, and restructured schedules to maintain progress. Flexibility in planning and execution enabled the project to complete fieldwork in all 34 zones despite significant obstacles.

Local capacity strengthening enhances sustainability. Training and embedding PROSANA agents in field teams improved data quality and facilitated access to communities. The leadership of PROSANA team members in data collection and analysis underscored the importance of investing in local capacity to institutionalize HEA within MINAGRISA.

Security preparedness must be proactive. Hostile Environment Awareness Training, security briefings, and contingency planning were vital to team safety. Embedding security protocols into all phases of implementation helped mitigate risks and ensured continuity of operations during volatile periods.

Diversified logistics planning reduces operational risk. Establishing a UN Humanitarian Air Service account, preplanning alternative travel routes, and maintaining backup vehicles helped reduce the impact of transportation-related delays. These measures ensured that teams could continue fieldwork even when faced with flight cancellations or road closures.

Multipartner implementation enhances coverage and operational effectiveness. Engaging multiple implementing partners allowed the project to leverage diverse geographic coverage, operational strengths, and local knowledge. This approach improved efficiency and ensured that no single partner was overburdened.

Outcome analysis training fosters ownership and integration. Training government and civil society actors in outcome analysis built a national vision for HEA use and integration into IPC processes. These training sessions equipped stakeholders with practical skills and reinforced the long-term value of HEA for food security monitoring and decision-making.

Surge funding enables strategic expansion. The use of U.S. government-approved surge funds allowed the project to respond to unforeseen needs, expand training activities, and reach remote areas. This flexibility was critical to achieving full coverage and enhancing the accessibility and utility of the final products.

National Overview

Geography

The DRC's vast and diverse geography is a crucial characteristic of its agroecological and market infrastructure landscape. The Congo Basin rainforest — the second largest tropical rainforest in the world — covers most of this central African country. This dense forest, combined with the DRC's extensive river systems, including the Congo River and its numerous tributaries, creates a unique environment for agriculture. The country also features plateaus, mountains, and savannahs, with varying climatic conditions that influence agricultural productivity differently in each zone.

In terms of agroecology, the country benefits from its rich natural resources, including fertile soil and a favorable climate for diverse crops. The DRC is known for its production of staple foods, like cassava, plantains, and maize, as well as cash crops, like coffee and palm oil. However, limited infrastructure and political instability often disrupt agricultural practices and market access. The northern and central regions, with their abundant rainfall and tropical climate, are particularly suitable for high-yield crops, while the southern and eastern regions, with a more temperate climate, support different agricultural outputs.

The DRC experiences a complex seasonality pattern due to its vast size and diverse geographical features. The country generally falls within the tropical climate zone, characterized by high temperatures and substantial rainfall throughout the year. The primary seasonality in the DRC is marked by the alternation between Rainy and Dry Seasons, though the timing and intensity of these seasons can vary significantly across different regions. In the central and northern parts of the country, the year is typically divided into two main Rainy Seasons and two drier periods, whereas in the southern and eastern regions, there are more pronounced seasonal variations with distinct wet and dry phases. The interplay of the Congo Basin's climatic patterns and topographical factors, like elevation and proximity to the equator, influence this complex seasonality. This variability impacts agriculture and water resources, with certain areas experiencing prolonged wet periods that can lead to flooding. In contrast, others may face extended dry spells that reduce crop and livestock productivity.

The DRC's vast size and underdeveloped transport and logistics networks pose significant challenges to its market infrastructure. Rural areas often struggle with poor road conditions, limited access to markets, and inadequate storage facilities, which can impact the efficiency of agricultural supply chains. Progress on efforts to improve infrastructure is slow due to ongoing political and economic challenges. Enhancing market access and infrastructure remains crucial for boosting agricultural productivity and supporting farmers' livelihoods throughout the country.

In the DRC, subsistence agriculture is crucial for the livelihoods of most of its population and forms the basis of the rural economy. Farmers in these areas primarily cultivate crops like cassava, maize, and plantains, alongside engaging in small-scale livestock farming. Rural communities often rely on

traditional farming techniques and local knowledge passed down through generations. Additionally, many rural households practice fishing and engage in artisanal mining, extracting minerals like gold and coltan on a small scale. Despite these activities, rural areas face significant challenges, including limited access to infrastructure, markets, and services, that impact livelihoods and food security. These economic activities are deeply intertwined with social and cultural practices, reflecting a complex relationship between tradition and survival in the DRC's rural landscapes.

Historical Context

The history of the DRC is marked by periods of rich cultural development, colonial exploitation, and post-colonial turmoil. The region now known as the DRC was historically inhabited by diverse ethnic groups with complex societies and trade networks. Before European colonization, powerful kingdoms and empires, like the Kingdom of Kongo, the Luba Empire, and the Lunda Empire, flourished in the area.

Decolonization began after World War II, with rising nationalist movements advocating for independence. The Belgian Congo achieved independence on June 30, 1960, under the name of the Republic of Congo. However, the post-independence period was turbulent. Political instability, a series of coups, and regional conflicts plagued the early years. The country was renamed Zaire in 1971 under the authoritarian regime of Mobutu Sese Seko, who ruled with a combination of patronage and repression. Mobutu's regime, characterized by corruption and economic mismanagement, faced increasing challenges in the late 1990s. Significant political, social, and economic upheavals since then reflect the country's complex and tumultuous history.

Mobutu's ousting after 32 years in power was followed by the rise of Laurent-Désiré Kabila, who was backed by a coalition of regional forces. His government quickly faced internal dissent, leading to the outbreak of the First Congo War (1996-1997), which was largely a reaction to Mobutu's rule and included a broad alliance of Congolese rebels and foreign armies. This conflict was followed by the Second Congo War (1998-2003), a complex and multifaceted conflict involving multiple neighboring countries and various armed factions. The war resulted in widespread destruction, a humanitarian crisis, and an estimated 5.4 million deaths, making it one of the deadliest conflicts since World War II. The war officially ended with the signing of peace accords in 2003, but violence and instability persisted, particularly in the eastern regions of the country.

Kabila was assassinated in 2001 and succeeded by his son, Joseph Kabila, who faced the challenging task of stabilizing the country. Under Joseph Kabila, the DRC began to rebuild its institutions and held its first multiparty elections in decades in 2006, which were internationally recognized as a step toward democratic governance. However, the elections were marred by allegations of fraud and violence. Despite the relative stabilization, the eastern part of the DRC remained plagued by armed groups and ongoing conflict, exacerbating humanitarian issues and displacing millions.

Instability continued into the 2010s, including frequent clashes between government forces and various rebel groups, especially in the Kivu regions. The country's economy, heavily reliant on

mineral resources, faced challenges like corruption, mismanagement, and fluctuating global commodity prices. Joseph Kabila's presidency extended beyond the end of his term, sparking widespread protests and accusations of election irregularities. A long-awaited presidential election finally took place in December 2018, resulting in the election of Félix Tshisekedi and the first peaceful transfer of power in decades. Tshisekedi's presidency has been marked by efforts to address corruption and improve governance. Still, the DRC faces significant challenges, including ongoing armed conflict in the east, economic difficulties, and large-scale humanitarian crises. The government remains engaged in efforts to stabilize the country despite persistent internal and external pressures.

Food insecurity in the DRC is multifaceted and influenced by historical, political, economic, and environmental factors. Conflict, macroeconomics, infrastructure, and climate drive the pervasiveness of food insecurity in the DRC, affecting millions nationwide.

Prolonged armed conflicts, particularly in the country's east, have disrupted agricultural production and distribution networks. Persistent violence has displaced millions of people, many of whom are unable to access or cultivate land or find labor opportunities, further exacerbating production shortfalls. Additionally, the DRC's economy relies heavily on mineral resources, with limited development in the agricultural sector. Economic instability, high inflation rates, and a lack of agricultural investment contribute to the country's chronic food insecurity. Market disruptions and trade barriers also impact food availability and affordability.

Poor infrastructure, including inadequate transportation networks and storage facilities, hampers efficient food distribution. Farmers in remote areas often struggle to access markets, leading to high post-harvest losses and limited income from agricultural activities.

The DRC's diverse climate contributes to regional variations in food security. While some areas benefit from abundant rainfall, others face erratic weather patterns, including prolonged dry spells or excessive rainfall, which can adversely affect crop yields and food availability. Additionally, environmental degradation and deforestation impact agricultural productivity.

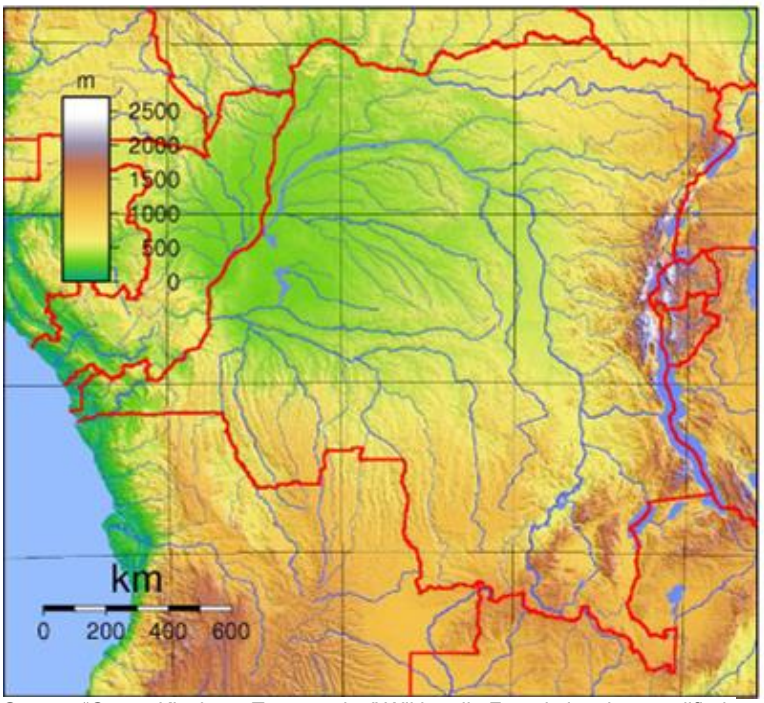
Overview of Livelihood Zones in the DRC

A livelihood zone is a geographical area where rural households rely on similar resources and means — ecology, production systems, access to markets — to meet their livelihood needs, particularly their food and income.[7]

Agriculture is the basis of household livelihoods in all rural zones in the country, even where the importance of fishing or mining differentiates a zone from its neighbors. Cassava and maize are the

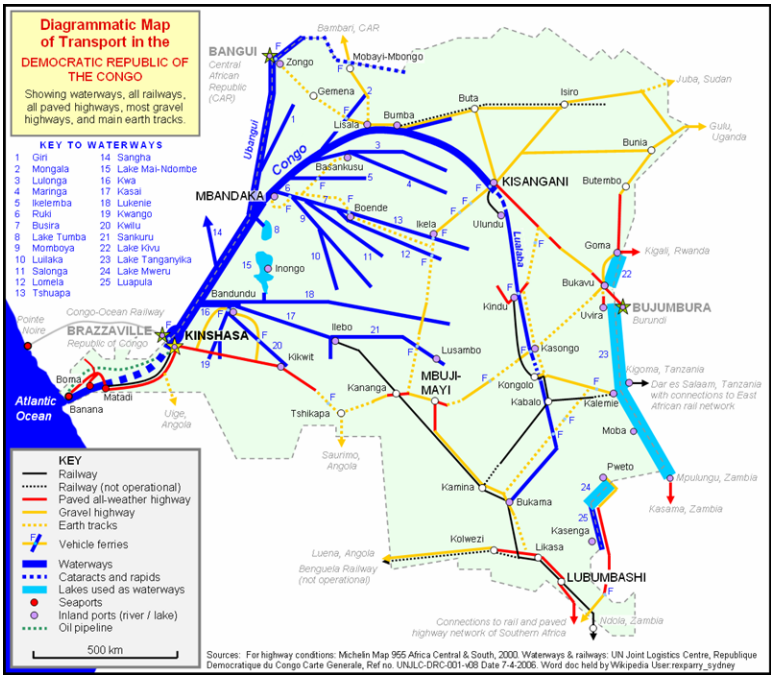
[7] This section is an edited excerpt from: FEWS NET, "Consolidated Report on the Livelihood Zones of the Democratic Republic of Congo," (FEWS NET, December 2016), https://fews.net/sites/default/files/documents/reports/DRC-consolidated-zoning-report.pdf.

Figure 4. DRC Relief Map



Source: "Congo Kinshasa Topography," Wikimedia Foundation, last modified June 29, 2007, https://commons.wikimedia.org/wiki/File:Congo_Kinshasa_Topography.png.

Figure 5. DRC Transportation Map



Source: "Transport in the Democratic Republic of the Congo," Wikimedia Foundation, May 30, 2007, https://en.wikipedia.org/wiki/Transport_in_the_Democratic_Republic_of_the_Congo.

main staple food crops throughout the country. Goats, sheep, pigs, and poultry are reared everywhere, while cattle are a relative rarity in most livelihood zones. Beyond these basics, the relief map in Figure 4 and transportation map in Figure 5 present certain features that fundamentally shape the different livelihoods in the DRC.

Strikingly, the lowland basin (the green area in Figure 4) contains by far the largest area of original tropical forest in Africa, about 3.7 million square kilometers (km^2). The associated river system drains into the Congo River and finally leads into the Atlantic Ocean — one of Africa's greatest watersheds. And then there are the higher elevations that form the upper parts of that watershed. The most prominent are the eastern mountains and hills skirting the lakes that form the country's eastern frontier; but the more extensive drainage comes from the somewhat lower southern hills and plateau-plains, consisting mainly of vast areas of savannah.

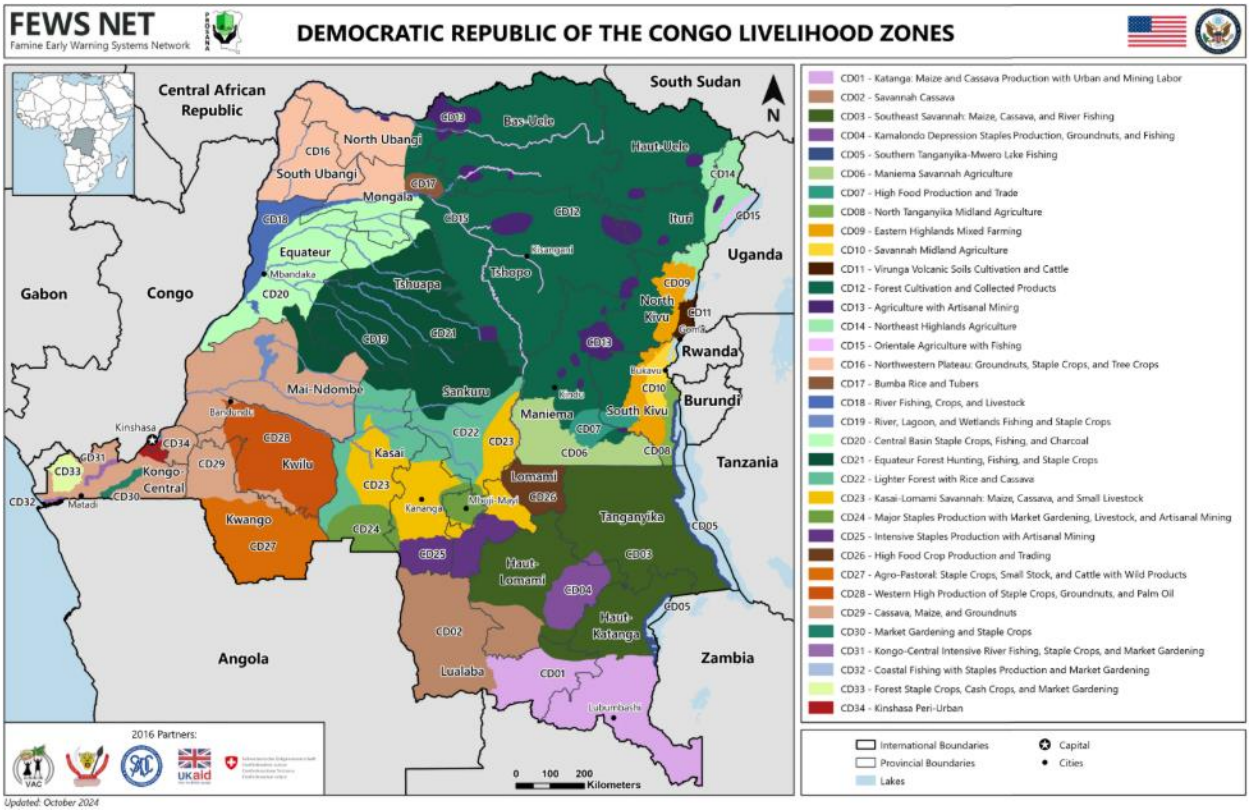
Figure 5 shows the main transport axes in the country. The network of all-season roads is so limited that the vast majority of the rural population lives more than a day's walk from any motor road, whether paved or graveled. These roads and bridges are frequently impassable in the Rainy Seasons. Untreated paths and tracks make transportation of goods by motorcycle or on foot the

main option in most locations. Farmers sell produce to itinerant traders who come directly to villages. They also sell to wealthier villagers who run small-scale trading businesses, further allowing village produce to reach market centers where demand — and therefore prices — are higher.

Nevertheless, the inherent difficulty of trading food surpluses or cash crops limits the incentive to produce them. Conversely, areas near main towns, along main roads or near main junctions, and along navigable rivers (also shown in Figure 5) offer stronger incentives, leading to higher population densities than in zones with similar agricultural conditions. Access to transportation significantly affects the economic value of rural people's work. Without it, rural farmers struggle to sell their goods, limiting their ability to earn profits and reinvest in production.

The vast and varied rural landscape induces caution about generalizing, but four kinds of environments that fundamentally influence local livelihoods are distinguishable in the national map of the DRC's 34 livelihood zones in Figure 6. First, there are the sparsely populated great forests of the north and center, with cultivated clearings, forest gathering, and hunting; these areas include livelihood zones CD12, CD16, CD20, CD21, CD22, and CD33. Second, the savannah areas of roughly the southern half of the country are characterized by more and less intensive cassava and maize production and generally moderate population densities; these areas include CD01, CD02, CD03, CD06, CD07, CD23, CD24, CD26, CD27, CD28, and CD29.

Figure 6. DRC National Map of Livelihood Zones



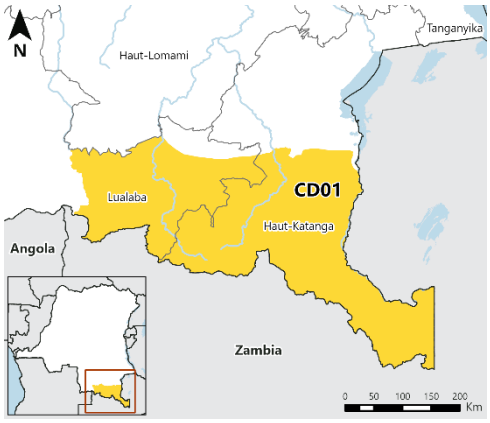
Third, the successful mix of fishing and cultivation in riverine and lacustrine areas generally makes for denser populations than in the above areas; these areas include CD05, CD15, CD18, CD19, and CD31. Fourth, there are the livelihoods of the eastern highlands, characterized by far denser populations than in nearly all other zones in the country, with varying balances of crops and livestock, and particularly the presence of cattle, which is rare elsewhere; these areas include CD08, CD09, CD10, CD11, and CD14.

There are inevitably several zones that defy the above generalizations. The DRC is known for its great resources in minerals, notably copper, cobalt, and diamonds. The industrial copper belt in Katanga, in the far southeast, is crucial for the country's export earnings, but it affects the rural populations in the region only indirectly, through demand for food crops among mine workers and the larger urban areas developed by the mining economy. On the other hand, small-scale artisanal mining, notably for diamonds, is an important secondary activity in several of the above zones, but in CD13, a northern, scattered, forest-bound zone, it is distinctly more intense and important to household incomes. Some zones, such as CD04 and CD25, feature moisture-retaining clay soils that define the mix of crops there, including substantial market gardening into the Dry Season. CD17, a small but distinctive northwestern zone around the town of Bumba, specializes in flood-recession rice production; throughout the country, rice tends to sell at some three times the price of cassava flour. To its west, the contrastingly large CD16, filling the far northwest corner of the country, is distinguished by a transitional ecology between forest and more savannah-like vegetation, increased by progressive clearing for agricultural activity.

Finally, there are the three most densely populated livelihood zones in the country, each of which is particularly defined by the market demand of the huge city of Kinshasa — demand that reaches far into the north, center, and southwest of the country. CD30 sits on the road through the north of Kongo-Central Province, west of Kinshasa; it specializes in producing market garden crops, which are perishable by nature but highly profitable since quick road access to Kinshasa is guaranteed. CD32 comprises the fishing settlements along the country's 30 kilometer (km) ocean coast, with a developed, urbanized hinterland. The fish and the crops (especially vegetables) produced in the zone fetch high prices because of demand from Kinshasa and nearby Angola and Angola-Cabinda. CD34, peripheral to Kinshasa, has a semi-urban population density, but qualifies as semi-rural as it grows a great variety of field, garden, and tree crops for the Kinshasa market, while the population also engages heavily in casual and formal employment in the city.

Table 2 contains maps and short descriptions of each of the DRC's 34 livelihood zones.

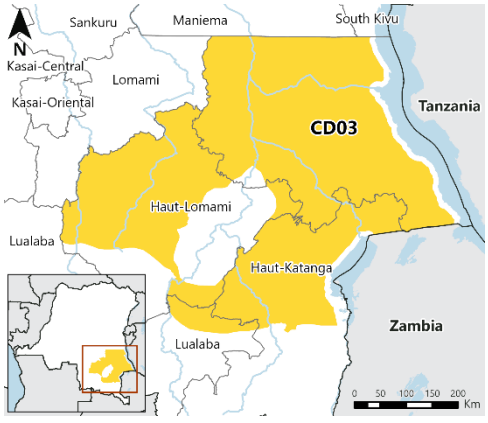
Table 2. DRC Livelihood Zone Maps and Descriptions



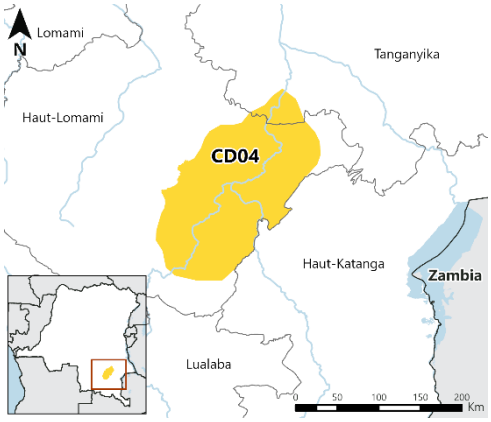
The *Katanga: Maize and Cassava Production with Urban and Mining Labor Livelihood Zone* (CD01), with a mixed ecology of savannah, light forest, and grassland, lies in the far southern reaches of the country, comprising two provinces: Haut-Katanga and Lualaba. Although this zone is famous for its major mining industry, the rural population is only secondarily involved in mining for household income, as work in agriculture is foremost. However, CD01 is a food-deficit zone, mainly due to soil infertility, with major food importation from neighboring Zambia. Maize and cassava are the staples. The wealthier minority of households can cultivate substantial areas with the help of fertilizers and pesticides, as well as with tractor hire and substantial employment of laborers from poorer households, for whom this and other paid labor is the mainstay of their cash income.



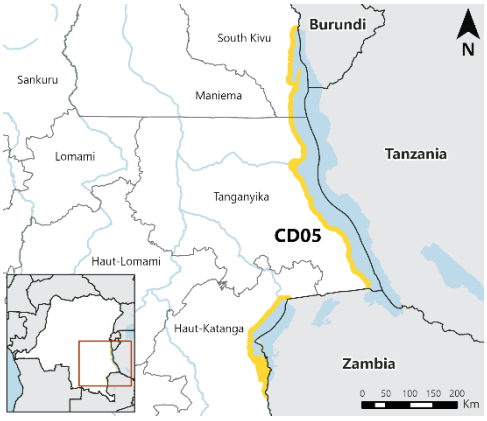
The *Savannah Cassava Livelihood Zone* (CD02) is predominantly characterized by its reliance on agriculture, with cassava being the main staple crop. Households engage in small-scale farming and rely heavily on crop production for both consumption and income. Supplementary activities include livestock rearing, charcoal production, and petty trade. The zone faces challenges such as poor soil fertility, recurrent crop diseases, poor distribution of rainfall, and inadequate infrastructure, which limits access to markets, especially during the Rainy Season. Livelihoods are largely shaped by the area of land cultivated, which is limited for poorer households by their available family labor, while wealthier households typically farm larger plots by hiring labor.



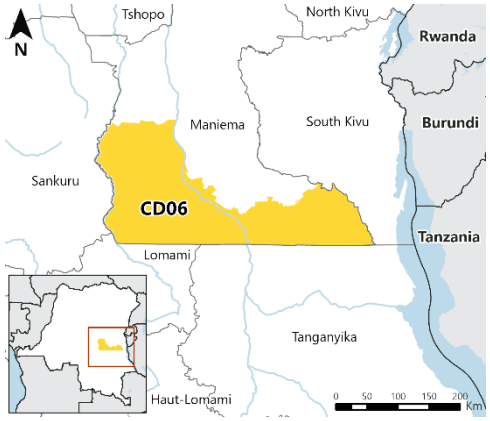
The *Southeast Savannah: Maize, Cassava, and River Fishing Livelihood Zone* (CD03) includes most river plain and savannah areas of Tanganyika Province, as well as parts of Haut-Katanga and Haut-Lomami Provinces. The zone is semi-arid, characterized by hot plains, and experiences a tropical and humid climate with two seasons — a Dry Season from June to August and a long Rainy Season from September to May. The soils are primarily clayey, sandy, and lateritic, and are generally moderately fertile. Cultivating crops, rearing livestock, and fishing are the main livelihood activities, and the zone is known as a food surplus area. Persistent communal violence and armed conflict also greatly compromise food security and livelihoods in this zone.



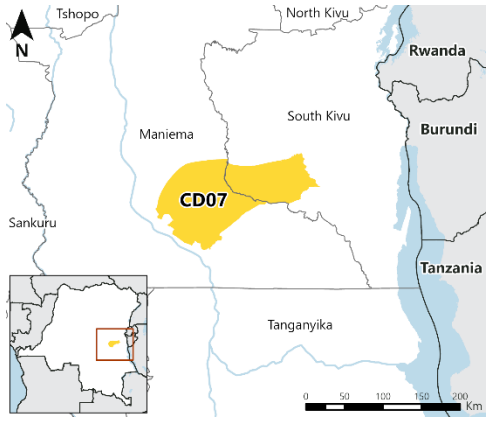
The *Kamalondo Depression Staples Production, Groundnuts, and Fishing Livelihood Zone* (CD04) is an agricultural zone in the southeastern part of the DRC that covers Bukama and Malemba-Nkulu Territories in Haut-Lomami Province and the southern part of Manono Territory in Tanganyika Province. The key economic activities include selling agricultural produce, livestock rearing, fishing, trading, and producing and selling charcoal.



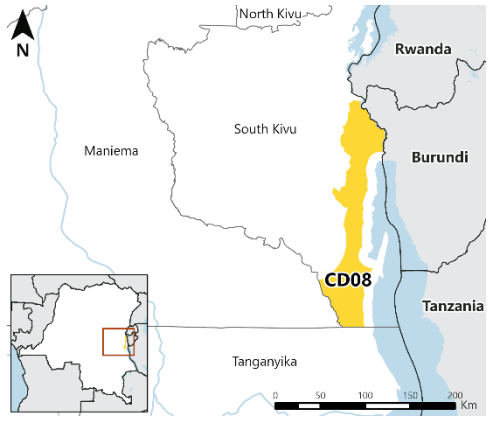
The *Southern Tanganyika-Mwero Lake Fishing Livelihood Zone* (CD05) is a narrow strip running along the western shores of Lake Tanganyika and Lake Mweru. The zone is renowned for its fish production, which is the driving force behind the local economy, and most households engage in artisanal fishing. Although the mountainous terrain and sandy lakeside soil types do not favor agriculture, crop production is important as a source of food (albeit, less so than in neighboring livelihood zones that rely on farming). Households produce cassava, maize, groundnuts, palm oil, and vegetables. While livestock are present in the zone, especially goats and pigs, they are only sold when needed, and they are not an important source of food or cash income for local households.



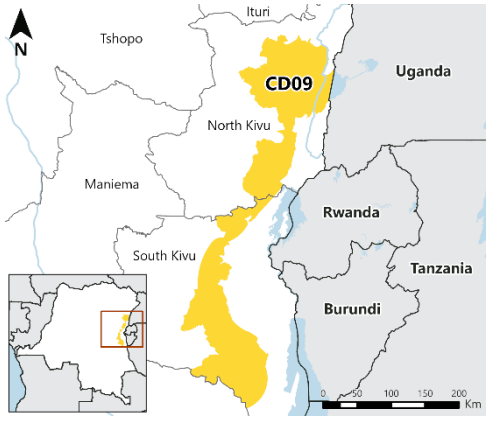
The *Maniema Savannah Agriculture Livelihood Zone* (CD06) is an agricultural zone located in the eastern part of the DRC, within Maniema Province. The zone is characterized by high agricultural productivity, supported by very fertile sandy-clay soils, and is known for its surplus food production. The key economic activities include selling agricultural produce, livestock, and trade. The main crops are cassava, palm oil, groundnuts, rice, and maize.



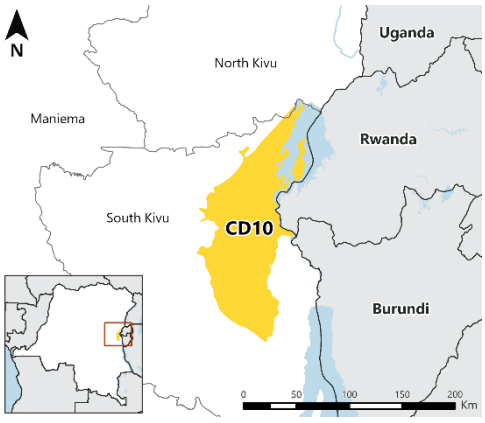
The *High Food Production and Trade Livelihood Zone* (CD07) is a cropping zone spread over parts of two provinces, Maniena and South Kivu, in the eastern part of the DRC. Much of the livelihood zone consists of lowland rainforests with gentle, undulating terrain. In areas like Pangi and Kasongo Territories, the terrain becomes more varied with hills and plateaus. These areas have a mix of dense forests and savannah woodlands. Selling surplus agricultural produce and livestock in local markets are the key economic activities in CD07.



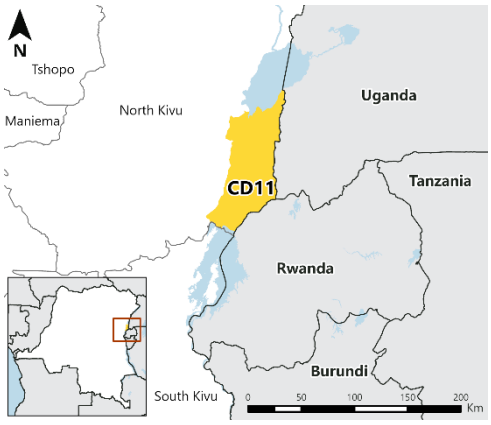
The *North Tanganyika Midland Agriculture Livelihood Zone* (CD08) is a midland agricultural area in the eastern part of the DRC. Crop and livestock production are the main livelihood sources and are supplemented by labor and trade activities. Fishing is limited in the zone, mainly practiced by a minority of households along the shores of Lake Tanganyika. The zone is a food surplus zone, with moderate to high agricultural capacity. Household crop production is complemented by market purchases. The security situation limits market access, however.



The *Eastern Highlands Mixed Farming Livelihood Zone* (CD09) is a rural livelihood zone located in eastern DRC and characterized by a predominantly agricultural economy. Important income-generating activities include crop and livestock production, petty trade, and casual labor. The zone stands out for its palm oil and cassava production. It features moderately fertile soils with reasonable potential for agriculture, although cultivation techniques and climate conditions moderate productivity. The zone differs from neighboring areas, such as CD08 and CD10, where cattle farming is more prevalent.



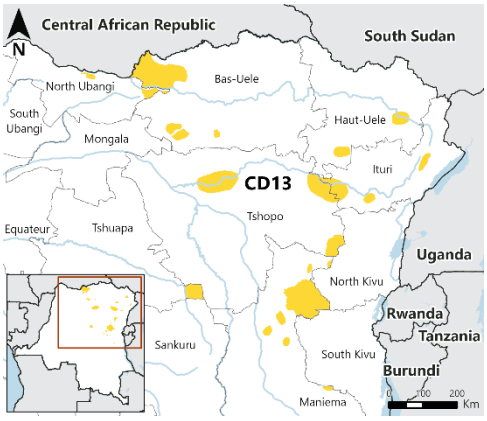
The *Savannah Midland Agriculture Livelihood Zone* (CD10) occupies a small territory between CD08 and CD09 and the border with Rwanda. The livelihood zone is made up of mid-altitude hills and marshy plains located between the Mitumba Mountains to the west and Lakes Kivu and Tanganyika to the east. The zone relies on agricultural production, dominated by rainfed crop production. The main crops cultivated both for household consumption and for sale are cassava, maize, beans, and sweet potatoes. Apart from crop production, households in the zone own and keep some livestock, including cattle, goats, pigs, guinea pigs, rabbits, and poultry, both for consumption and sale. Livestock are a means of saving rather than a principal economic activity.



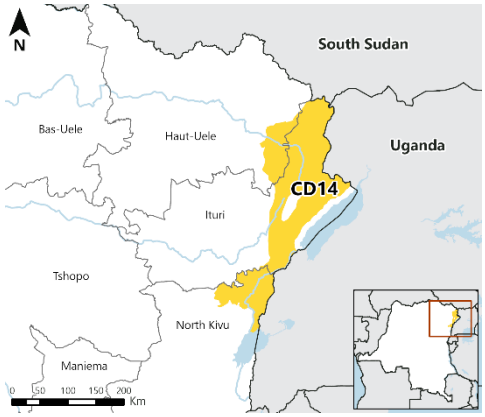
The *Virunga Volcanic Soils Cultivation and Cattle Livelihood Zone* (CD11) is located in the highlands between the Mitumba Mountains to the west and the Virunga Mountains, shared with Uganda and Rwanda, to the east. The key economic activities include crop production, livestock rearing, petty trade, and casual labor. The most important crops are potatoes, sweet potatoes, maize, and beans. Cattle, goats, sheep, pigs, and poultry are reared. Very poor and poor households rely on casual labor (mainly in agriculture for better-off households locally) as an additional source of food and cash income. Middle and better-off households have livestock as an additional source of food and income.



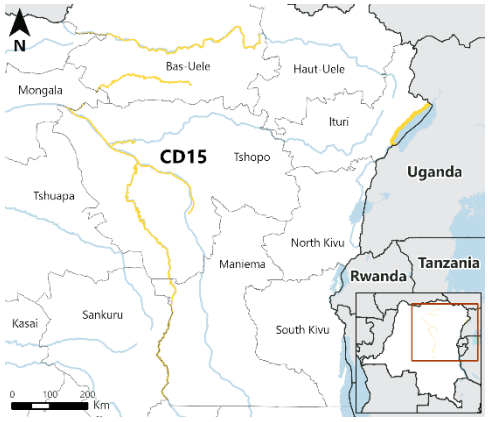
The *Forest Cultivation and Collected Products Livelihood Zone* (CD12) encompasses a vast portion of the northeastern region of the country. The city of Kisangani, which is in the zone, plays a crucial role in CD12's economic activity, functioning as a key commercial and distribution hub. The population engages in a variety of activities for both consumption and income generation, including agriculture, small-scale animal husbandry, hunting, and the gathering of non-timber forest products such as palm oil, wild game, snails, mushrooms, and termites. These forest products contribute significantly to both local diets and markets. Agriculture remains the dominant livelihood activity, practiced across all wealth groups. Key crops include cassava, rice, maize, plantains, and groundnuts. In addition to subsistence farming, households engage in small-scale trade and livestock rearing, particularly of goats, pigs, and poultry.



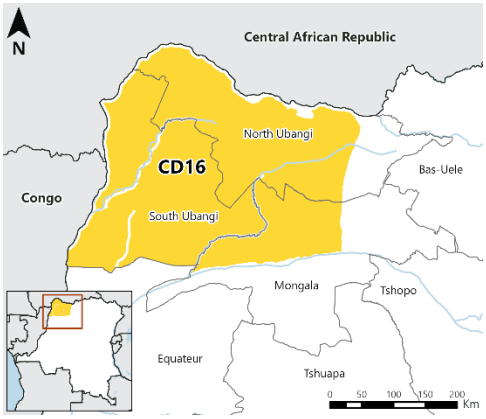
The *Agriculture with Artisanal Mining Livelihood Zone* (CD13) is situated in a humid equatorial climate with good rainfall. The primary economic activity is agriculture, but nearly all households in the zone also engage in mining — primarily for gold and diamonds — as a source of income. Commerce around mining centers, livestock sales, and wild foods collection and sales are also important economic activities. The fertile, sandy-clay soils and favorable rainfall conditions support good agricultural production. The main crops in this zone are cassava, rice, maize, groundnuts, and plantains. The small surplus of cassava and rice produced in the zone are exported to other livelihood zones.



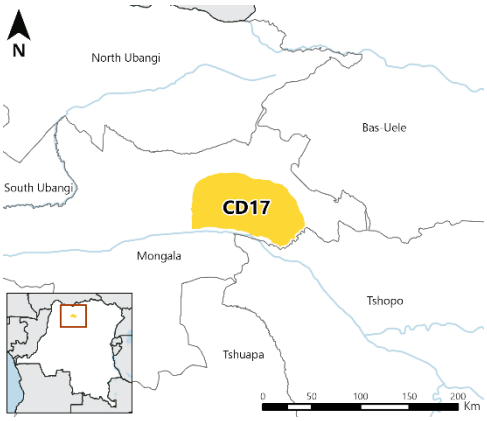
The *Northeast Highlands Agriculture Livelihood Zone* (CD14) is a highly populous agricultural zone in northeastern DRC that covers the hills and high plains. Crop production is the main livelihood activity, supplemented by livestock rearing, trading activities, local labor, and migratory labor. The zone is relatively self-sufficient, producing surplus sold both locally and in neighboring towns. Food deficits are rare, but during bad years, households rely on staple and non-staple foods from outside the zone. Market access is relatively good due to the major roads that link the zone to local towns within the zone, in bigger cities near the zone, and in neighboring countries. The security situation is stable.



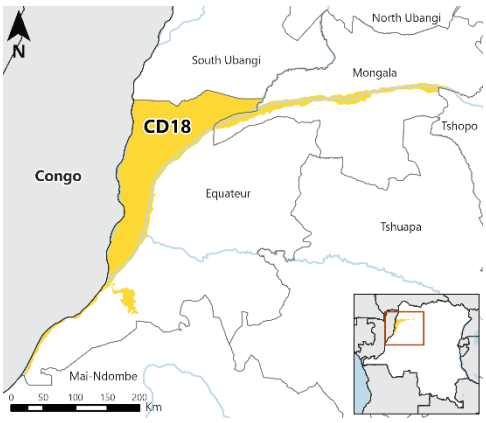
The *Orientale Agriculture with Fishing Livelihood Zone* (CD15) covers various riverine areas in Tshopo and Bas-Uele Provinces in the DRC, with agriculture, fishing, livestock production, labor, wild foods gathering, and trading as the primary livelihood activities. The zone has a high agricultural potential and is known for producing a surplus of food, indicating consistent and reliable crop yields and — most importantly — market access. Fishing has declined in recent years due to pollution. CD15 is rich in natural resources, including fish, game, timber, bamboo, and minerals, such as gold and diamonds. Other notable resources include *magungu*, crop stubble (used for fodder), rubble, sand, gravel, and firewood.



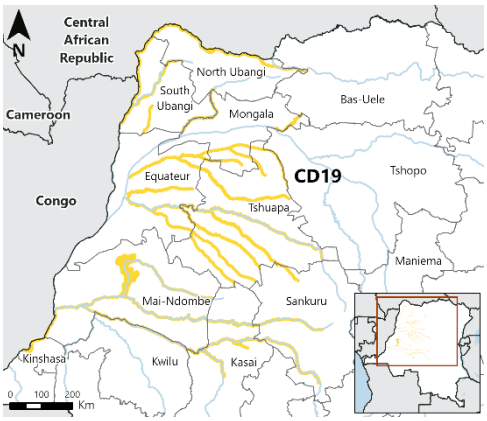
The *Northwestern Plateau: Groundnuts, Staple Crops, and Tree Crops Livelihood Zone* (CD16) is the dominant livelihood zone in the northwest corner of the DRC. The zone is characterized by varied topography: hills, undulating plains, valleys, plateaus, and rivers. The vegetation is a combination of equatorial/tropical rainforest, forest, bush, savannah grassland, marshes, and agricultural land, with fertile sandy-clay soils. CD16 is a mixed agricultural zone with traditionally rainfed crop production, with two crop production seasons and livestock production as the main economic activities for households in all wealth groups. The area is a food surplus zone with high overall production potential due to good soil fertility and good rainfall levels. Other important economic activities include trade, artisanal palm oil production and sale, casual labor, self-employment, fishing, and wild foods gathering and sale.



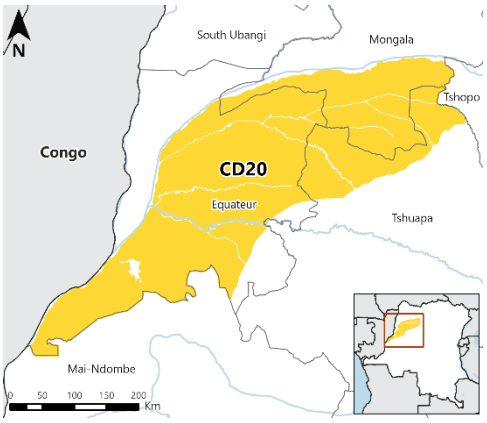
The *Bumba Rice and Tubers Livelihood Zone* (CD17) in Mongala Province covers the rainfed rice producing areas surrounding Bumba town, north of the Congo River. This zone is characterized by high productivity and is normally a food-surplus producer, especially for rice and yams. However, poor market access limits this zone's agricultural potential. Crop production and sales are the main livelihood strategies that support the food and cash requirements of local households. Households in all wealth groups grow and sell rice, maize, cassava, yams, groundnuts, oil palm, plantains, and bananas.



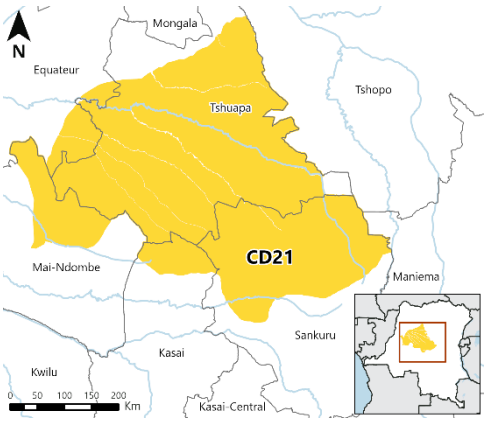
The *River Fishing, Crops, and Livestock Livelihood Zone* (CD18) covers the triangular area created by the Congo and Ubangui Rivers in Bomongo and Makanza Territories (in Equateur Province) and is an area of flooded forests and swamps. The main livelihood activities in this zone include rainfed agriculture, fishing, livestock production, petty trade, and firewood sales. The zone is highly productive, and the primary crops are maize, cassava, groundnuts, and plantains. Small-scale livestock production involves rearing cattle, pigs, goats, sheep, and poultry. Infrastructure in the zone is relatively underdeveloped, and transportation within the zone depends almost entirely on the Ubangi and Congo Rivers for moving goods and people.



River, Lagoon, and Wetlands Fishing and Staple Crops Livelihood Zone (CD19) is a riverside agricultural zone located in the northwestern part of the DRC. The key economic activities include selling agricultural produce, fishing in local rivers, and livestock production, complemented by wild foods collection and several forms of self-employment, such as firewood and charcoal collection and sales, palm oil sales, motorcycle transport, and petty trade.



The *Central Basin Staple Crops, Fishing, and Charcoal Livelihood Zone* (CD20) spans several administrative units in Equateur, Mongala, and Tshuapa Provinces. The main livelihood activities in this zone include agriculture, charcoal production, fishing, small livestock rearing, and gathering. The zone is characterized by moderately productive agricultural activities, with the primary crops being cassava, maize, plantains, groundnuts, and sweet potatoes. Small-scale livestock production primarily involves rearing pigs, goats, and sheep, which are raised through free grazing on grass and crop residues. The zone is not self-sufficient in crop production, primarily due to flooding and the prevalence of pests and livestock diseases, making it a region that occasionally requires humanitarian aid.



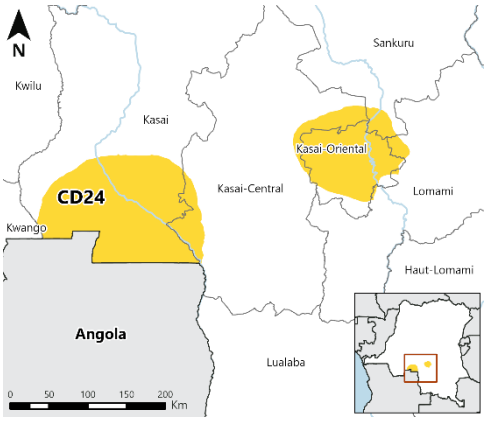
The *Equateur Forest Hunting, Fishing, and Staple Crops Livelihood Zone* (CD21) is an agriculture and gathering zone in the central and western part of the DRC. The key economic activities include selling agricultural produce, hunting, fishing, collecting wild foods, casual labor in agriculture and construction, and trade. Wild foods, including game, mushrooms, yams, caterpillars, and fish, contribute significantly to household food and cash income.



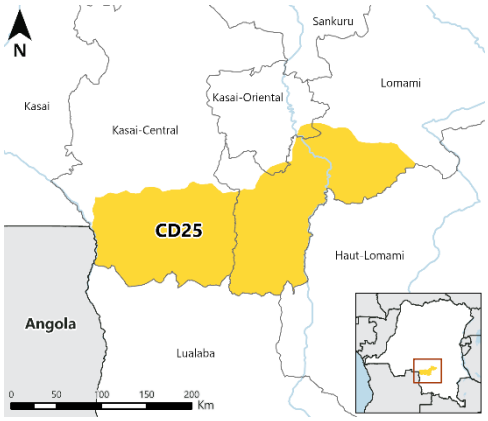
The *Lighter Forest with Rice and Cassava Livelihood Zone* (CD22) is an agricultural zone in the central part of the DRC that covers the territories of Dekesse, Dimbelenge, Kakenge, Kole, Lodja, Lubefu, and Lusambo in Kasai, Kasai-Central, and Sankuru Provinces. The key economic activities include selling surplus agricultural produce, livestock production, trade, and paid agricultural labor. The main crops cultivated are cassava, maize, groundnuts, cowpeas, rice, and squash. Amaranth leaves are also produced under both rainfed or irrigated conditions. Perennial plantains and sweet bananas are modest additional items, as are the robusta coffee beans from small plantations. The more important perennial is the wild palm tree from which palm nuts are collected year-round and processed into palm oil, either manually or using a mechanical mixer.



The *Kasai-Lomami Savannah: Maize, Cassava, and Small Livestock Livelihood Zone* (CD23) is located in the broader Kasai region and is characterized by a diverse range of livelihoods and a rich agro-ecological environment. Agriculture is the dominant economic activity, supplemented by animal production, gathering, small-scale trade, and transportation of food products by bicycle. Fishing and hunting also contribute to the livelihoods of many households. Small pockets of diamond mining exist in some parts of the zone. The zone has moderately productive agricultural output and typically experiences food deficits every other year due to high climate variability.



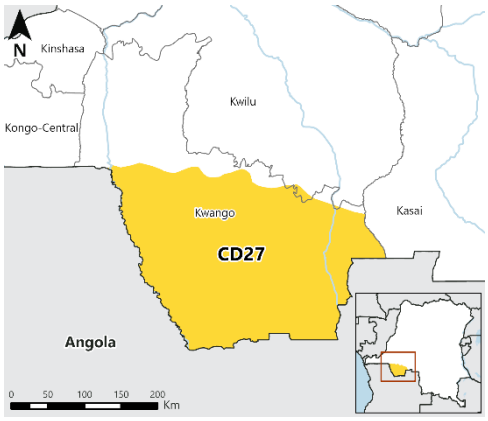
The *Major Staples Production with Market Gardening, Livestock, and Artisanal Mining Livelihood Zone* (CD24) is characterized by agriculture, livestock production, and diamond mining. It covers multiple provinces in the south-central part of the DRC, including Kasai, Kasa-Central, Kasai-Oriental, Lomami, and Sankuru. The key economic activities include selling agricultural produce, livestock production, trade, and labor in agriculture, construction, and diamond mines. In this zone, soils are somewhat heterogeneous, with sandy, sandy-clay, clay, and silty types in the lowlands, and silty-sandy soils in the valleys. All agricultural crops are rainfed. Alongside the year-round cultivation and harvesting of the main staple cassava, the rainfall regime allows two cycles per year of maize, groundnuts, and cowpeas, as well as one cycle of Bambara nuts and soybeans.



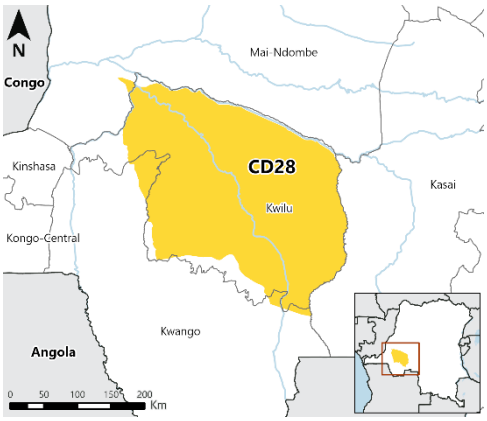
The *Intensive Staples Production with Artisanal Mining Livelihood Zone* (CD25) covers the provinces of Kasai-Central, Kasai-Oriental, and Lomami, specifically including the territories of Dibaya, Kabinda, Kazumba, Luilu, Luiza, Mwene-Ditu, Ngandajika, and Tshilenge. Households in the zone primarily engage in a mix of crop and livestock production, mining (gold and diamonds), brewing, fishing, and motorcycle transport (known locally as *buyanda*). Households also engage in petty trade and charcoal production. These activities form the economic backbone of the zone, with crop production being the most dominant. Gold and diamond resources are exploited by only a minority of households. The zone benefits from high agricultural potential due to fertile soils and consistent rainfall, resulting in surplus food production that is sold to local market centers.



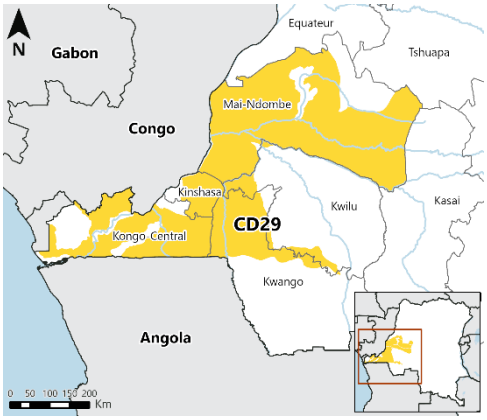
The *High Food Crop Production and Trading Livelihood Zone* (CD26) is an agricultural zone in the south-central to southeastern part of the DRC. The key economic activities include selling surplus agricultural produce, livestock, and trade. Key crops include maize and cassava. Maize is grown during two Rainy Seasons, and cassava is cultivated in one season but lasts for one year. Other significant crops are groundnuts, grown in two Rainy Seasons: rice in lowlands and wetlands, and cowpeas.



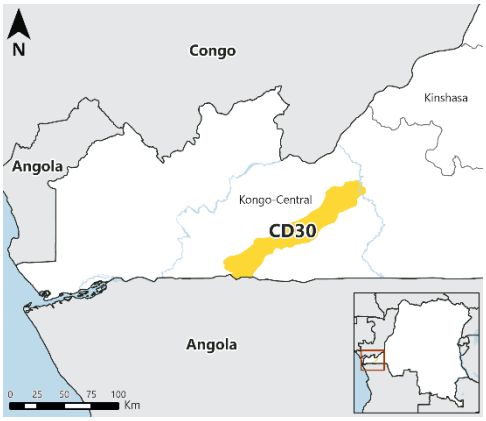
The *Agro-Pastoral: Staple Crops, Small Stock, and Cattle with Wild Products Livelihood Zone* (CD27) is in the southwestern part of the DRC. The key economic activities are agriculture, including selling surplus produce, livestock production, and petty trade. Rainfed cassava is grown year-round, primarily for domestic consumption. Other rainfed crops cultivated for consumption and sale include maize, groundnuts, cowpeas, beans, Bambara nuts, and pumpkins. Additionally, amaranth, tomatoes, onions, and peppers are cultivated throughout the year using irrigation. Perennial crops, like bananas and plantains, also contribute to food and income. The natural vegetation is a mix of grassy and shrubby savannah, bushland, and small pockets of light forest. Wild food resources include seasonal caterpillars and mushrooms. Firewood (often processed into charcoal) is widely exploited by households from all wealth groups. Charcoal is sold in urban markets (towns) in the area, such as Feshi, Gungu, and Kahemba, or in markets outside the zone, such as Kikwit, Tshikapa, and Kinshasa.



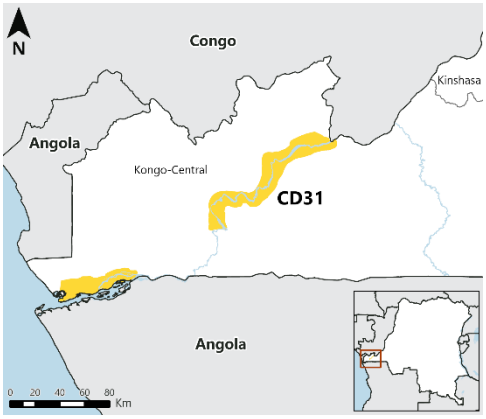
The *Western High Production of Staple Crops, Groundnuts, and Palm Oil Livelihood Zone* (CD28) is an agricultural zone in southwestern DRC. Crop production is the main livelihood activity, supplemented with livestock, labor, and trade activities. CD28 is primarily recognized for its agricultural production, particularly of palm oil and diverse rainfed food crops, such as cassava, maize, groundnuts, cowpeas, plantains, amaranth, and squash. The zone is relatively self-sufficient, producing surplus crops that are sold locally and in neighboring towns. Market purchases, notably non-staple foods not grown in the zone, complement household crop production and livestock consumption, particularly for poorer households. Market access is fair to poor due to substandard maintenance of main roads and remoteness of parts of the zone. The security situation is stable.



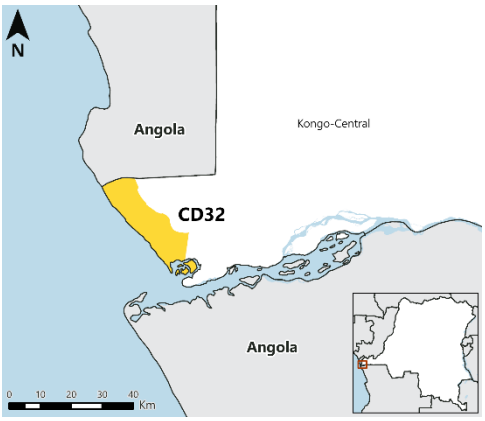
The *Cassava, Maize, and Groundnuts Livelihood Zone* (CD29) is one of the largest zones in the DRC, spanning several provinces, including Kongo-Central, Kwango, Kwilu, and parts of Mai-Ndombe. It is characterized by fertile sandy-clay and clay soils, which support the relatively productive cultivation of its primary crops: cassava; maize; pulses, including cowpeas and beans; and groundnuts. Agriculture is predominantly rainfed, though some areas near rivers use small-scale irrigation to grow vegetables, such as squash, tomatoes, eggplants, and peppers. The zone's economy relies heavily on crop production, with crop sales making up well over half of total annual cash income for households from all wealth groups. Crop sales are supplemented by activities like petty trade, charcoal production, and the sale of wild foods. Livestock rearing of goats, pigs, sheep, and poultry plays a minor role, mainly for income through occasional sales. Market access is a challenge due to poor infrastructure, especially during the Rainy Season.



The *Market Gardening and Staple Crops Livelihood Zone* (CD30) is a relatively small zone situated along the country's main highway, RN1, between Kinshasa and Matadi. Soil quality is good, with fertile sand and clay soils dominating. In terms of agriculture production, it is a food surplus zone. The main livelihood activities are staple crop production and market gardening. The principal food crops grown are cassava, groundnuts, and maize. Cash crops include sweet peppers, tomatoes, onions, and cabbage. The zone has good, year-round market access and links to major urban markets, such as Kinshasa, to sell vegetables. Livestock production is limited in the zone, but it does complement the predominant agricultural activities by contributing cash to households in all wealth groups.



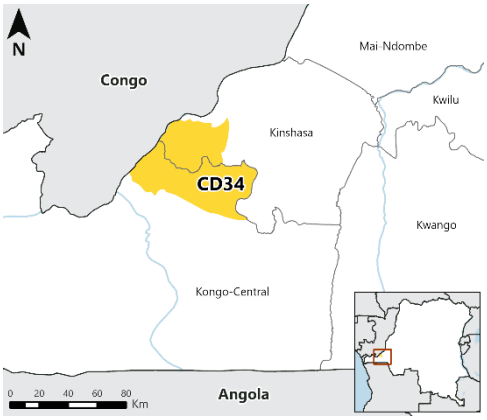
The *Kongo-Central Intensive River Fishing, Staple Crops, and Market Gardening Livelihood Zone* (CD31) consists of two narrow strips that straddle the Congo River as it flows southwest through the Kongo-Central Province to finally reach the ocean. The zone is characterized by the central importance of fishing to inhabitants' livelihoods. Households in this zone also participate in a substantial farming economy, with diverse crops and livestock. The zone is consistently productive, with no history of food deficits or reliance on food aid. Despite challenges, including floods, scant rainfall, and various plant and animal diseases, households have generally maintained stable food security.



The *Coastal Fishing with Staples Production and Market Gardening Livelihood Zone* (CD32) covers the 30 km coastal stretch in Moanda Territory, from the small port town of Banana in the south of the zone to Kumbi beach bordering Cabinda Province of Angola to the north. It is characterized by coastal fishing and market gardening. Fishing provides income to households for food and non-food purchases. Households also practice agriculture and grow root crops, cereals, groundnuts, and market garden crops (i.e., vegetables). The latter is an important source of cash income. The zone has high production potential due to good soil fertility and rainfall. However, there are difficulties in combating the effects of gases emitted by oil extraction and salty ocean winds on agricultural production.



The *Forest Staple Crops, Cash Crops, and Market Gardening Livelihood Zone* (CD33) is an agricultural zone that covers most of Lukula, Seke-Banza, and Tshela Territories in Kongo-Central Province. The zone is rich in various species, with primary and secondary forests and wooded savannahs. CD33 is also characterized by robust agricultural potential due to its fertile clay and sandy soils, combined with favorable rainfall. This area is known as a surplus zone for agricultural production, both food and cash crops, and livestock. Households from all wealth groups consume livestock products. The zone is known for its perennial crops, including coffee, cocoa, plantains, bananas, and palm trees.



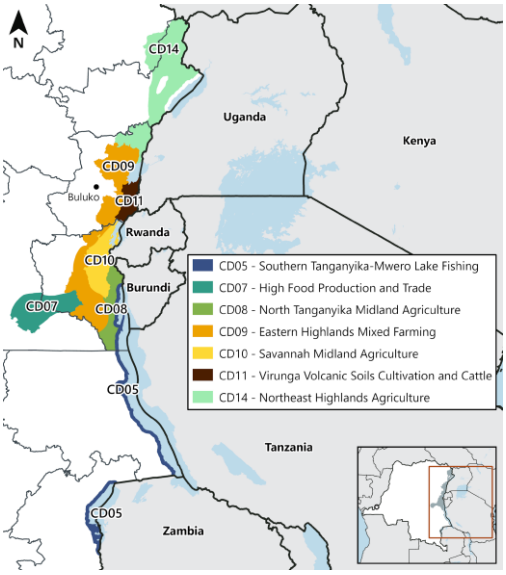
The *Kinshasa Peri-Urban Livelihood Zone* (CD34) is a densely populated agriculture and employment zone in western DRC that covers the peripheral areas of Kinshasa city, specifically within the commune of Mont-Ngafula in the Lukunga District of Kinshasa Province, as well as the Kasangulu Territory in Kongo-Central Province. The city provides opportunities for formal and casual labor as well as small businesses and self-employment. The climate in the zone is tropical sub-humid, with annual rainfall around 1,300 millimeters (mm) per year. The key economic activities are crop production, formal and casual employment, trade, and self-employment. Middle and better-off households earn additional food and income from livestock, which are generally not available for poorer households.

Regional-Level Analysis

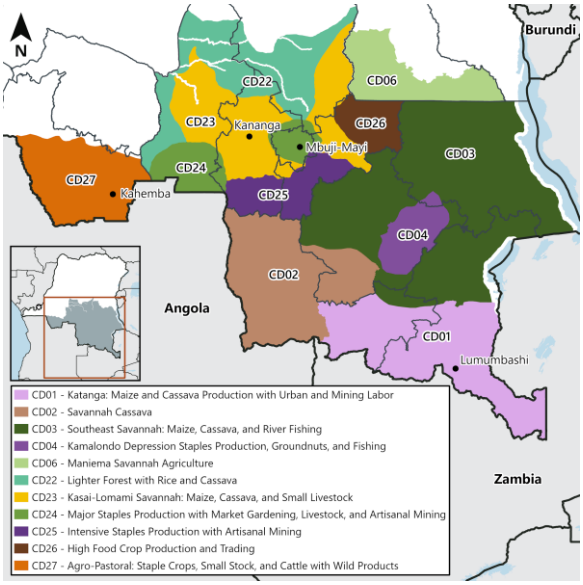
To facilitate analysis of the large volume of data across the DRC's 34 livelihood zones, this section organizes the zones into four broad geographic regions: the Eastern Highlands, the Southeast and Southcentral Savannah (referred to as the Savannah in this section), the Congo River Basin, and the Southwest (see Figure 7 and Table 3). These regional groupings, based on geographic proximity, allow for clear comparisons of patterns in wealth, food and income sources, expenditures, and other key livelihood factors. The analysis draws on baseline data from each livelihood zone to highlight both regional trends and notable differences across wealth groups within and between zones.

Figure 7. Maps of Regional Groupings of Livelihood Zones

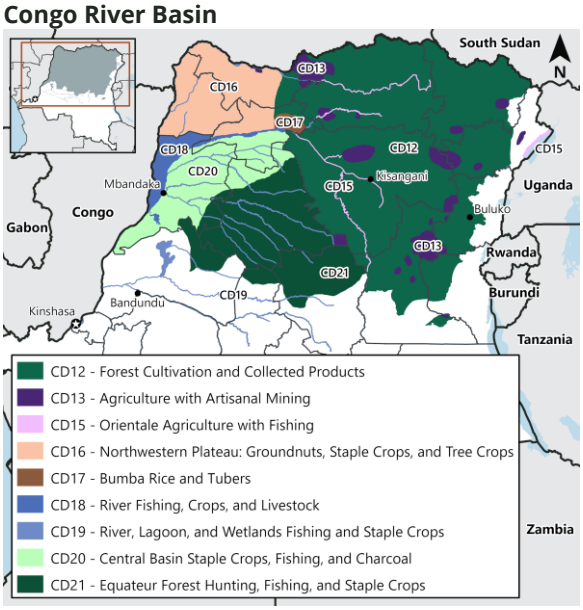
Eastern Highlands



Southeast and Southcentral Savannah



Congo River Basin



Southwest

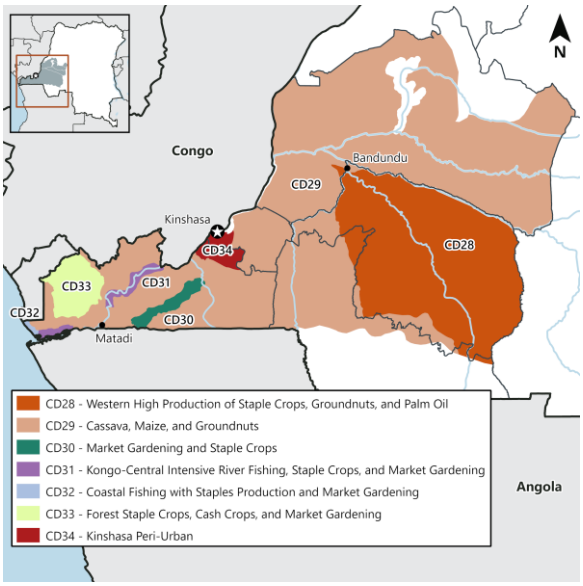


Table 3. Regional Groupings of Livelihood Zones for Summary Graphs

Regional Grouping	Livelihood Zones
Eastern Highlands	CD05 - Southern Tanganyika-Mwero Lake Fishing CD07 - High Food Production and Trade CD08 - North Tanganyika Midland Agriculture CD09 - Eastern Highlands Mixed Farming CD10 - Savannah Midland Agriculture CD11 - Virunga Volcanic Soils Cultivation and Cattle CD14 - Northeast Highlands Agriculture
Southeast and Southcentral Savannah	CD01 - Katanga: Maize and Cassava Production with Urban and Mining Labor CD02 - Savannah Cassava CD03 - Southeast Savannah: Maize, Cassava, and River Fishing CD04 - Kamalondo Depression Staples Production, Groundnuts, and Fishing CD06 - Maniema Savannah Agriculture CD22 - Lighter Forest with Rice and Cassava CD23 - Kasai-Lomami Savannah: Maize, Cassava, and Small Livestock CD24 - Major Staples Production with Market Gardening, Livestock, and Artisanal Mining CD25 - Intensive Staples Production with Artisanal Mining CD26 - High Food Crop Production and Trading CD27 - Agro-Pastoral: Staple Crops, Small Stock, and Cattle with Wild Products

Regional Grouping	Livelihood Zones
Congo River Basin	CD12 - Forest Cultivation and Collected Products CD13 - Agriculture with Artisanal Mining CD15 - Orientale Agriculture with Fishing CD16 - Northwestern Plateau: Groundnuts, Staple Crops, and Tree Crops CD17 - Bumba Rice and Tubers CD18 - River Fishing, Crops, and Livestock CD19 - River, Lagoon, and Wetlands Fishing and Staple Crops CD20 – Central Basin Staple Crops, Fishing, and Charcoal CD21 - Equateur Forest Hunting, Fishing, and Staple Crops
Southwest	CD28 - Western High Production of Staple Crops, Groundnuts, and Palm Oil CD29 - Cassava, Maize, and Groundnuts CD30 - Market Gardening and Staple Crops CD31 - Kongo-Central Intensive River Fishing, Staple Crops, and Market Gardening CD32 - Coastal Fishing with Staples Production and Market Gardening CD33 - Forest Staple Crops, Cash Crops, and Market Gardening CD34 - Kinshasa Peri-Urban

Seasonal Calendar and Reference Year

Seasonality is a critical component of rural livelihoods. Seasonal consumption patterns are linked to changes in interannual access to different food and cash income sources, as well as season-specific expenditure requirements (like school fees, agricultural inputs, and health costs related to seasonal sicknesses like malaria).

As noted above, the DRC experiences a complex seasonality pattern due to its vast size and diverse geographical features. The primary seasonality in the DRC is marked by the alternation between Rainy and Dry Seasons, though the timing and intensity of these seasons vary in different parts of the country. In the central and northern parts of the country, the year is typically divided into two main Rainy Seasons and two drier periods, whereas in the southern and eastern parts of the country, some areas have one long Rainy Season.

The HEA baseline profiles presented in this report compile information about seasonality for each livelihood zone that are summarized in a seasonal calendar. Figure 8 illustrates a seasonal calendar with one long Rainy Season and one main agricultural season, taking CD05 (*Southern Tanganyika-Mwero Lake Fishing*) as an example, and Figure 9 shows another calendar with two Rainy Seasons and two separate agricultural seasons, taking CD20 (*Central Basin Staple Crops, Fishing, and Charcoal*) as an example.

Figure 8. Seasonal Calendar with One Agricultural Season: CD05

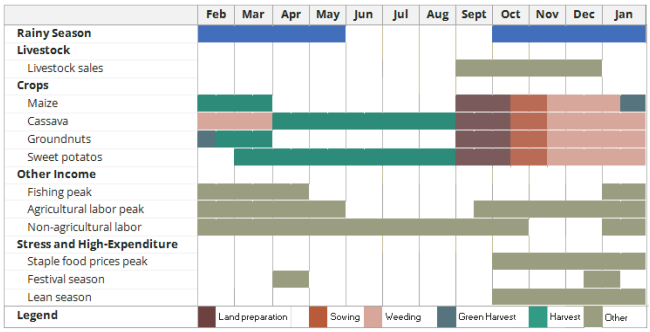
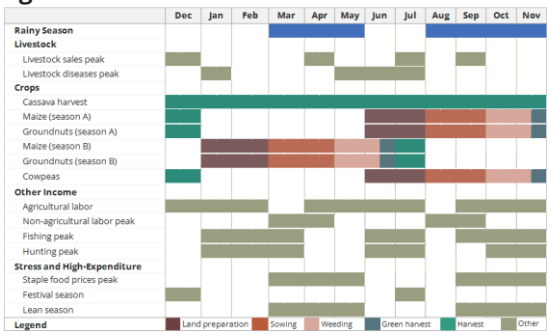


Figure 9. Seasonal Calendar with Two Agricultural Seasons: CD20



Apart from crop production, other seasonal activities are captured in the seasonal calendars for each livelihood zone, including livestock sales, labor activities, other important income sources like firewood sales and petty trade, periods of peak staple food prices, human diseases, and the Lean Season.

The Lean Season usually falls before the main harvest, although the length and intensity varies by wealth group and also by year type. In general, the Lean Season in livelihood zones in the DRC is not as severe as in more arid countries in Africa. The Lean Season marks a period when households have lower access to food and income and greater expenses.

The main type of local labor demanded and offered is agricultural, which is available during the Rainy Season, or in the case of land preparation, just before the Rainy Season starts. Livelihood zones with two crop production seasons provide agricultural work opportunities throughout the year.

Each baseline assessment refers to a specific period called the reference year. In HEA, the reference year is a recent consumption year, starting with the month when the main period of crop production begins (i.e., harvesting), usually marking the end of the main Lean Season. The timing of the reference year was different in different livelihood zones in the DRC. Table 4 outlines the reference year for each livelihood zone.

The consumption year for some zones in eastern DRC starts with a main harvest in December, January, or February. Other zones in the east start with a main harvest in May or June. The consumption year for most zones in western DRC starts with a main harvest in December or January. A few zones start with a main harvest in July. In this report, the harvest in December, January, or February is called Season A; the harvest in May, June, or July is called Season B.

The reference years are generally considered typical or representative years, neither the best nor the worst year, although insecurity was present to varying degrees in the DRC, especially in the east. The reference year, because it was typical in the recent context, provides a view into how households maximize their opportunities in such years; this allows analysts and program planners

to consider the livelihood alternatives that households themselves emphasize most when not struggling to just get through a lean year.

Table 4. Reference Year of Livelihood Zone Baseline Profiles in the DRC

Zone	Reference Year	Zone	Reference Year
CD01	May 2022–April 2023	**CD18**	January 2023–December 2023
CD02	May 2023–April 2024	**CD19**	November 2022–October 2023
CD03	January 2022–December 2022	**CD20**	December 2022–November 2023
CD04	March 2023–February 2024	**CD21**	July 2022–June 2023
CD05	February 2023–January 2024	**CD22**	January 2023–December 2023
CD06	January 2023–December 2023	**CD23**	January 2023–December 2023
CD07	January 2023–December 2023	**CD24**	January 2023–December 2023
CD08	February 2022–January 2023	**CD25**	December 2022–November 2023
CD09	December 2022–November 2023	**CD26**	January 2023–December 2023
CD10	June 2021–May 2022	**CD27**	December 2022–November 2023
CD11	December 2022–November 2023	**CD28**	December 2022–November 2023
CD12	June 2023–May 2024	**CD29**	January 2023–December 2023
CD13	June 2023–May 2024	**CD30**	January 2023–December 2023
CD14	December 2022–November 2023	**CD31**	January 2023–December 2023
CD15	December 2021–November 2022	**CD32**	January 2023–December 2023
CD16	July 2022–June 2023	**CD33**	January 2023–December 2023
CD17	July 2022–June 2023	**CD34**	January 2023–December 2023

Wealth Breakdown

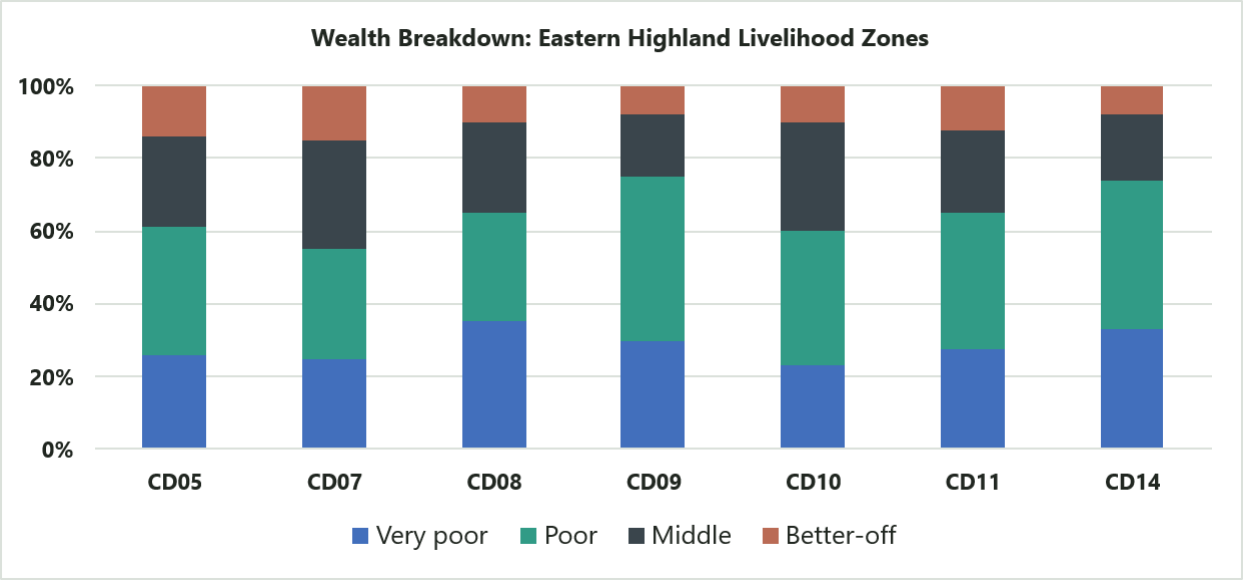
HEA baseline information is disaggregated by geography (common livelihood zones) and by wealth (common wealth groups). It is disaggregated as such because people's access to food and cash income and their expenditure requirements depend on where they live and on their wealth status.

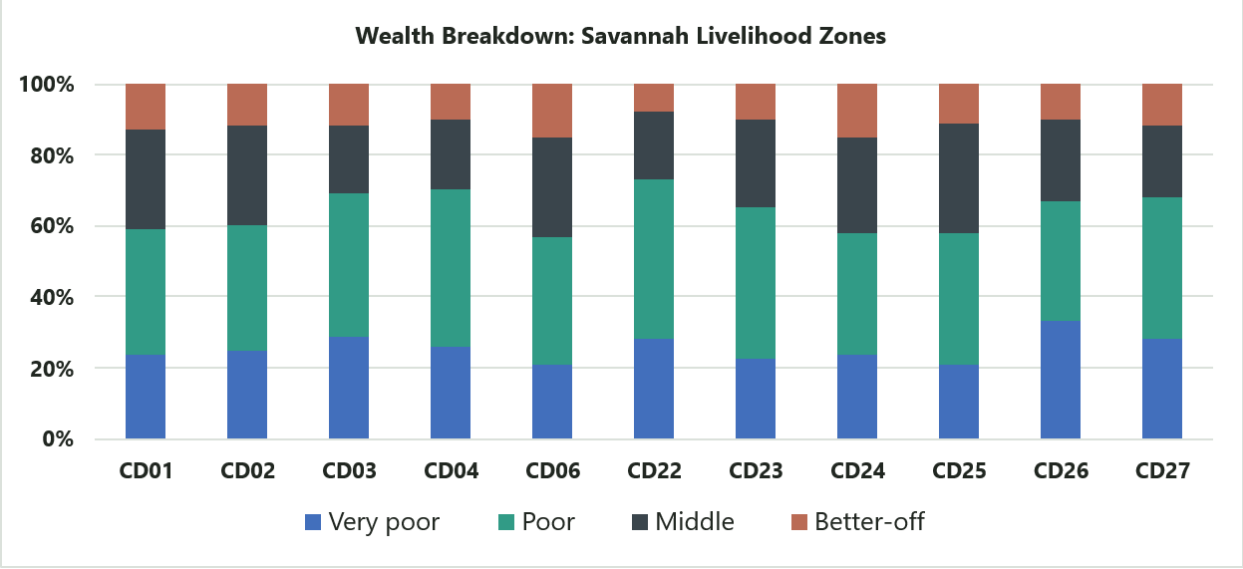
Key determinants of wealth in the DRC include the amount of land cultivated by the household, the types and numbers of livestock owned by the household, and the amount of other off-farm

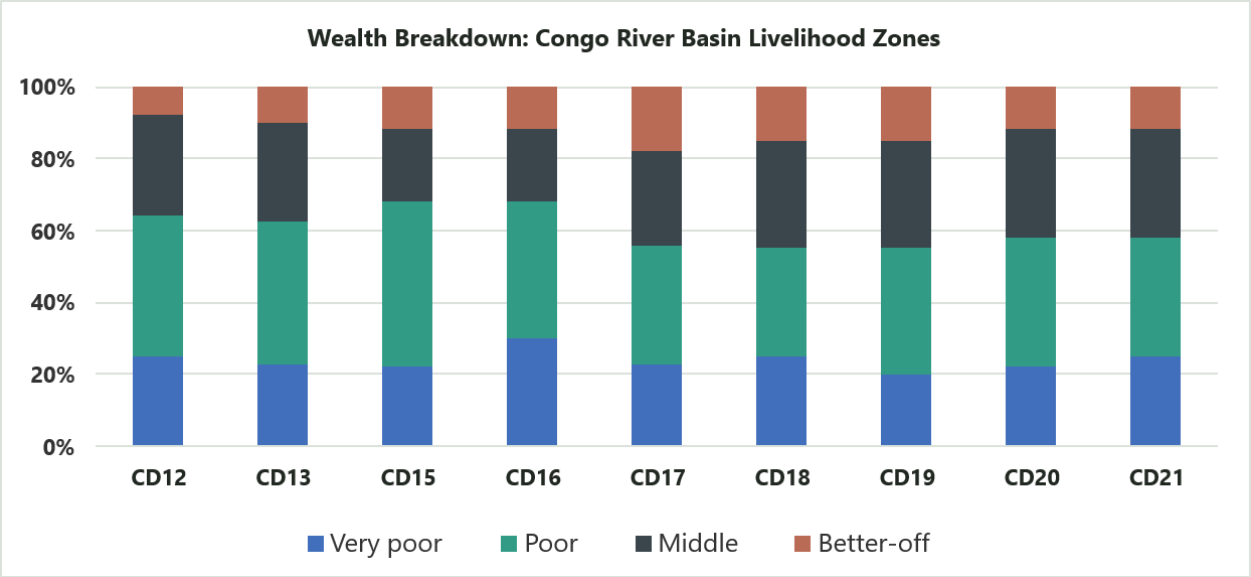
productive assets (e.g., boats and fishing equipment in fishing zones). Assets generally increase with wealth, as does household size, with wealthier people typically living in larger households.

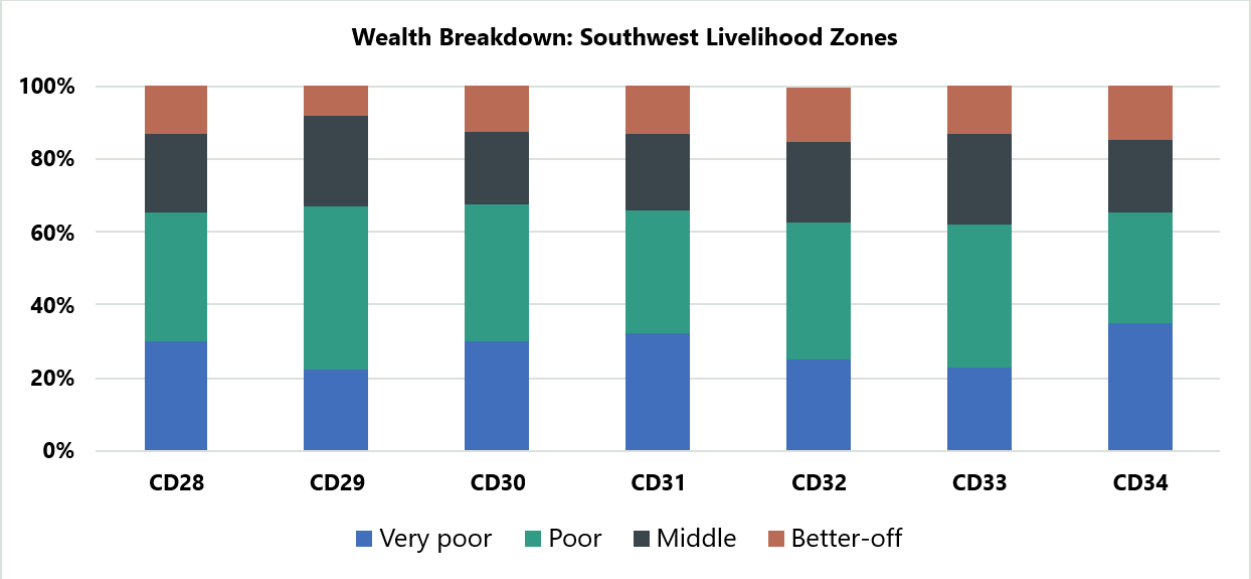
The graphs in Figure 10 illustrate the percentage of households falling into each wealth group in the four regional groupings. All results are the mid-point of a range.

Figure 10. Wealth Breakdown, by Region







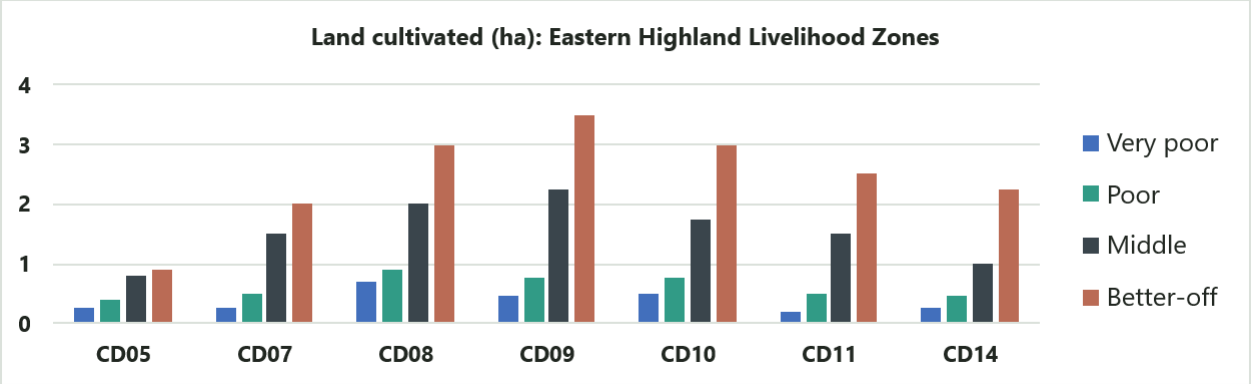


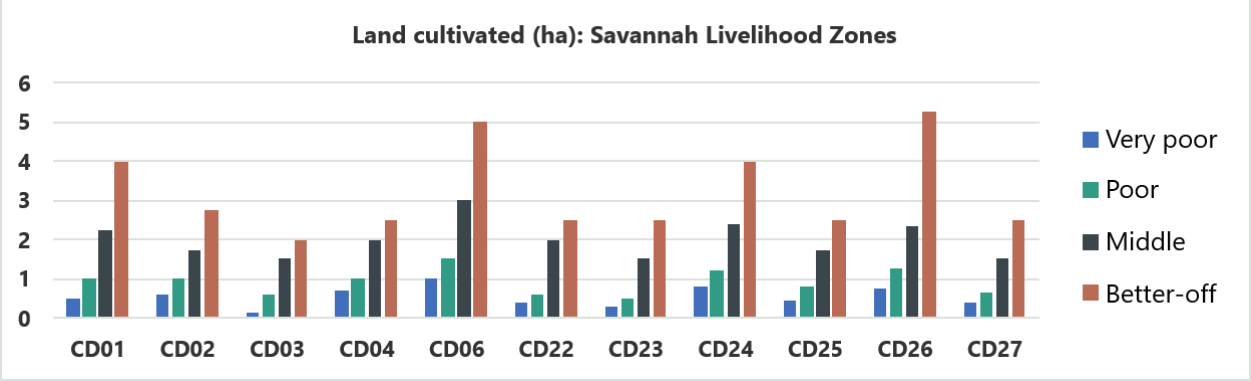
In most livelihood zones, the poor wealth group covers the largest percentage of households in the zone, and the better-off wealth group covers the smallest percentage. In general, approximately 55-75% of households are very poor or poor, and 5-20% of households are better-off. The proportion of very poor and poor households appears slightly greater in CD09 (*Eastern Highlands Mixed Farming*), CD14 (*Northeast Highlands Agriculture*), and CD22 (*Lighter Forest with Rice and Cassava*), while the proportion of poor households appears somewhat lower in zones CD07 (*High Food Production and Trade*), CD18 (*River Fishing, Crops, and Livestock*), and CD19 (*River, Lagoon, and Wetlands Fishing and Staple Crops*).

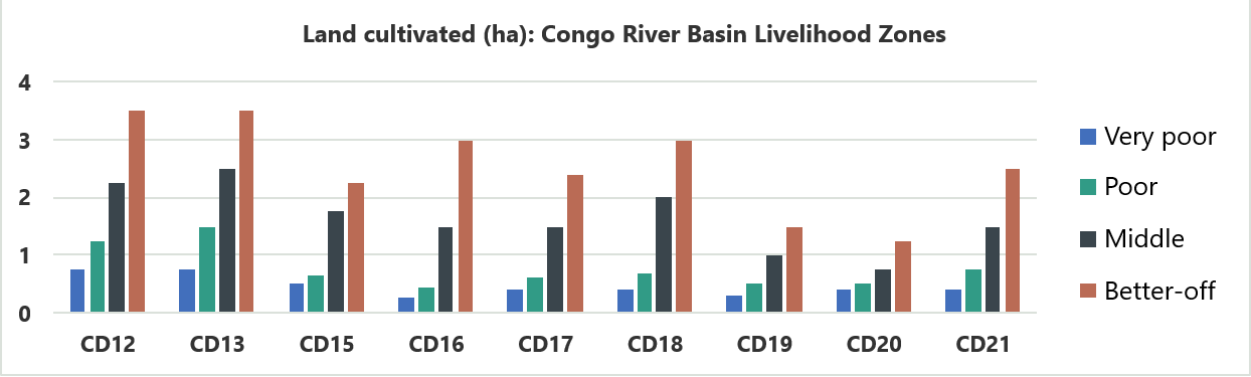
The amount of land cultivated by households varies by livelihood zone and wealth group. The graphs in Figure 11 show the typical land area cultivated (in hectares [ha]) by households in each wealth group and livelihood zone. All results are the mid-point of a range, and it should be noted

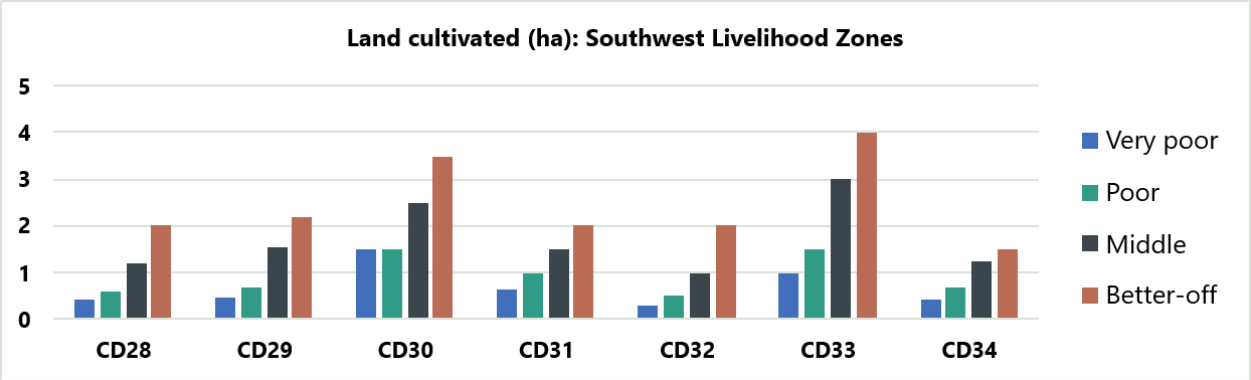
that villagers had difficulty accurately estimating land areas cultivated in many zones. The field teams did their best to estimate land areas together with key informants.

Figure 11. Amount of Land Cultivated, by Region







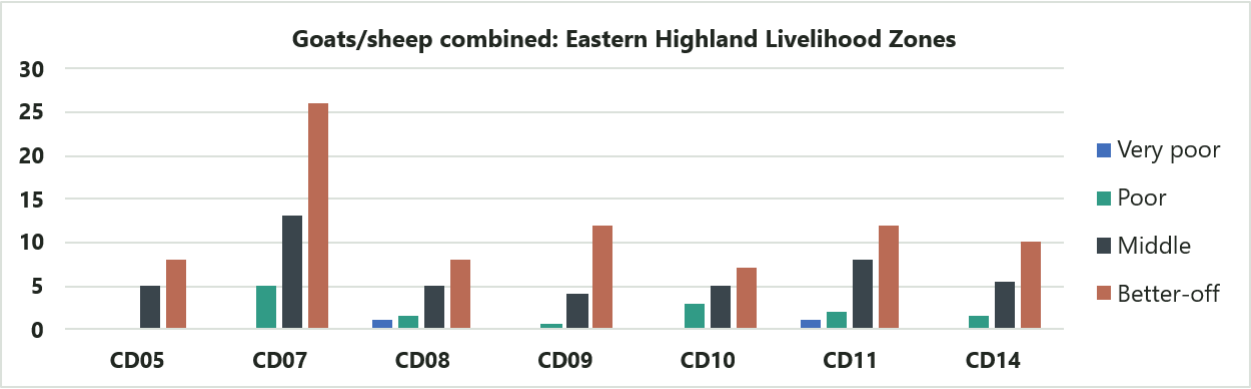


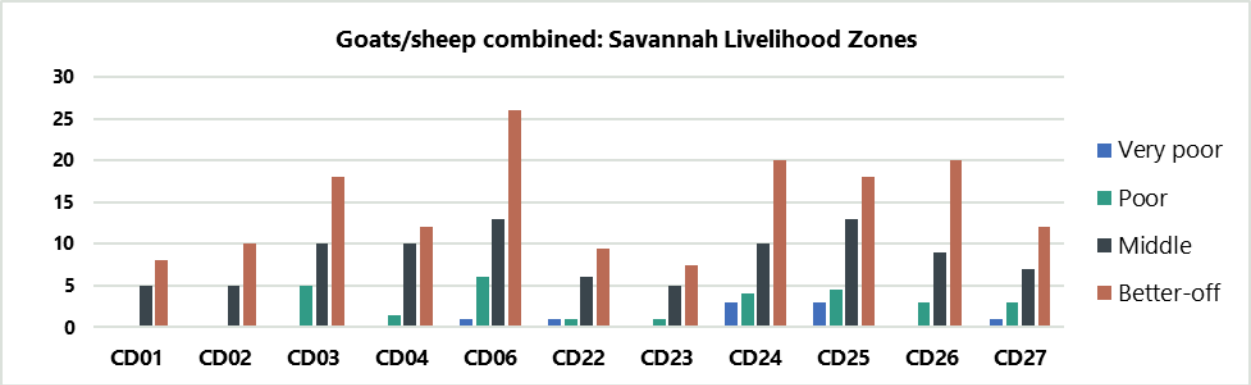
Better-off households cultivate the largest land areas, while very poor households cultivate the smallest land areas. Households in CD06 (*Maniema Savannah Agriculture*) cultivate the most land (weighted average of nearly 2.5 ha per household). Land is freely available in this zone, and the population density is low. Households in CD05 (*Southern Tanganyika-Mwero Lake Fishing*) cultivate the least land (weighted average of just over 0.5 ha per household). CD05 is a fishing zone located along the shores of Lake Tanganyika and Lake Mweru.

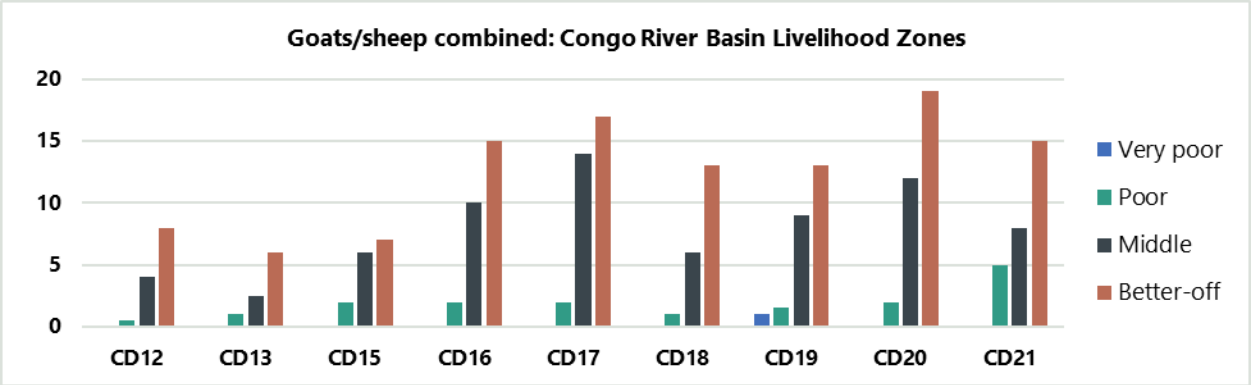
The most common types of livestock are goats, pigs, sheep, and poultry. Cattle are kept in about one-third of the livelihood zones in the country and generally only by wealthier households in a few zones in the Savannah (CD02, CD24, CD25, CD27), Congo River Basin (CD16, CD17, CD18), and Eastern Highlands bordering Uganda (CD08, CD10, CD11, CD14).

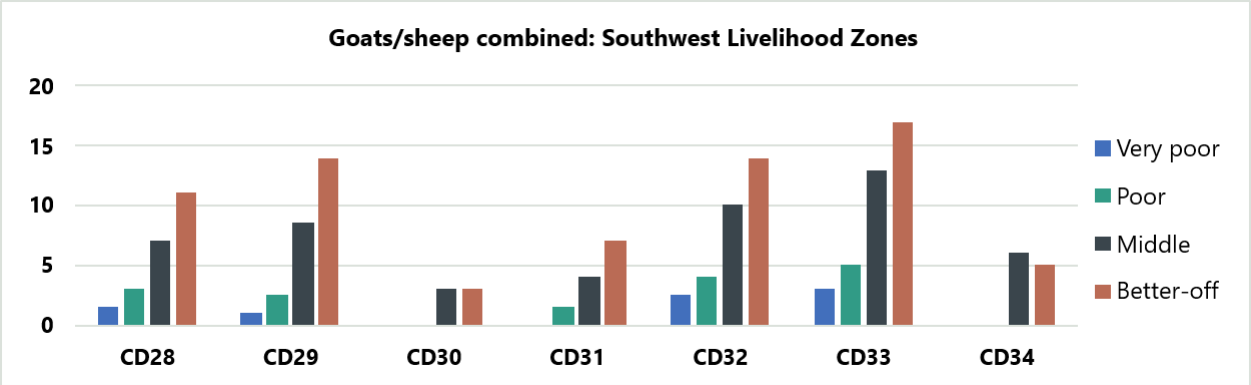
The graphs in Figure 12 show the typical number of goats and sheep owned by households in each wealth group and livelihood zone. The highest goat and sheep numbers are found in CD06 in the Savannah group of zones, CD07 in the Eastern Highlands group, CD20 in the Congo River Basin group, and in CD33 in the Southwest group.

Figure 12. Number of Goats and Sheep that Households Own, by Region







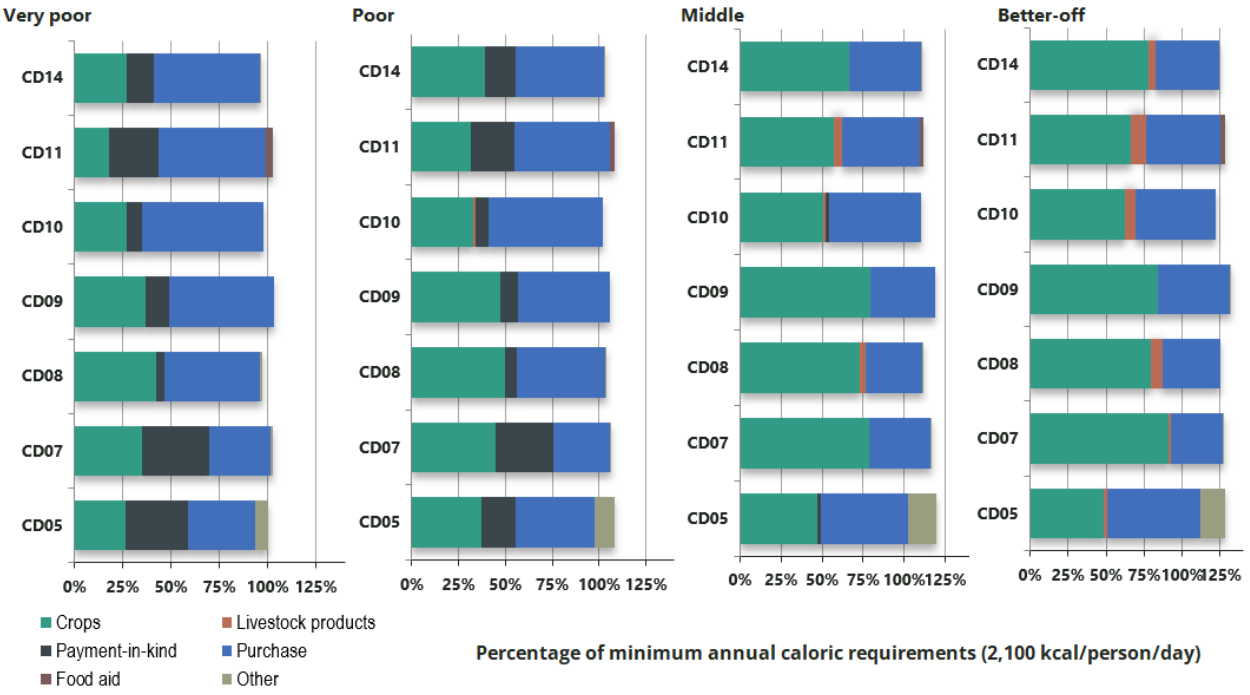


Sources of Food

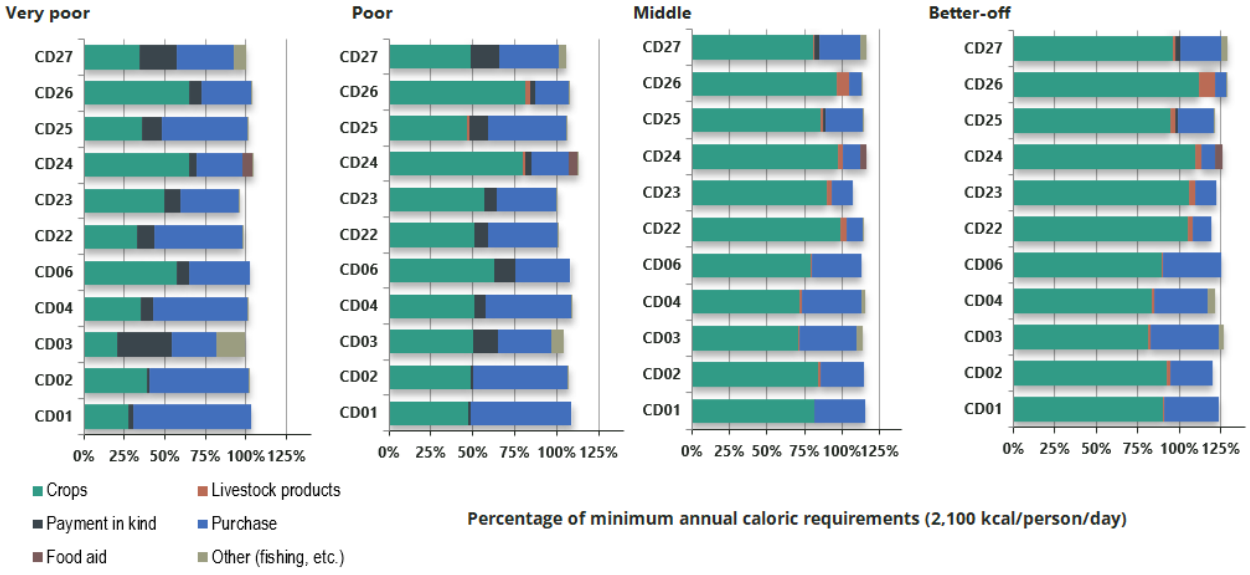
A few things stand out in the graphs in Figure 13, which compare the sources of food in the reference year for households in each wealth group and in different livelihood zones. In all zones, households in all wealth groups relied on two main sources of food to meet their annual minimum food requirements in the reference year: their own crops (in dark green) and food purchased in the market (in orange). Other food sources — payments in-kind, food aid (i.e., school feeding), own milk/meat, and fishing — were much less important.

Figure 13. Sources of Food, by Region

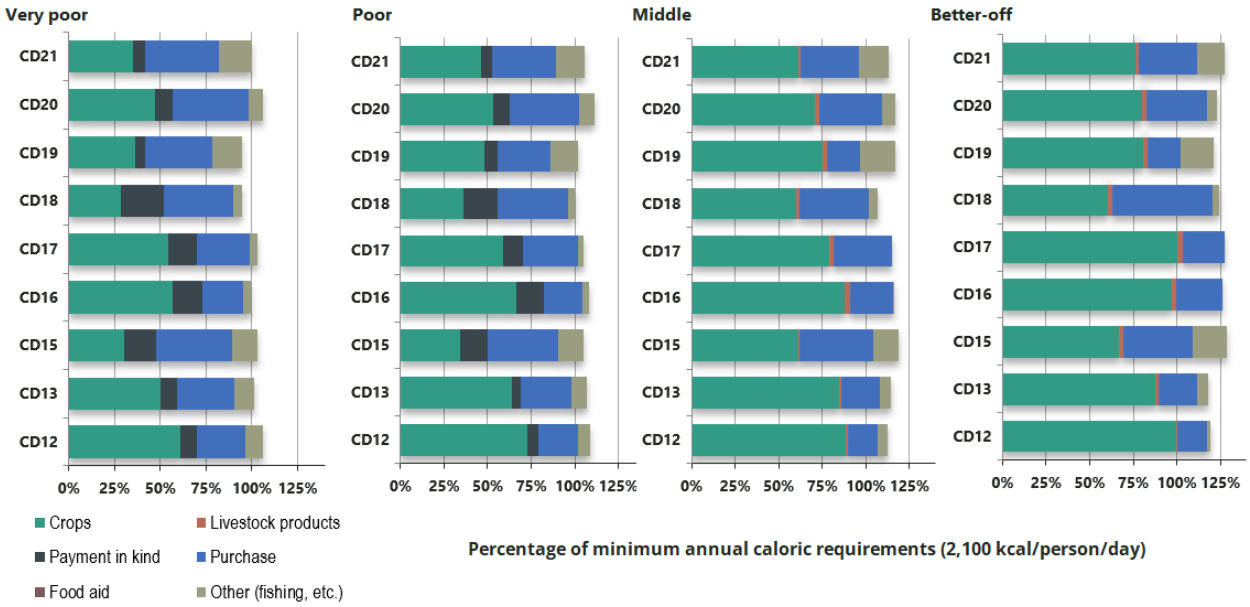
Eastern Highlands Livelihood Zones



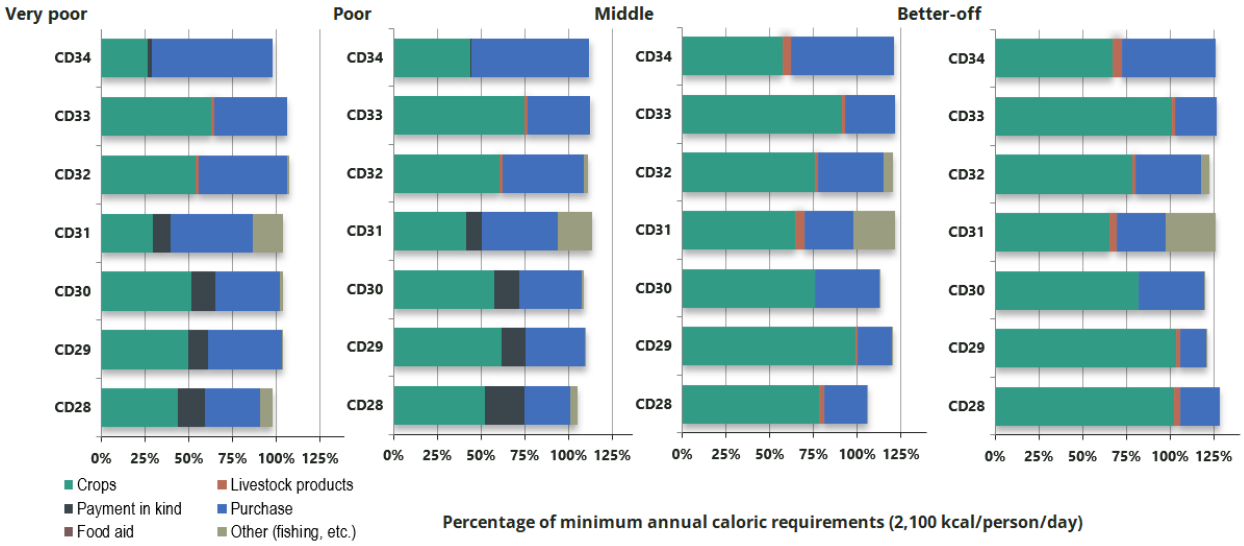
Savannah Livelihood Zones



Congo River Basin Livelihood Zones



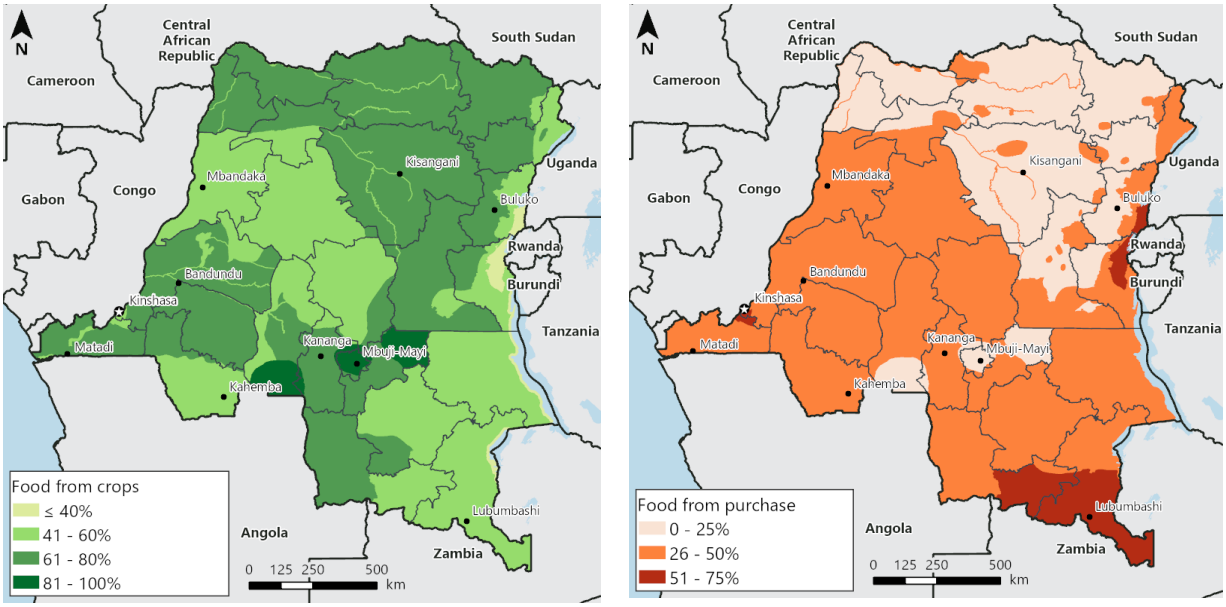
Southwest Livelihood Zones



Across all livelihood zones, the contribution of households' own crops to their sources of food increased with wealth in the reference year, while the contribution of purchased food decreased with wealth. Middle and better-off households obtain a much higher proportion of their food from their own crop production compared to very poor and poor households. The zones with the highest proportion of food from households' own crop production (weighted average across wealth groups) are CD24 (*Major Staples Production with Market Gardening, Livestock, and Artisanal Mining*), CD26 (*High Food Crop Production and Trading*), and CD33 (*Forest Staple Crops, Cash Crops, and Market Gardening*). The zones with the lowest proportion of food from households' own crop production are CD05 (*Southern Tanganyika-Mwero Lake Fishing*) and CD11 (*Virunga Volcanic Soils Cultivation and Cattle*).

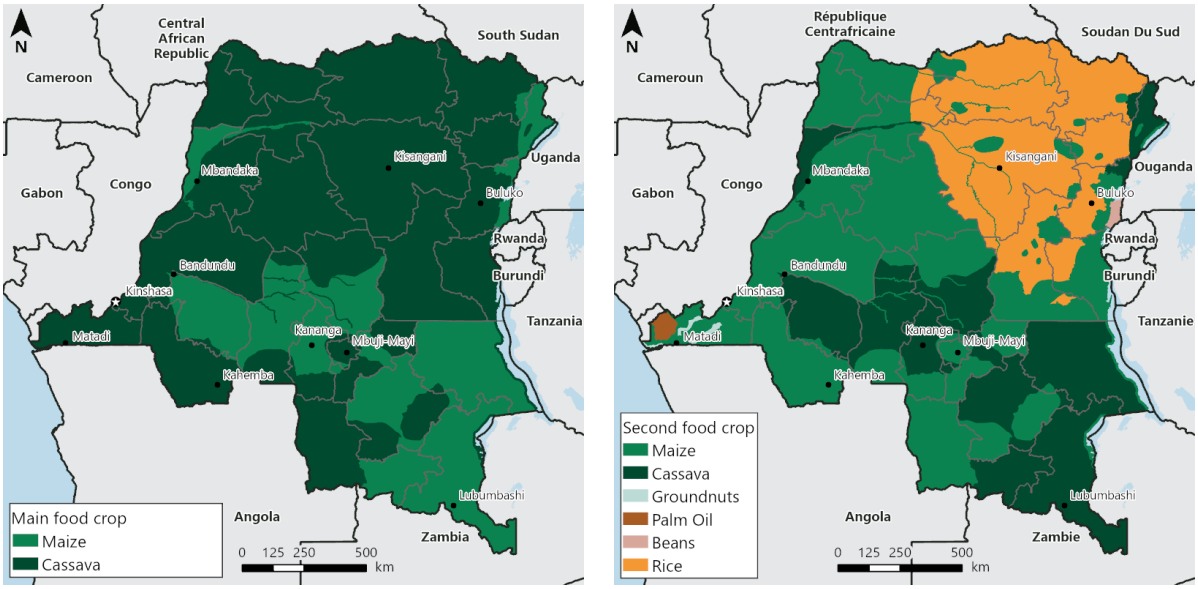
The attribute maps in Figure 14 show the percentage of food (weighted average across the wealth groups) obtained from households' own crop production and from market purchases across the country.

Figure 14. Percentage of Food from Own Production and Market Purchases



The main food crop and second food crop are illustrated in the attribute maps in Figure 15. Cassava or maize is the main food crop across the country. In many zones, cassava or maize is also the second food crop. The exceptions are CD12 and CD17 in the Congo River Basin group of zones (where rice is second); CD11 in the Eastern Highlands group (beans); and CD30, CD31, and CD32 (groundnuts) and CD33 (palm oil) in the Southwest group.

Figure 15. Main and Second Food Crops

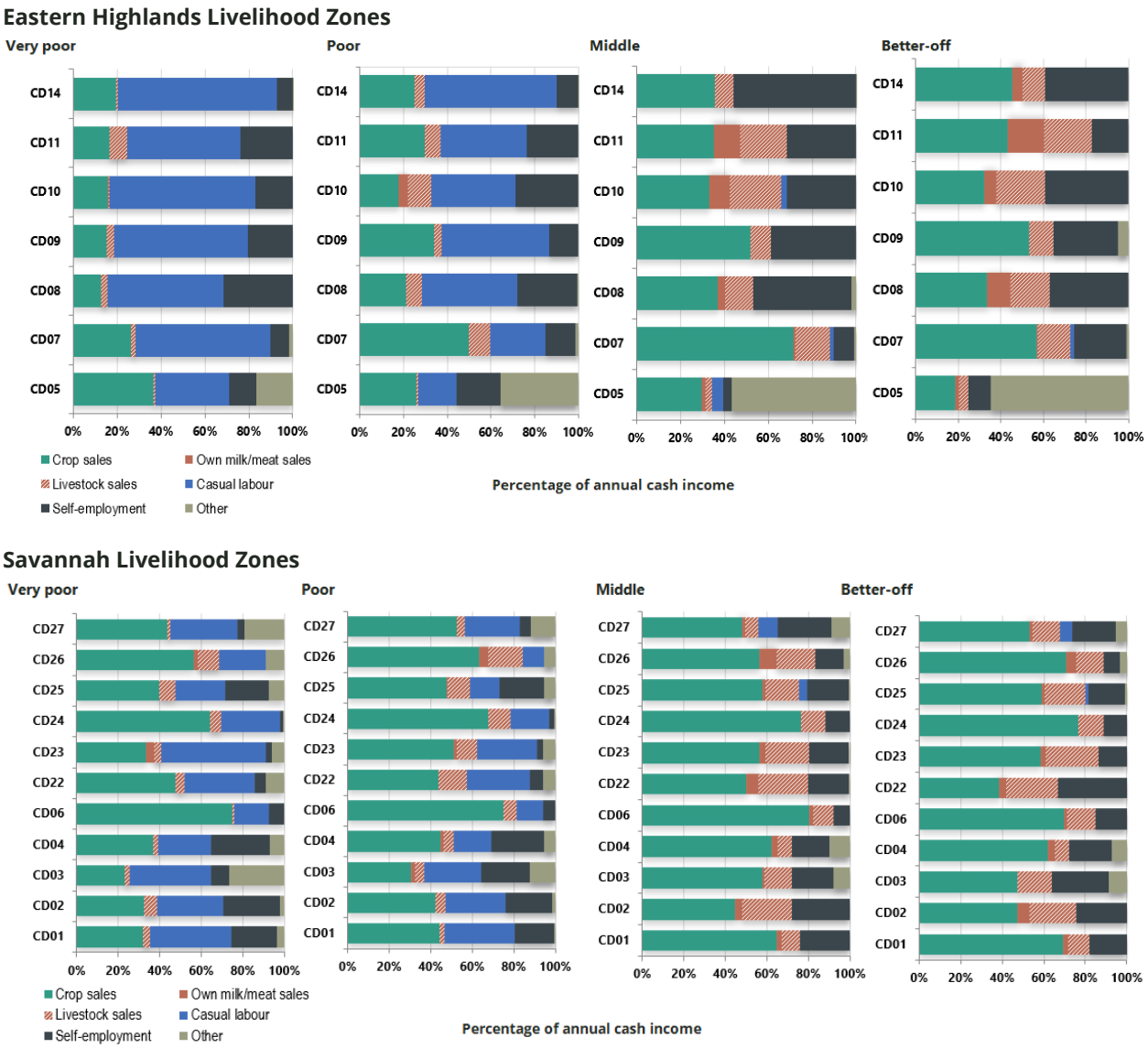


Sources of Cash

The graphs in Figure 16 compare the sources of cash income in the reference year for households in each wealth group and in different livelihood zones.

The contribution of crop sales (in dark green) and livestock sales (in dark purple) increased with wealth in the reference years. Crop sales were the most important source of cash income for middle and better-off households in most zones, although there were exceptions in zones where mining or fishing dominated. Casual work (in pale blue) was the most important income source for very poor households but also made a large contribution for poor households in most livelihood zones. Self-employment (in pale green) includes trading, firewood sales, transport, mining, and handicrafts, varying by livelihood zone. Fishing (in pale purple) was prominent in the fishing livelihood zones.

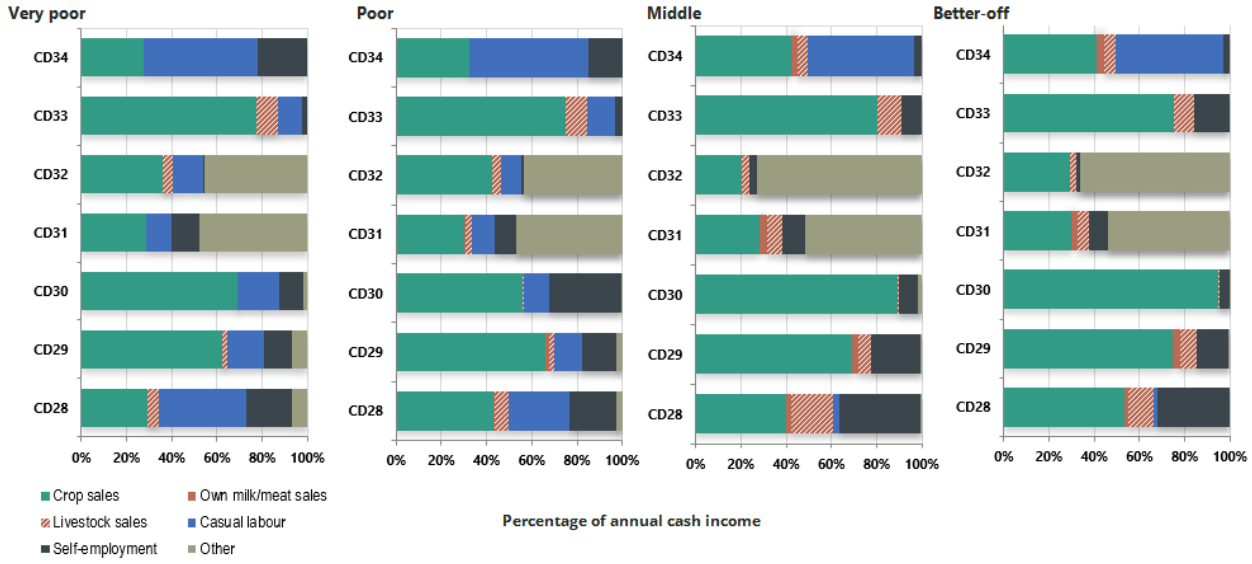
Figure 16. Sources of Cash Income, by Region



Congo River Basin Livelihood Zones

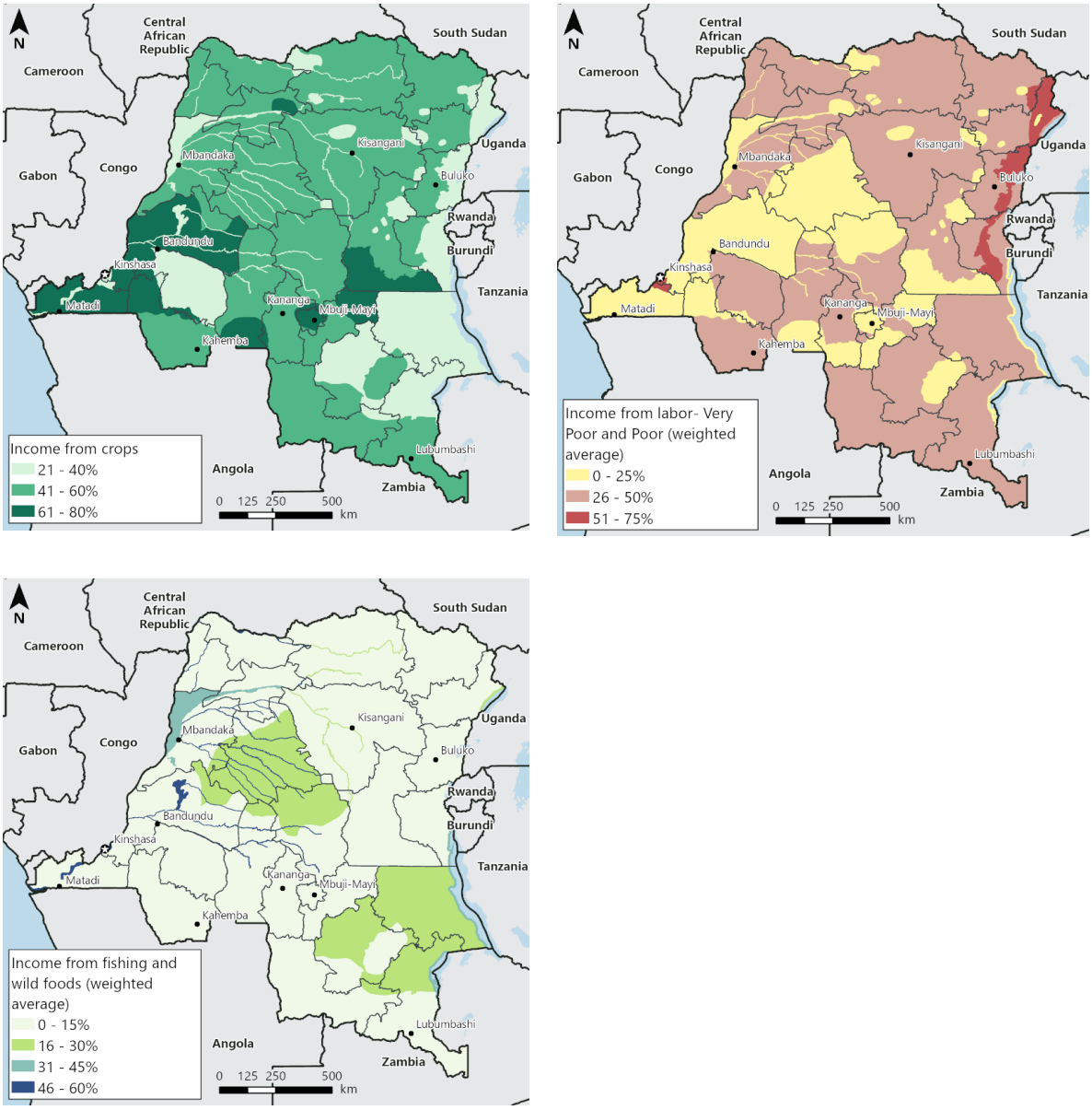


Southwest Livelihood Zones



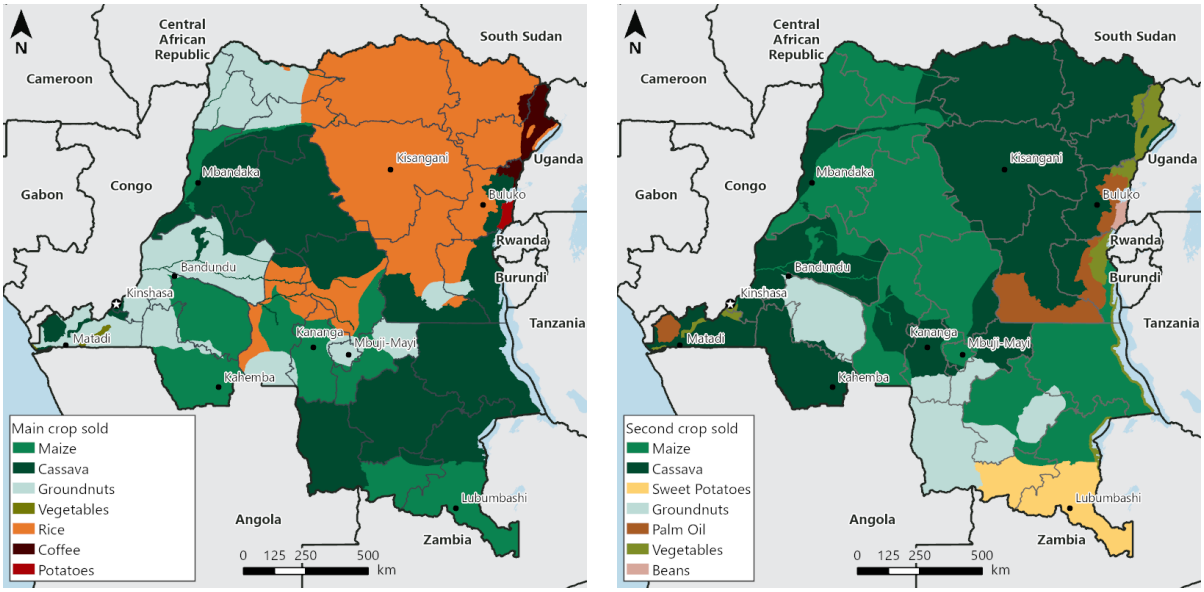
The attribute maps in Figure 17 provide a different visualization for cash income sources, similar to the information presented in the graphs above. They show the percentage of cash income (weighted average across wealth groups) obtained from different sources across the country.

Figure 17. Percentage of Cash Income from Crops, Labor, and Fishing and Wild Foods



The main and second crops sold are illustrated in the attribute maps in Figure 18. While the main food crops that were highlighted in Figure 15 above (cassava, maize, rice, groundnuts, palm oil, and beans) are important income sources for households in many zones, these maps highlight zones where other crops are very important for cash income. These include potatoes in CD11 (*Virunga Volcanic Soils Cultivation and Cattle*), coffee in CD14 (*Northeast Highlands Agriculture*), vegetables in CD30 (*Market Gardening and Staple Crops*) and CD32 (*Coastal Fishing with Staples Production and Market Gardening*), and sweet potatoes in CD01 (*Katanga: Maize and Cassava Production with Urban and Mining Labor*).

Figure 18. Main and Second Crops Sold

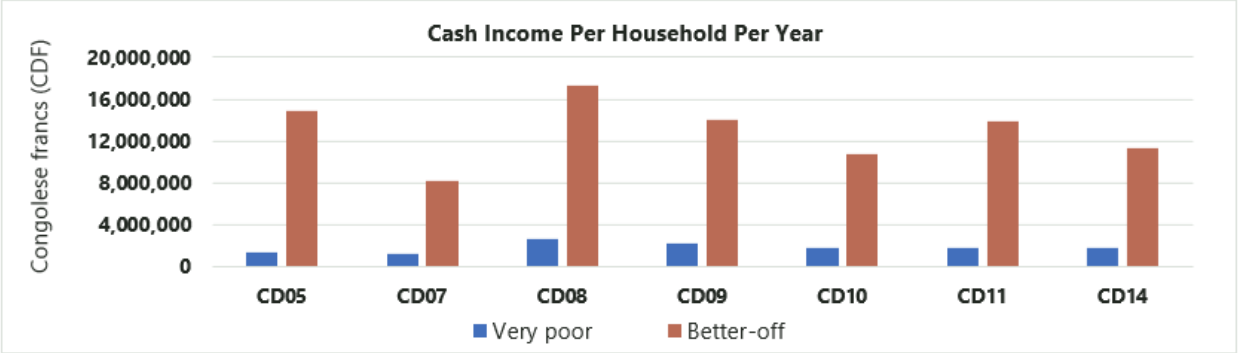


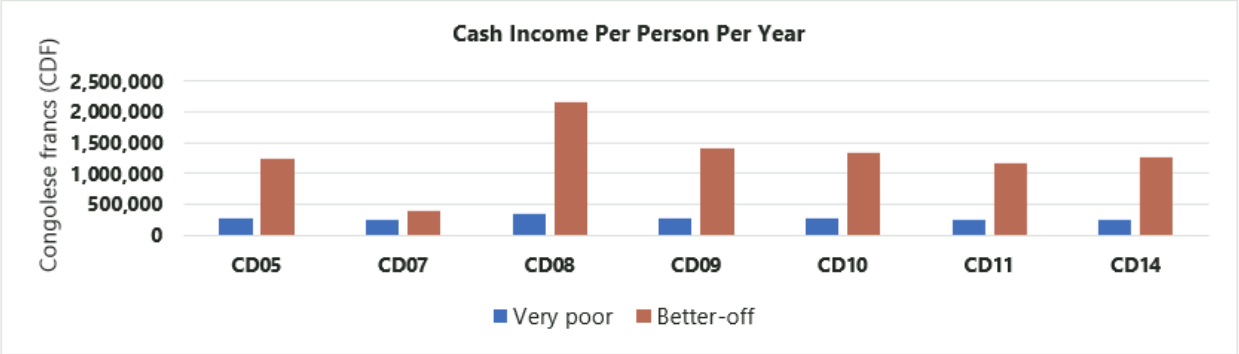
Absolute levels of cash income increase progressively across wealth groups. The pairs of graphs In Figure 19 compare the annual cash income (in Congolese francs [CDF]) of very poor and better-off households in each zone's reference year. Because of large differences in household size (which also increases with wealth), differences in total cash income per household (the top graph of each pair) are greater than differences in total cash income per person (the bottom graph of each pair) across wealth groups. For example, in CD07 (*High Food Production and Trade*), total cash income per household is nearly seven times larger for better-off households than for very poor households. In contrast, total cash income per person is less than twice as large. In another example, in CD25 (*Intensive Staples Production with Artisanal Mining*), total cash income per household is nearly 10 times larger for better-off households than for very poor households. In contrast, total cash income per person is three to four times as large. All figures are the mid-point of a range.

The highest cash income levels by far are found in CD32 (*Coastal Fishing with Staples Production and Market Gardening*), a coastal livelihood zone with substantial sea fishing and market gardening that supplies Kinshasa and neighboring areas of Angola.

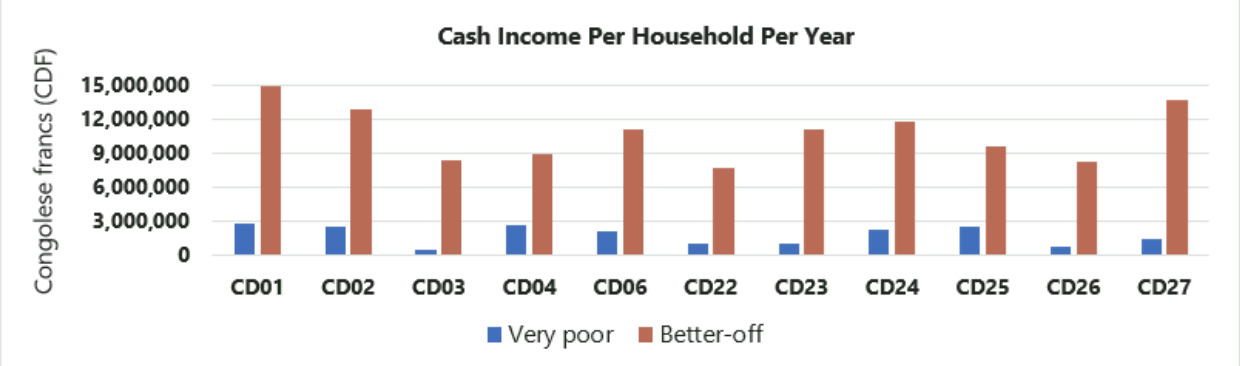
Figure 19. Cash Income Per Household and Per Person Per Year, by Region

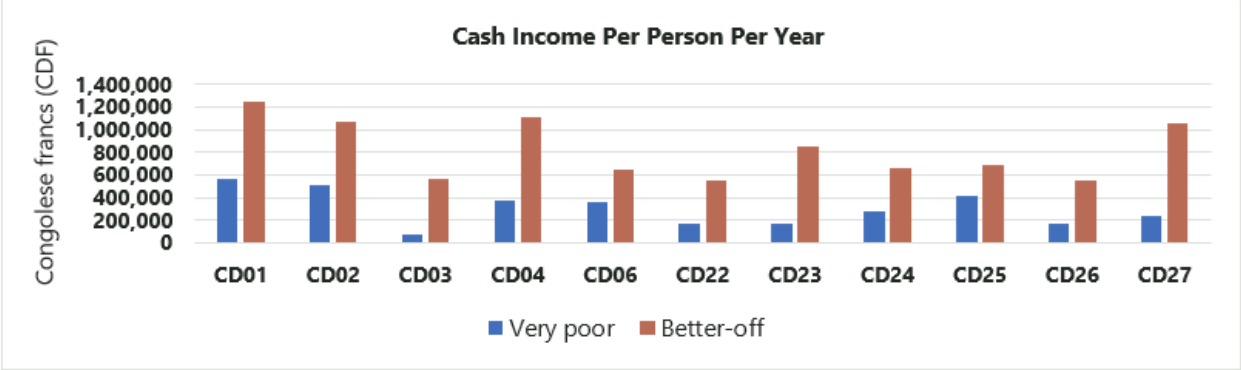
Eastern Highlands Livelihood Zones



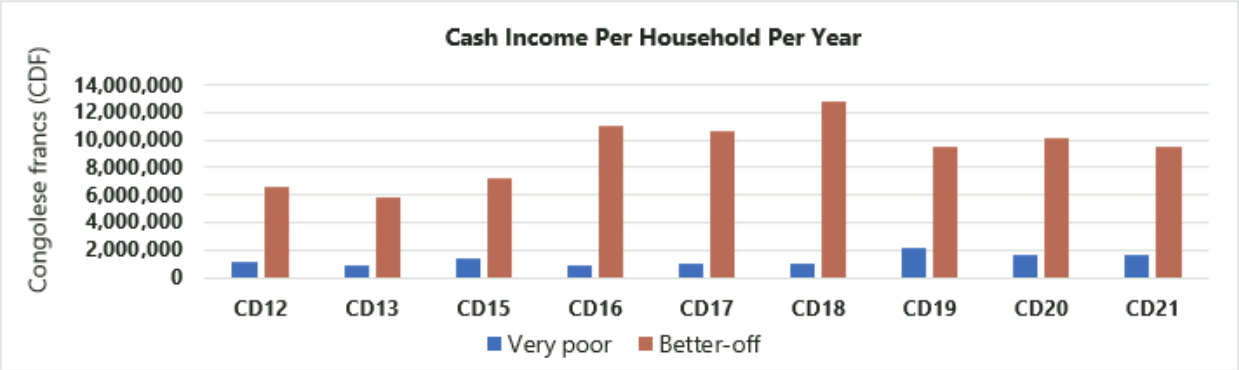


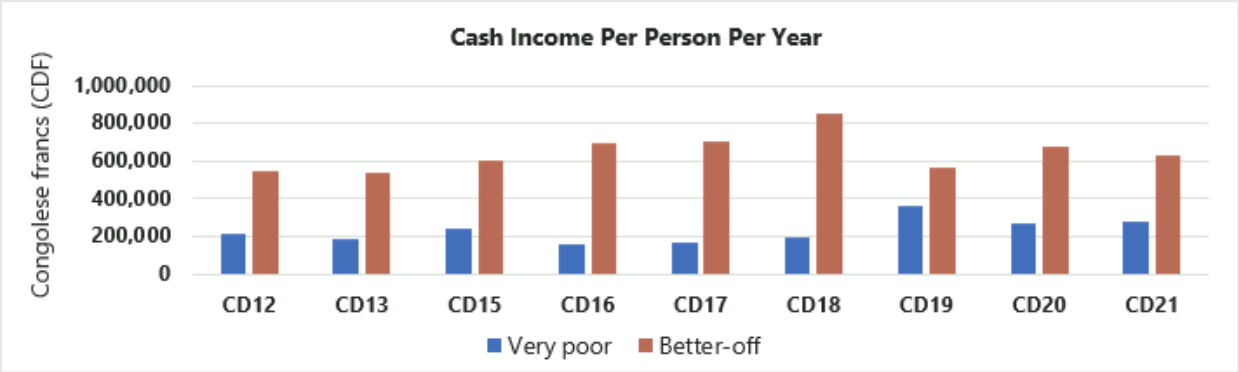
Savannah Livelihood Zones



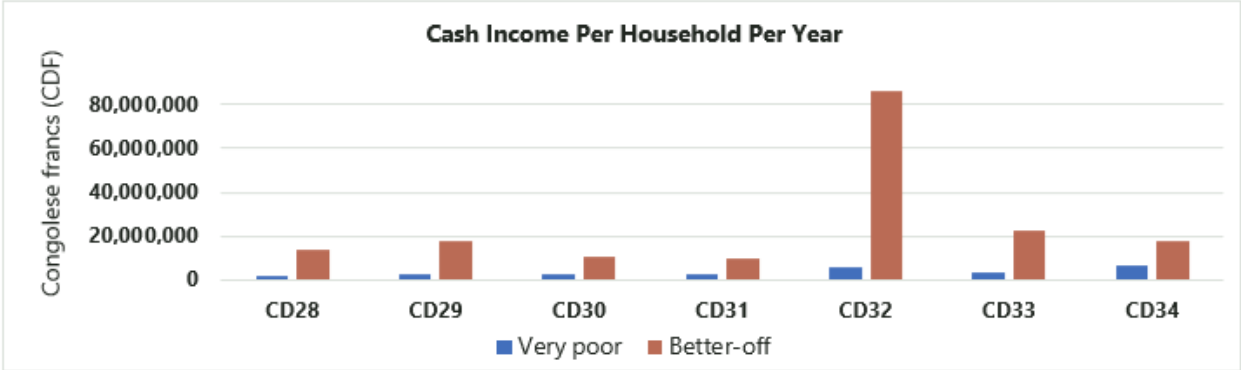


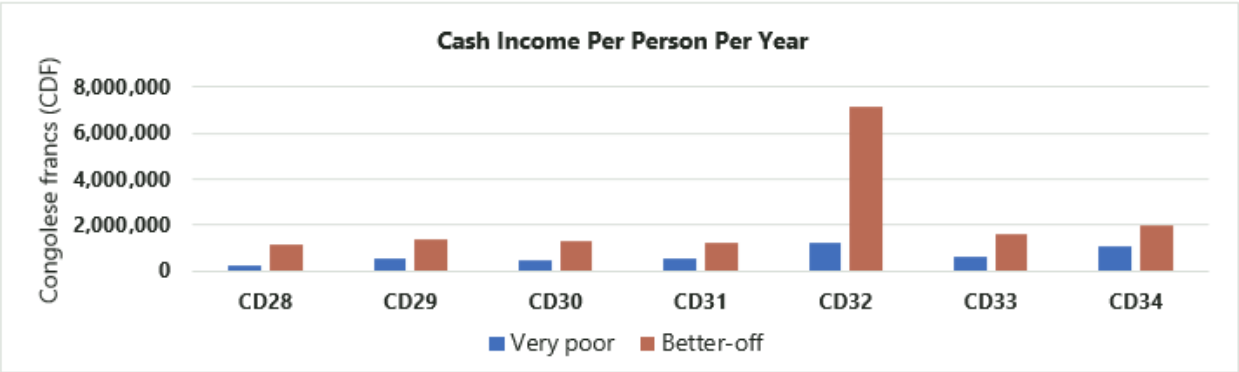
Congo River Basin Livelihood Zones





Southwest Livelihood Zones



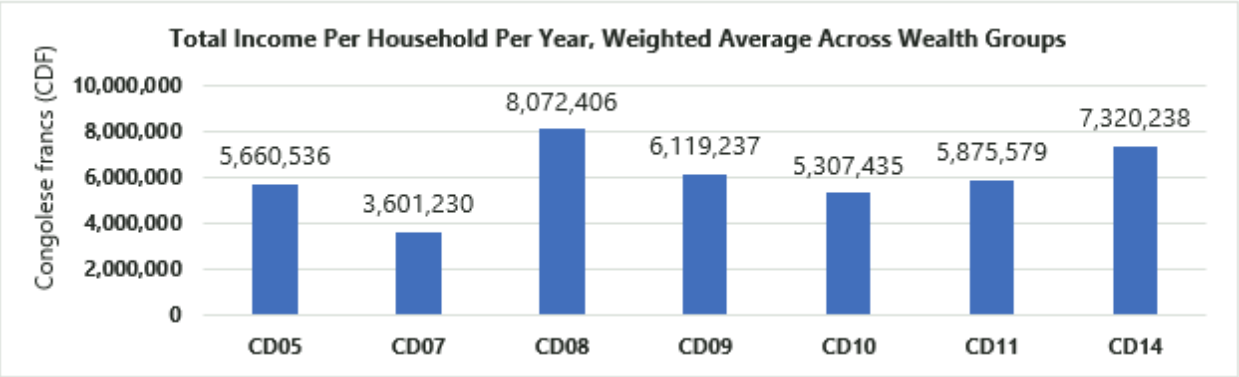


Total Income (Food + Cash)

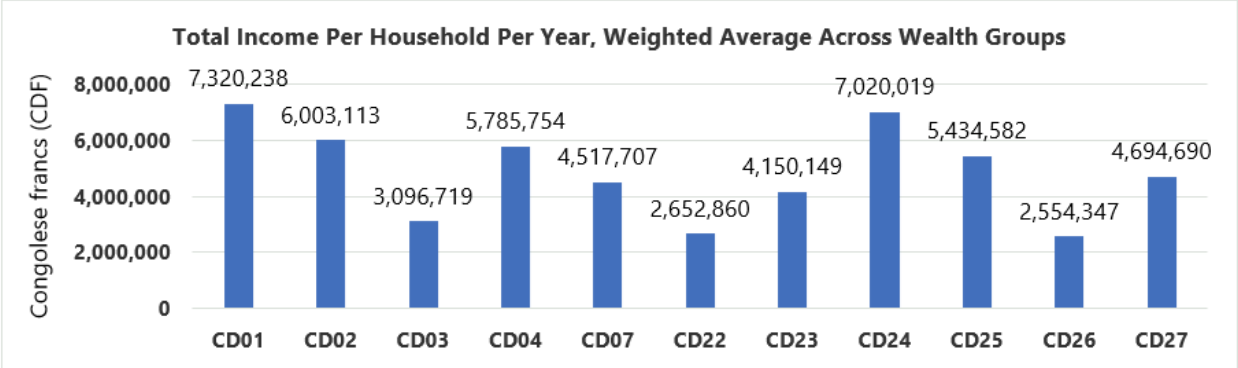
The graphs in the previous sections provided a comparison of food income and cash income separately. In this section, we look at total income (food plus cash), which is a more complete representation of "real" income than cash income alone, especially in areas where people produce a significant proportion of their food. It adds up all the sources of food and all the sources of cash income that households generate in the reference year and uses a cash equivalent to express the total value, with all wealth groups adjusted to the same household size. However, total income does not represent a full picture of household wealth. Livelihood zones with high total income often also have high total expenditures to sustain those livelihoods. The graphs in Figure 20 show total income in CDF as a weighted average across the livelihood zones in each of the four regions.

Figure 20. Total Income (Food + Cash) Per Household Per Year, by Region

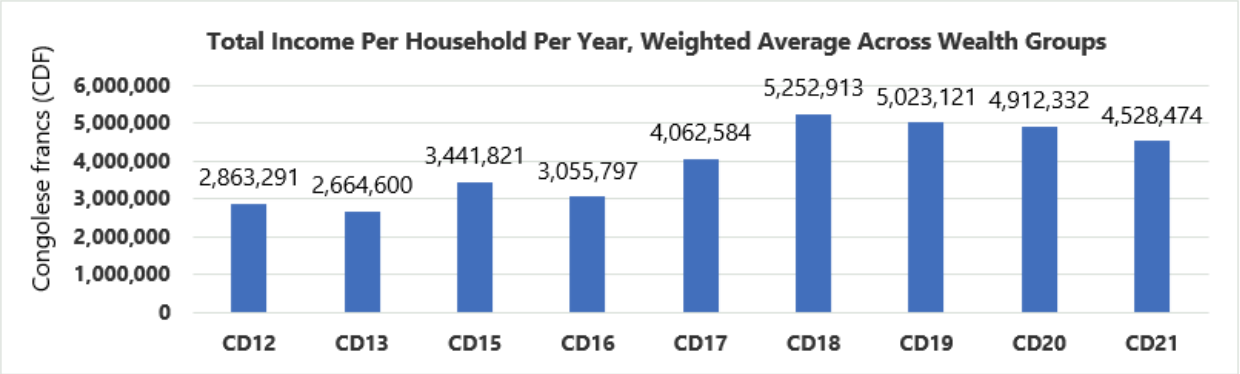
Eastern Highlands Livelihood Zones



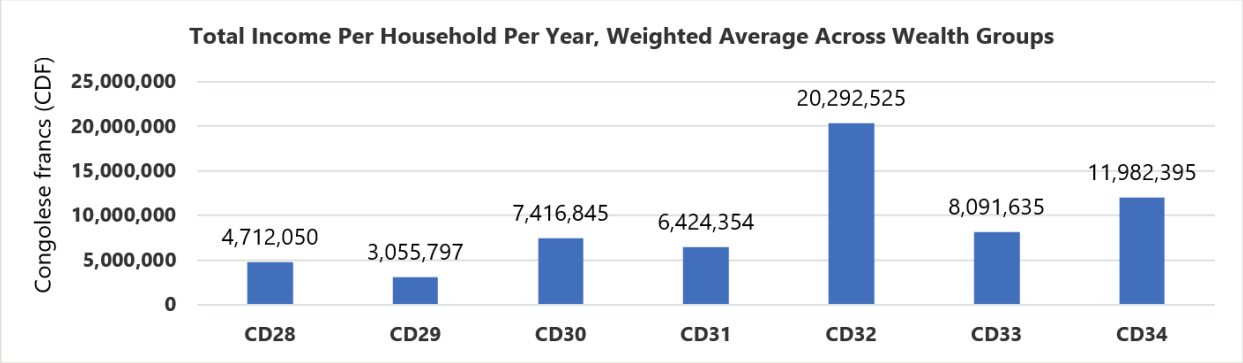
Savannah Livelihood Zones



Congo River Basin Livelihood Zones



Southwest Livelihood Zones



CD32 (*Coastal Fishing with Staples Production and Market Gardening*) and CD34 (*Kinshasa Peri-Urban*) had the highest total income levels in the reference year across all 34 livelihood zones. These are the most urbanized and densely populated livelihood zones in the country. Prices in CD32 are heavily influenced by the neighboring Angolan economy, while CD34 is on the outskirts of Kinshasa city.

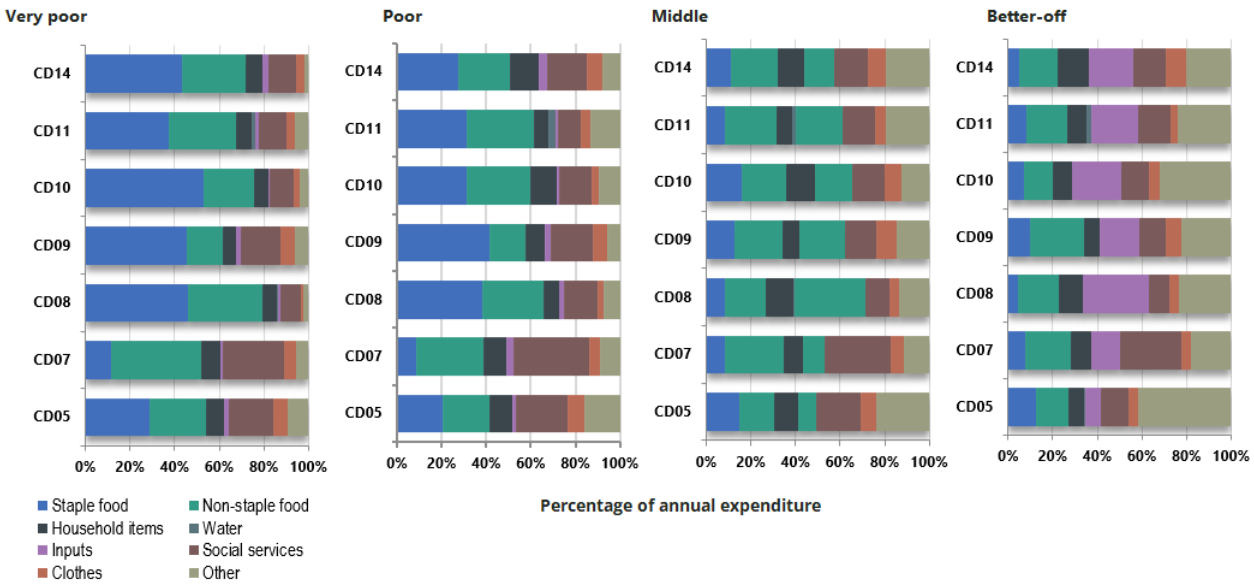
Expenditure Patterns

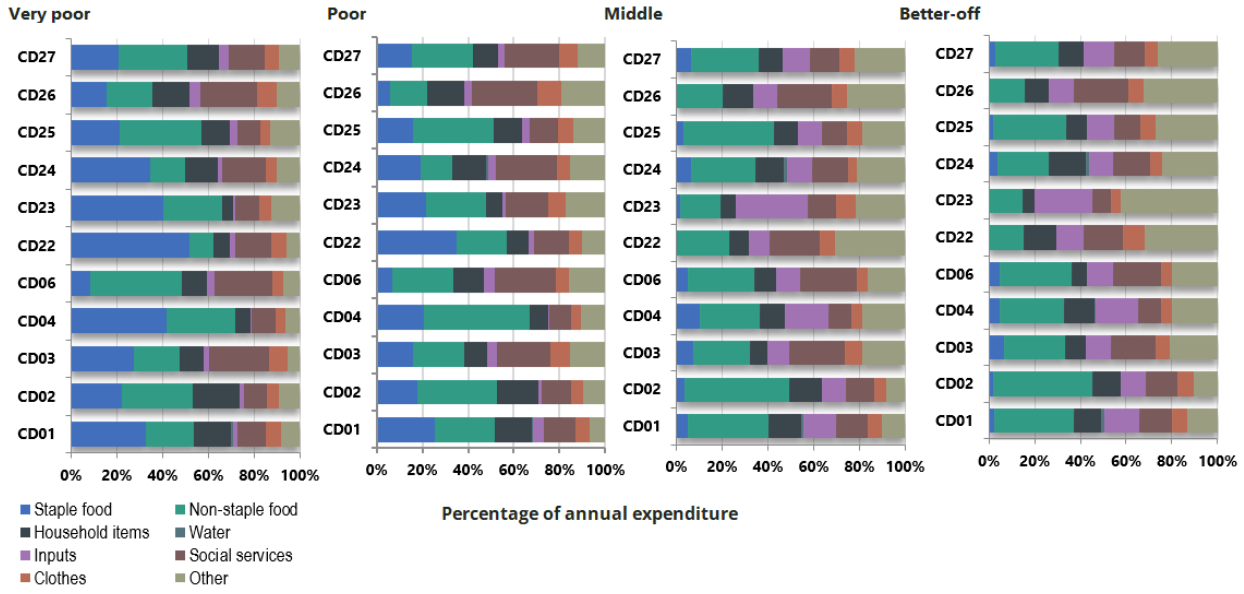
The graphs in Figure 21 compare expenditure patterns in the reference year for households in each wealth group and in different livelihood zones.

As expected, very poor and poor households spend a larger portion of their annual income on staple food (in yellow) and non-staple food (in teal), reaching a combined high of 75% for very poor households in CD10 (*Savannah Midland Agriculture*) in the east of the country.

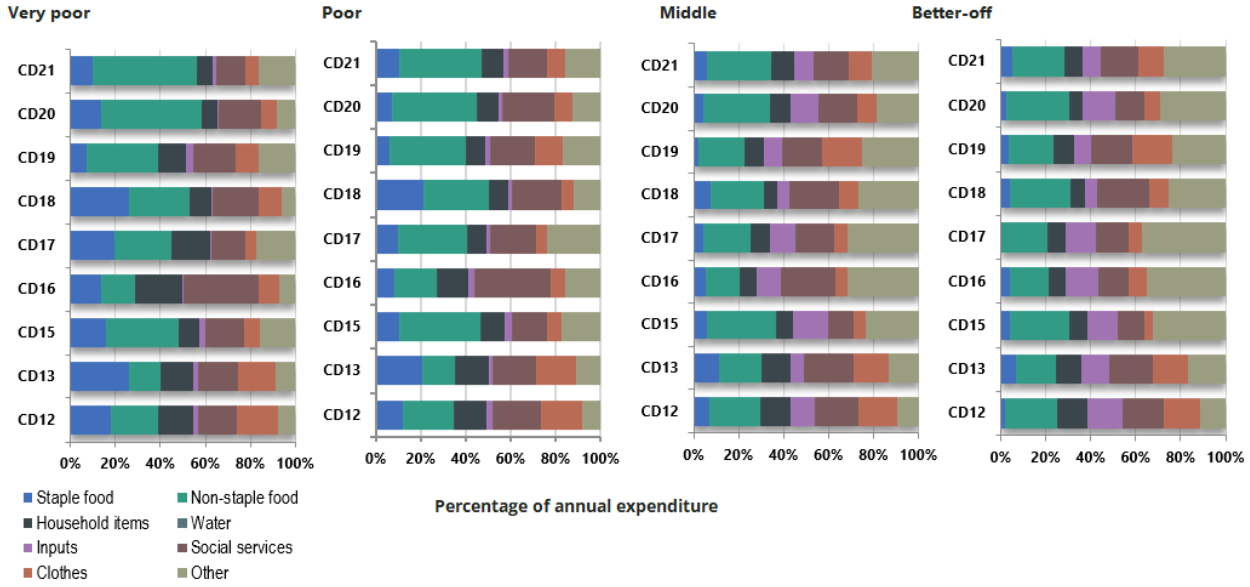
The opposite trend is apparent with inputs (in orange). Middle and better-off households devote a larger proportion of their income to buying inputs (e.g., livestock drugs, seeds, tools, fertilizer, pesticide, irrigation, agricultural and fishing labor, and fishing equipment) than poorer households.

Figure 21. Expenditure Patterns in the Reference Year, by Region

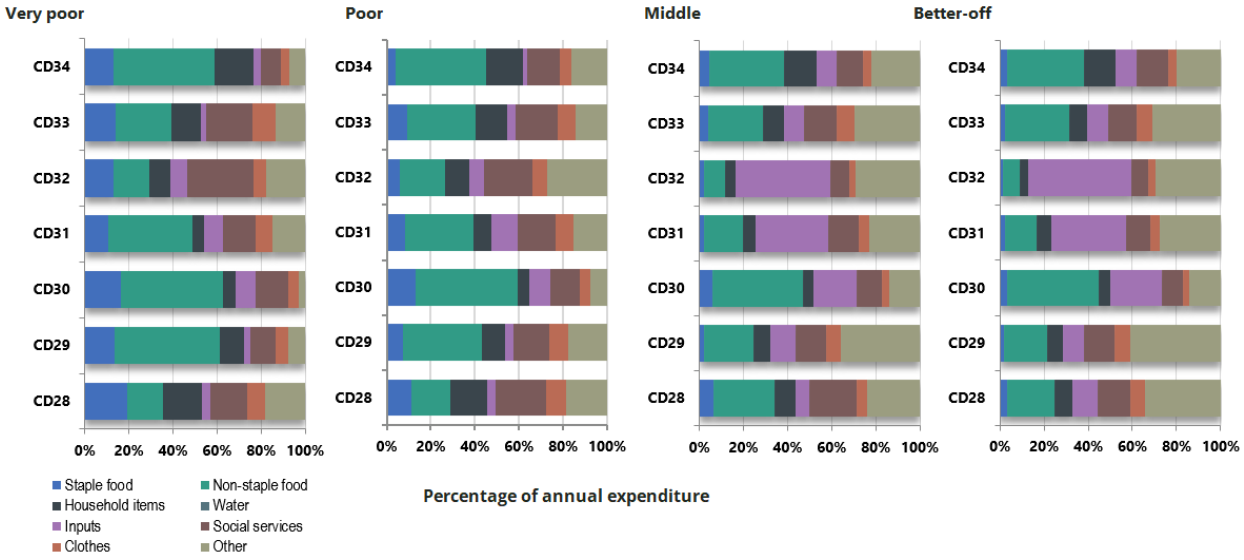




Congo River Basin Livelihood Zones



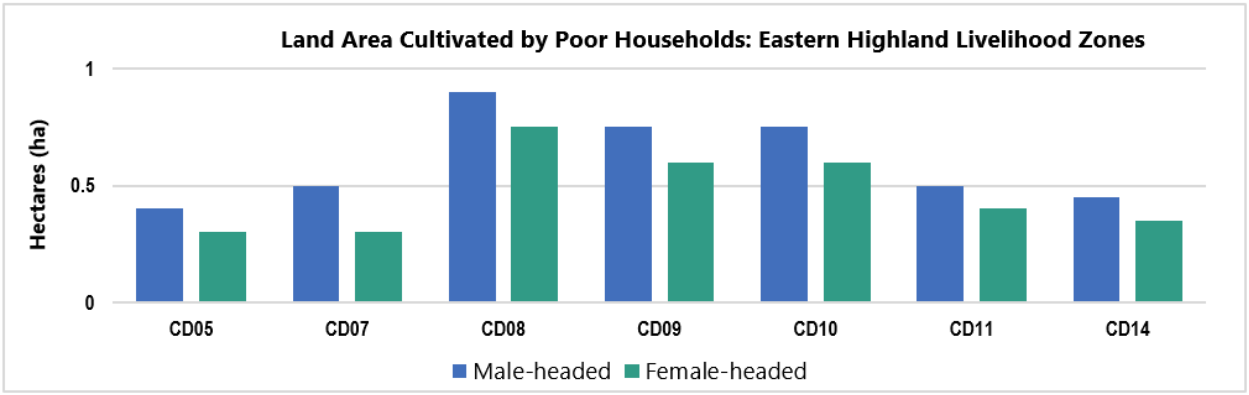
Southwest Livelihood Zones

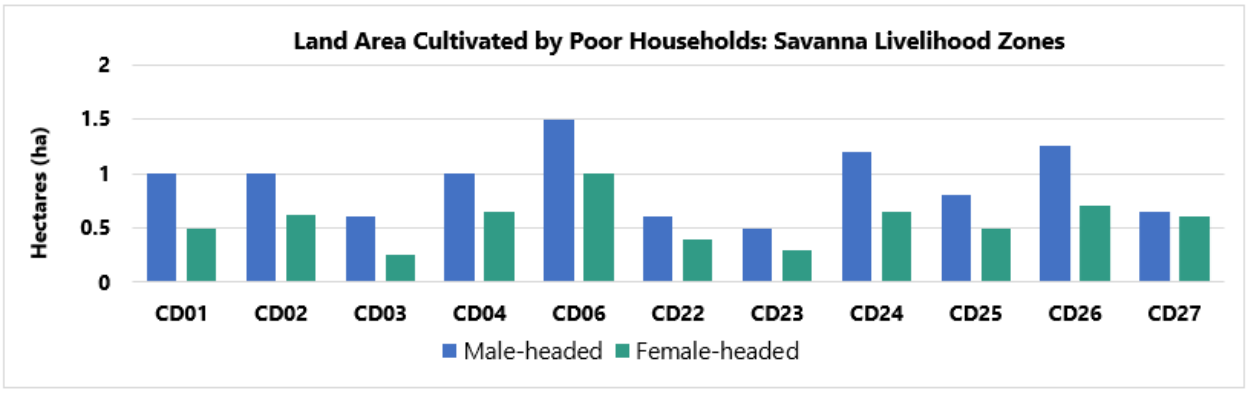


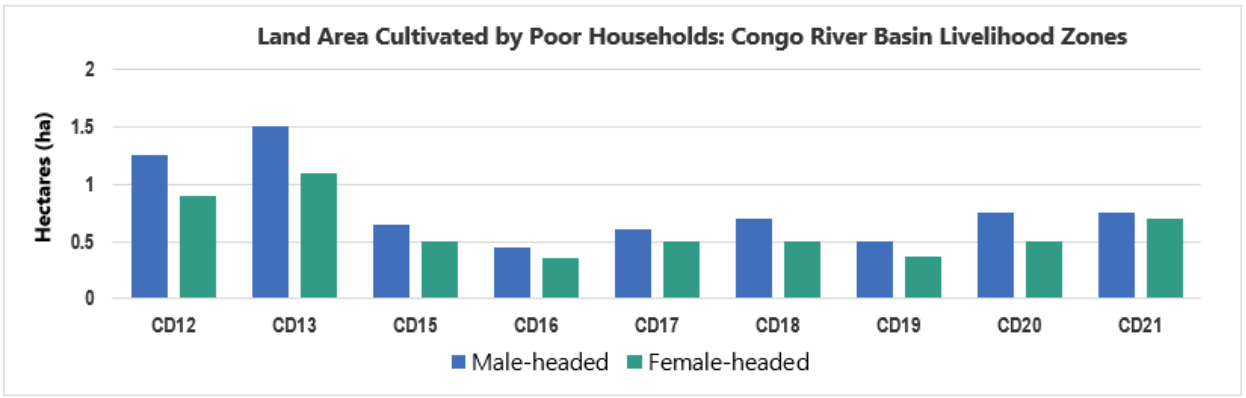
Poor Female-Headed Households

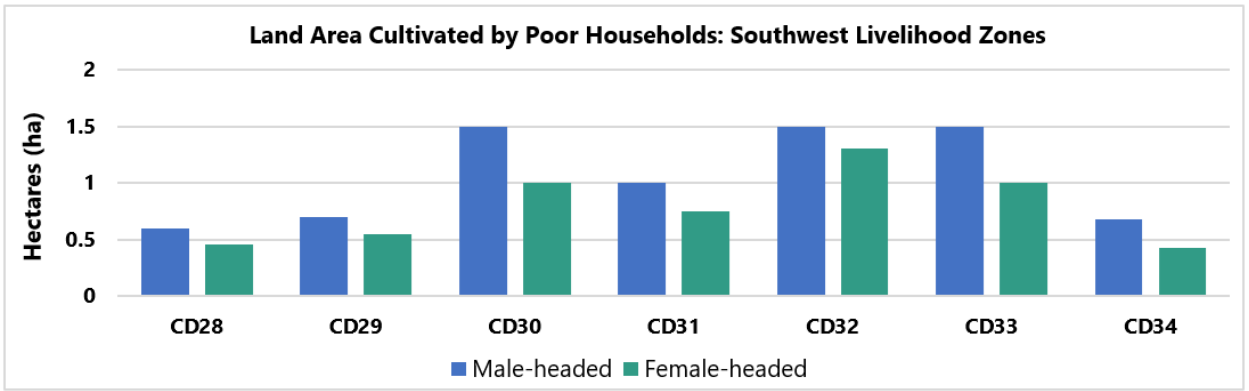
The HEA baselines presented in this report incorporate gender-specific data and analysis. The wealth breakdowns include an estimate of the percentage of female-headed households in each wealth group and provide a description of the productive assets held by this sub-group. The typical land areas cultivated by poor female-headed households in each livelihood zone are presented in Figure 22 and compared with those of poor male-headed households. All figures are the mid-point of a range.

Figure 22. Land Area Cultivated by Poor Male-Headed and Female-Headed Households, by Region







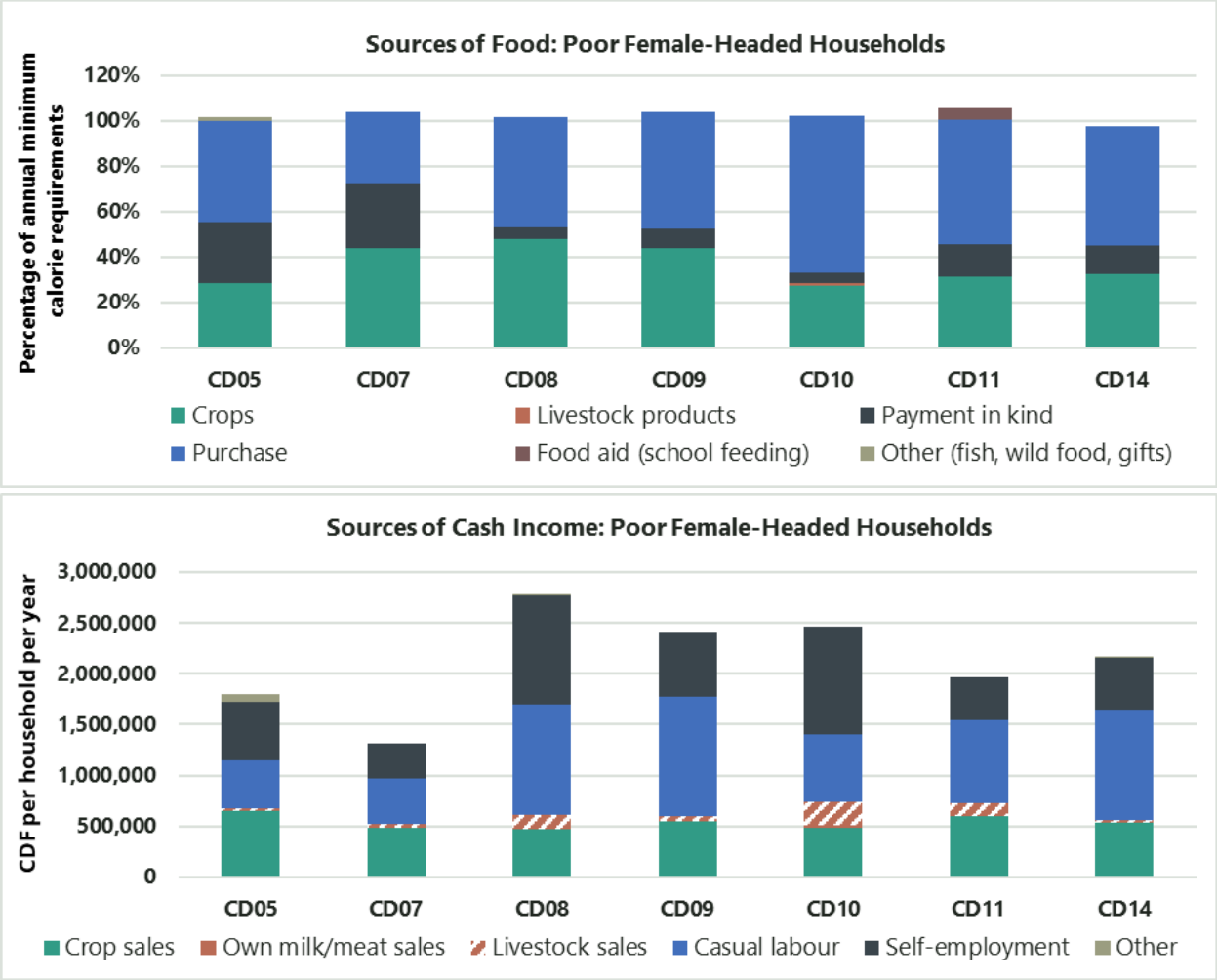


Separate interviews were conducted with female-headed households from the poor wealth group in each village to gather the full set of HEA baseline data (sources of food, sources of cash income, and expenditure patterns) for this sub-group. Sources of food and cash income are presented in summary in Figure 23, and details of the results from this work can be found in the individual livelihood zone baseline profiles later in this report.

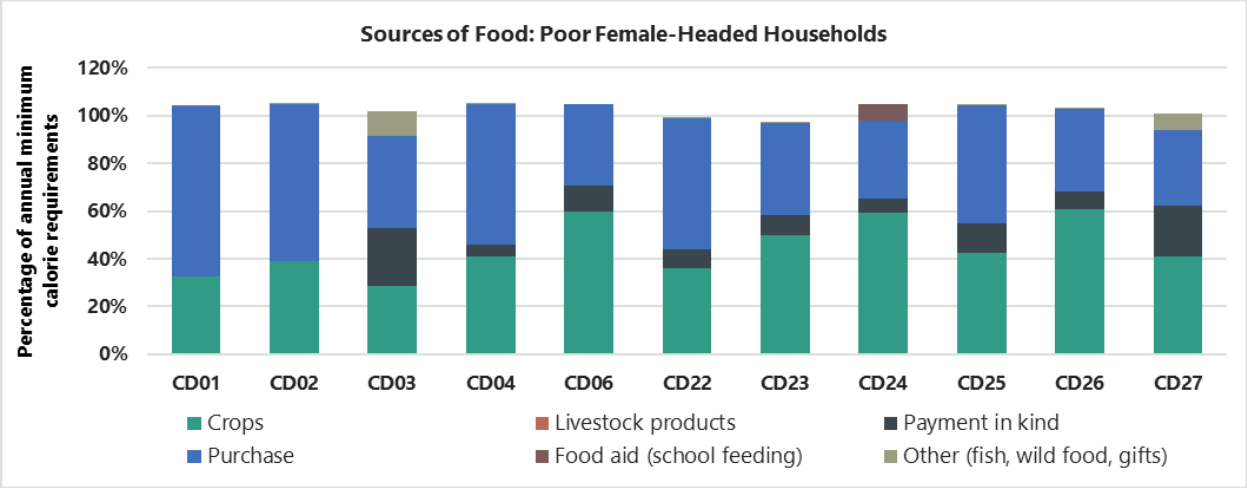
In general, poor female-headed households fell in between the very poor and poor wealth groups in terms of productive assets, crop production, and cash income. Their own crops and purchased food made up most of the food sources for this sub-group. Cash incomes were mainly a combination of casual labor, self-employment, and crop sales, with a small contribution from their own livestock.

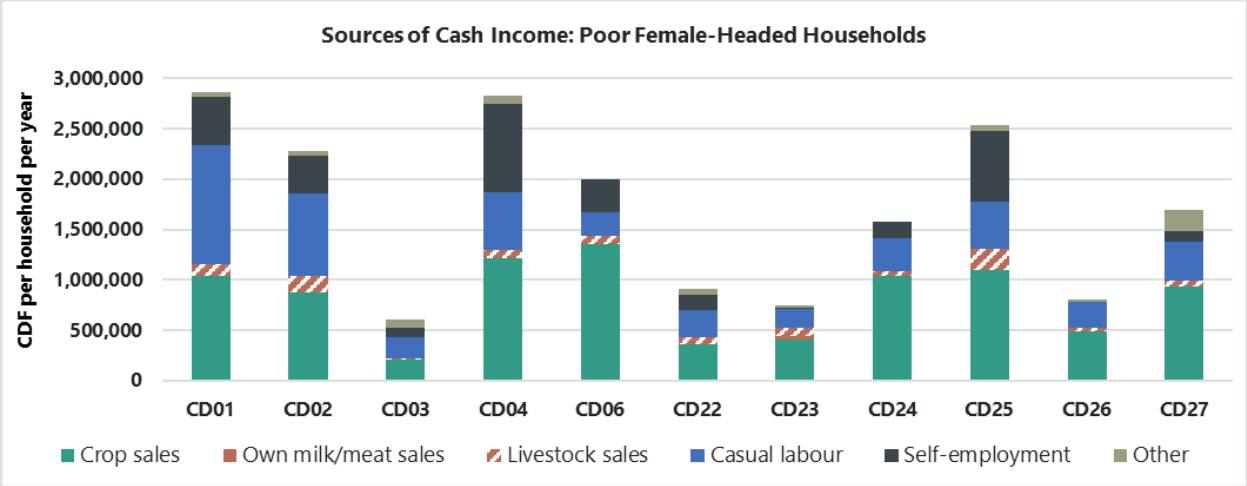
Figure 23. Sources of Food and Sources of Cash Income for Poor Female-Headed Households, by Region

Eastern Highlands Livelihood Zones

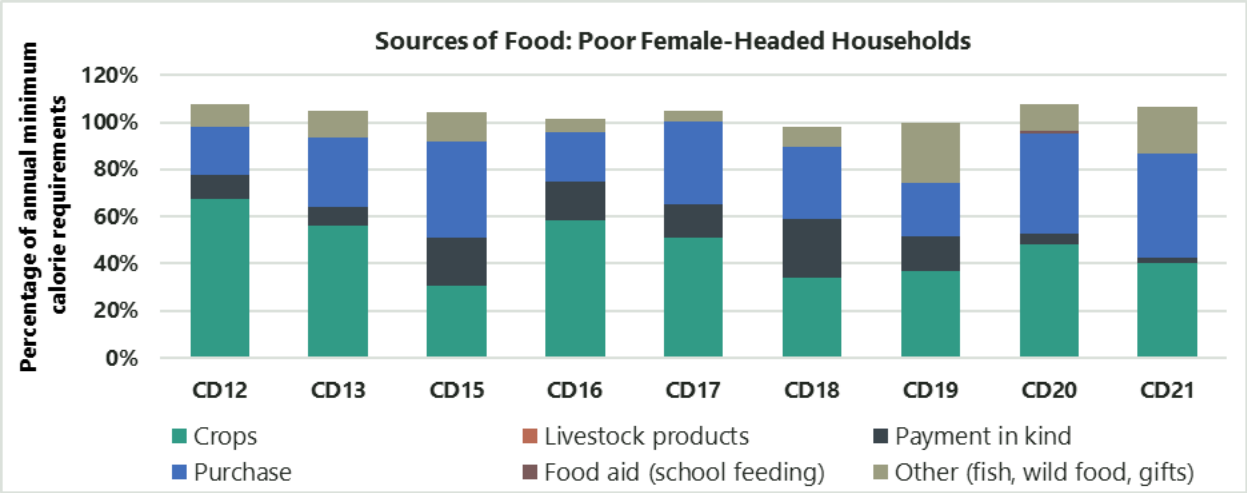


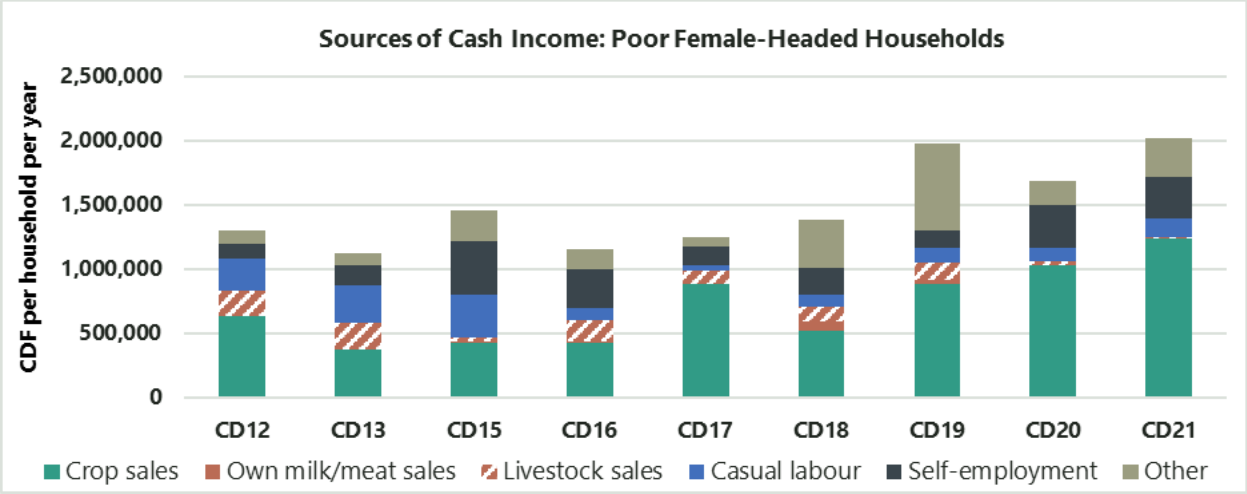
Savannah Livelihood Zones



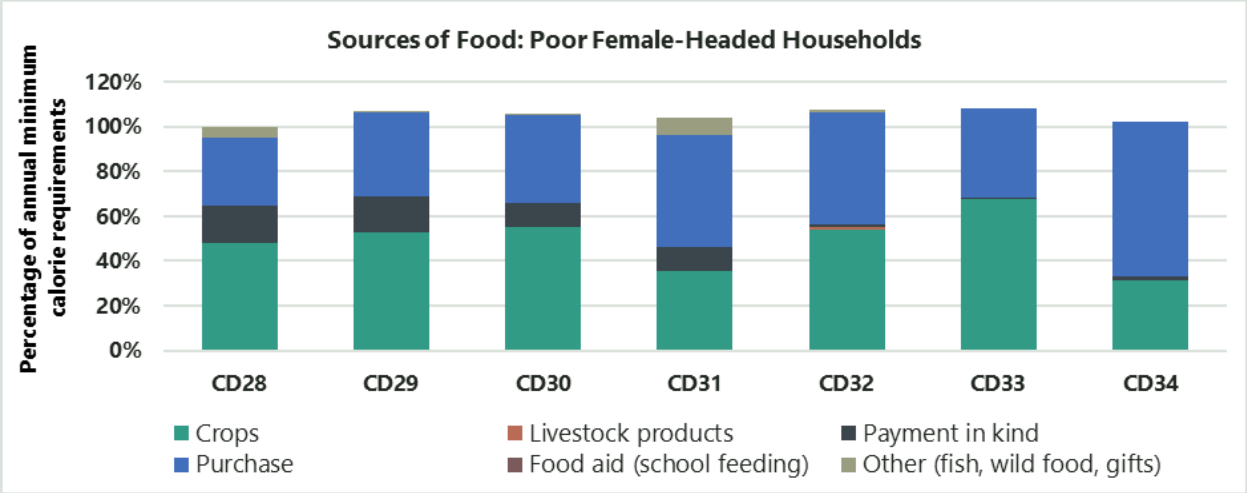


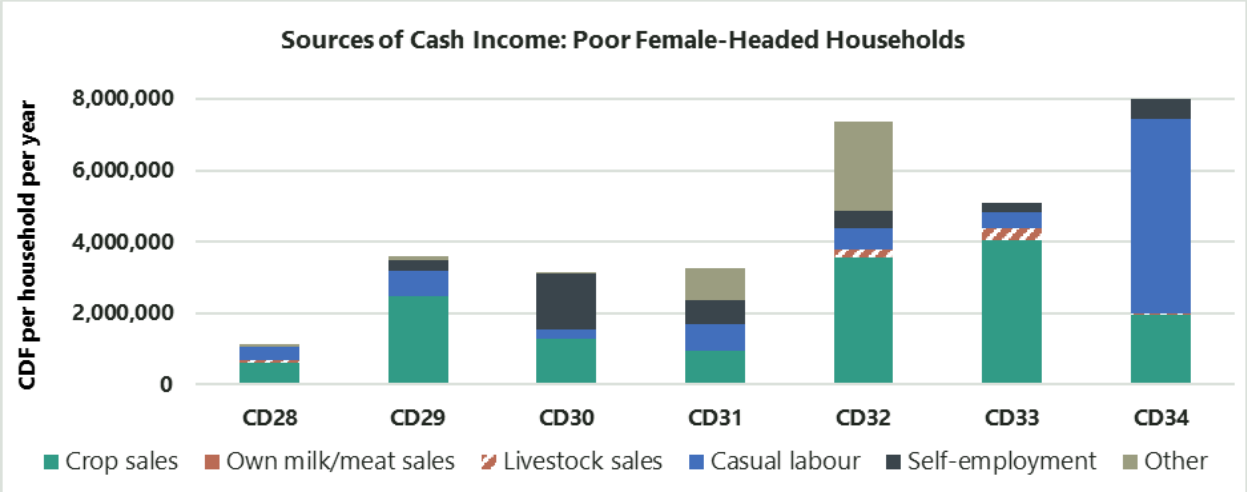
Congo River Basin Livelihood Zones





Southwest Livelihood Zones





Hazards and Response Strategies

This section outlines the main hazards affecting household livelihoods in the DRC, including periods of insufficient or poorly distributed rainfall, irregular flooding, outbreaks of crop pests and diseases, livestock diseases, human diseases, and conflict.

Irregular rainfall patterns involve late seasonal rainfall onset and prolonged dry spells. The unpredictability of weather patterns makes it challenging for farmers to plan and manage their agricultural activities effectively, leading to reduced crop production.

Predictable seasonal floods can contribute to crop production in some zones by increasing soil fertility and by allowing households to use flood recession and/or irrigation to plant different crops in the Dry Season. However, abnormal flooding caused by unusual heavy rainfall damages crops, disrupts fishing activities, displaces communities, destroys infrastructure, and causes soil erosion.

Crop pests and diseases are a chronic hazard affecting zones every year during the agricultural season and reducing crop yields. These include fall armyworm, birds, cassava root rot, cassava mosaic virus, groundnuts rosette, and leaf yellowing disease.

The main livestock diseases include swine fever affecting pigs; Newcastle disease and avian influenza affecting poultry; anthrax and dermatitis affecting cattle; and ovine rinderpest, also known as *peste des petits ruminants* (PPR), and pasteurellosis affecting goats and sheep.

Wild animals, including monkeys, elephants, wild boars, rodents, and pythons, are also a hazard threatening crop and livestock production in some zones.

Uncontrolled bush fires are a problem in some zones and are most common during the land preparation phases during the Dry Seasons.

Conflict and insecurity have been a serious problem affecting livelihoods in eastern DRC for the last few decades. Conflicts can lead to severe outcomes, like loss of lives, serious injuries, large-scale population displacement, and loss of crops, livestock, and other assets.

While not a hazard, the poor condition of agricultural feeder roads absolutely and significantly constrains livelihood options in most zones. Particularly during the Rainy Season, these roads become impassable due to mud and fallen trees, limiting farmers' ability to transport their produce to markets. This issue constrains potential income generation and creates high costs for non-staple foods and other essential goods that are imported into a zone.

Human disease outbreaks are another hazard that reduce household labor availability and increase healthcare expenditure. The main diseases include malaria, cholera, diarrhea, typhoid fever, mpox, and measles.

Fishing zones can be negatively affected by excess sedimentation, pollution, and periods of very strong winds and thunderstorms. These issues reduce the availability of fish or opportunities for fishing, and therefore household incomes.

In response to hazards and years with low crop production or fishing opportunities, households try to meet their minimum food needs and cash requirements through several strategies. All households try to reduce expenditure on non-essential or more expensive items first, like cutting down on festival costs or not buying clothes or utensils that year. Households also reported adjusting their expenditures from more expensive food items (e.g., rice) to less expensive foods (e.g., cassava and maize).

Very poor and poor households try to increase cash income through intensifying local casual labor and agricultural labor activities. However, in lean years, as increasing numbers of people seek additional labor, this option quickly loses its value because wage rates drop, and work is harder to find. Poorer households also increase the sale of firewood and charcoal in lean years in some livelihood zones. Poorer households also have some household members migrate in lean years to look for casual work outside the livelihood zone. This migration reduces local household consumption needs and provides an income source for the household. Poorer households also seek social support during lean years from family and/or wealthier households. In some livelihood zones, they increase fishing and the collection of wild foods for consumption and sale.

Middle and better-off households cope with hazards differently. They sell additional livestock to cover basic food and non-food expenses in lean years. They also tend to sell more of their own high-value crops to meet basic needs as well as to purchase more affordable staples, like cassava or maize. They increase self-employment activities, like trading.

Livelihood Zone Baseline Profiles

Each livelihood zone baseline profile is divided up into several sections, described below.

The **Zone Description** offers a general picture of the livelihood zone, including its location, climate, topography, population density, the main livelihood patterns of the local population — including crop production, livestock rearing, and off-farm income generation — and the different types of hazards that affect the zone (differentiated by wealth group, where appropriate).

The **Markets** section contains basic information on the marketing of local production, including trade routes, and on any importation of staple food into the zone.

The **Timeline and Reference Year** section describes the specific time periods that are part of the data collection process. The timeline is a tool used during fieldwork interviews at the community level to help to identify an appropriate reference year in each livelihood zone. It gathers information for the last five years and asks key informants to rank seasons in relation to what they consider to be an average year. The timeline provides details of the seasonal performance (in terms of food

security) of the years surrounding a specific time period called a reference year, as well as any notable events.

In HEA, the reference year is a recent consumption year, starting with the month when households' crop production starts, typically marking the end of the main Lean Season. The consumption year for some zones in the DRC starts with a main harvest in December, January, or February. Other zones start with a main harvest in May, June, or July. In this report, the harvest in December, January, or February is called Season A, and the harvest in May, June, or July is called Season B.

Reference years often differ within a set of national baselines, particularly for a country as vast and diverse as the DRC. The timing of consumption years in each livelihood zone may differ according to the climate and seasonality patterns experienced in the zone. However, in livelihood zones in the DRC where cassava is dominant and available year-round, the consumption year and Lean Season can be complicated to define. In addition, the livelihood baseline research aims to understand how people typically meet their needs; a significant or unusual shock or unusual food assistance in a reference year needs to be avoided.

The **Seasonal Calendar** sets out the timing of key activities during the year. In the livelihood zone baseline profiles, the seasonal calendar is a graphic representation that includes key crop production and market-related activities as well as other relevant seasonal events — livestock sales, labor and other income activities, periods of peak staple food prices, human diseases, the Lean Season — allowing for the presentation of multiple concurrent events. This calendar has a variety of uses, such as to judge the likely impact of a hazard according to its timing during the year and to assess whether a particular activity is being undertaken at the normal time of the year. This section is followed by four sections that provide the core information on the household economy of a zone.

In the **Wealth Breakdown** section, households are grouped by relative economic status to highlight differences in how they make a living. HEA baseline information is gathered and stored according to these wealth groups. Wealth is a critical factor in determining how households obtain their food and cash income, and it is one of the two most important ways that HEA data is disaggregated (the other being by livelihood zone). In HEA terms, differences in wealth are determined by the specific livelihood capital through which people generate their food and cash income. For example, if food is grown for consumption and sale, then land and labor will be important determinants of wealth; if livestock are produced for substantial food (in the form of milk and/or meat) and cash income, then the numbers and types of livestock will be important determinants.

This section describes four main wealth groups — very poor, poor, middle, and better-off — and explains the differences between these groups. For this analysis, wealth is described in relative and local terms. Statistical data may indicate that 80% or even 90% of the population in a particular area lives below the national poverty line, but this measurement of poverty is on a national, absolute scale. A livelihoods analysis is interested in understanding the differences between groups within the community and the reasons for these differences, in which case it is not particularly useful to

lump 80-90% of the population together into one group. The wealth breakdowns also include an estimate of the percentage of female-headed households in each wealth group.

The terms “land owned” and “land cultivated” appear in the wealth breakdown tables in this section. Land is not “owned” by households in a legal sense because the land tenure system in the DRC is based on a 1973 law (currently being revised) that states that all land is the property of the state. However, this law has not been used to manage small farmer holdings in rural areas, which are governed by local customs and managed by customary authorities. The term “land owned” should be interpreted as the land that households consider themselves to use and control. In some zones it is the same as “land cultivated”; in other zones, there is land beyond that which they cultivate. In the baseline profiles, the term “poorer households” refers to very poor and poor households, and the term “wealthier households” refers to middle and better-off households.

For each wealth group in each livelihood zone, data collectors conducted in-depth interviews to gather details about sources of food and cash income and expenditure patterns for the reference year. These result in a quantified statement of household livelihood strategies by wealth group and livelihood zone, which are summarized in the sections that follow.

In the **Sources of Food** section, each baseline profile describes patterns of food access for each wealth group. How households meet their food needs over the course of a typical year is essential for determining what will limit or potentially expand their access to food. A fundamental component of the HEA baseline, therefore, is detailed information on the sources of food for each wealth group in each livelihood zone.

Sources of food can include households’ own crops (including green consumption from the field prior to the main harvest), milk and meat from their livestock, purchased staple and non-staple food, fishing, wild foods, and payments in-kind. The category payments in-kind includes two types of food sources: food that is paid for casual (usually agricultural) work instead of cash, and food eaten by migrant workers when they are away for part of the year. Food is presented as a percentage of the household’s annual kcal needs, based on the internationally accepted 2,100 kcal per person per day.

The **Sources of Cash** section examines patterns of access to cash income for households at each level of wealth in local currency for the reference year. Households need to buy a range of food and non-food goods and services, and to do so, cash is needed throughout the year. The question is: where does this cash come from? Understanding how people get their cash allows us to discern what might undermine this access as well as how we might strengthen these cash flows.

The **Expenditure Patterns** section shows what proportion of their annual cash budget that households in each wealth group spend on food (both staple and non-staple), household items (e.g., salt, soap, tea, lighting, milling), production inputs (e.g., fertilizer, seeds, tools), social services (i.e., health and education), clothing, and other essential and non-essential items (e.g., transportation, phone credits, festivals). While absolute expenditure increases by wealth group in line with total cash income, this section also includes a graph showing the expenditure breakdown by percentage,

or the *relative* amount of income spent on different categories as an average for the wealth group and the livelihood zone.

In the **Food Access Calendars** section, four graphs present seasonal food and cash access calendars for each wealth group in the reference year. They illustrate the monthly patterns of food and cash access and expenditure, where each bar represents one month, starting with the first month of the reference year. The graphs show how households meet their *minimum* needs — survival threshold and livelihoods protection threshold — in the reference year. The survival threshold is the amount of food and cash income required to ensure survival in the short term (to cover the most basic food and non-food needs). The livelihoods protection threshold is the amount of food and cash income required to protect local livelihoods, including expenditure on productive inputs and basic services. Represented in each bar in the graphs is food that is directly produced or collected and consumed, such as crops, milk, and wild foods or fish; food that is paid for casual agricultural labor; food and non-food items that are purchased to meet the survival threshold, using available cash; and items purchased to cover other basic livelihood requirements, such as agricultural inputs and school fees.

A separate set of interviews was conducted with poor female-headed households in each village to gather the full set of HEA baseline data. The **Poor Female-Headed Households** section presents a summary of results for this wealth sub-group. This allows for comparisons between poor female-headed households and poor male-headed households and highlights differences linked to gender.

The **Response Strategies** section describes the various strategies available to different types of households in the zone. The term "response strategy" is preferred to "coping strategy" for two reasons. Firstly, the term coping strategy is often used to refer to regular components of everyday livelihoods (e.g., firewood sales), which are only response strategies when intensified in response to a hazard. Secondly, "coping" can imply that the strategy is cost-free, which is not always the case.

Finally, the **Key Parameters for Monitoring** section lists the food and income sources that make a substantial contribution to the household economy in each livelihood zone. These are things that should be monitored to track potential losses or gains to local household economies through ongoing monitoring systems or periodic assessments. A key parameter is a source of food or income that makes up at least 10% of one wealth group's total food or income or at least 5% of two wealth groups' total food or income.

The remainder of this report consists of the baseline profiles for the DRC's 34 livelihood zones.

CD01 Livelihood Zone

Reference Year: May 2022–April 2023

Katanga Maize and Cassava Production with Urban and Mining Labor Livelihood Zone



Figure 1. CD01 Livelihood Zone Map

Summary: The *Katanga Maize and Cassava Production with Urban and Mining Labor Livelihood Zone* (CD01) in the Democratic Republic of the Congo (DRC) has a mixed ecology of savannah, light forest, and grassland. CD01 lies in the far southern reaches of the country, comprising two provinces: Haut-Katanga and Lualaba. Although this area is famous for its major mining industry, the rural population is only secondarily involved in mining for household income and primarily works in agriculture. However, CD01 is a food-deficit zone in terms of household wealth groups' own production, chiefly because of the soil's infertility. Major food importation comes from neighboring Zambia. Most poorer households cannot afford to address soil infertility through the application of fertilizer and improved seeds. The poor road infrastructure, often impassable in the Rainy Season from November to April, also inhibits economic activity. Likewise, frequent irregularities in precipitation, crop pest infestations, and diseases in the modest livestock sector inhibit the economy. Maize and cassava are the staple foods. The wealthier minority of households can cultivate substantial areas by using fertilizers and pesticides, hiring tractors, and employing laborers from households in poorer wealth groups. This employment and other paid labor are the mainstays of cash income for these poorer households. All wealth groups in CD01 cover their annual minimum calorie intake, but the sources of food vary acutely between poorer and wealthier households. Poorer households must purchase more than half of their food, whereas wealthier households are self-sufficient and make most of their income by selling surplus crops and, to a lesser extent, livestock. In addition, households from all wealth groups earn 20-25% of their income from self-employment. In the case of poorer households, self-employment typically consists of selling firewood and charcoal; in the case of wealthier households, it often involves running small businesses, like motorcycle taxi services.

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Zone Description

The *Katanga Maize and Cassava Production with Urban and Mining Labor Livelihood Zone*[1] (CD01) lies in the Copperbelt in the far southern reaches of the DRC, along its border with Zambia. The zone encompasses portions of two provinces: Haut-Katanga, with its capital city of Lubumbashi, and Lualaba, with its capital city of Kolwezi. The samples in this study were taken in the province of Haut-Katanga, which covers 131,443 square kilometers (km²) and shares borders with Haut-Lomami and Tanganyika Provinces to the north, Lualaba Province to the west, and Zambia to the east and south. Haut-Katanga is the most populous of the four provinces created when the former province of Katanga was divided. The population of CD01 is 2,138,422, with an average population density of 20 people per km².[2] The territories (equivalent to districts) of Haut-Katanga that the zone covers are Kambove, Kasenga, Kipushi, Likasi, and Sakania, and the territories of Lualaba that the zone covers are Lubuti and Mutshatsha. The largest cities in Haut-Katanga are Lubumbashi (the DRC's second-largest city), Kipushi, Kasumbalesa, and Likasi. Fieldwork for this study occurred in Kipushi and Kasenga.

Haut-Katanga and Lubumbashi have an international reputation for their considerable resources for mining copper and cobalt. Although this industry provides about 90%[3] of the DRC's export earnings, the rural population of CD01 is only secondarily involved in it — agriculture is the backbone of the rural population's economy. Haut-Katanga boasts 2,760,300 hectares (ha) of arable land and 260,000 ha of pasture. The eco-climatic environment is conducive to agriculture, livestock raising, and fishing. Therefore, the prime indicator of household wealth is the size of the household's cultivated land, the household's funds available for hiring workers, and the household's means for transporting crops to sell at markets. The roughly 250 km of navigable waterways in CD01 constitute an important addition to the zone's poor road infrastructure.

The topography is characterized by the Mitwaba and Kundelungu mountain ranges and the Upemba plateau. The hydrography consists mainly of two main lakes — Mweru and Tshangalele — and the rivers of Luapula, Lufira, and Luvua, which link Mweru Lake to the Congo River. It is a moderately high-elevation area (at between 1,000 and 1,800 meters [m]) with relatively infertile acidic, ferralitic, and sandy-clay soils.

The annual distribution of rainfall varies substantially from north to south. In general, annual rainfall is highest in the northeast, where it amounts to 1,547 millimeters (mm) and 141 rainy days per year on average. Virtually all rainy days fall between November and April. The lowest values for average rainfall were 1,149 mm, with a total of 104 rainy days during the year observed at the Bukama

[1] Fieldwork for the current profile was undertaken from June 17 to July 13, 2024. The information in this profile refers to the reference year, which was the consumption year that covered May 2022 to April 2023. If there are no fundamental and rapid shifts in the economy, the information in this profile is expected to remain valid for approximately five to 10 years (i.e., until 2028-2033). All prices referred to in the document are for the reference year.

[2] FEWS NET Data Explorer, population data (2023), accessed 2025, https://fdw.fews.net/data-explorer/.

[3] U.S. International Trade Administration (2024), U.S. Department of Commerce.

station. December is the wettest month throughout the province of Haut-Katanga, and July is the driest of the year. The Central Basin is the source of the province's rainfall, partly because of the winds that blow from the northwest during the Wet Season. Latitude accentuates the severity of the Dry Season, which increases with distance from the equator. The Dry Season runs from May to August in the northwest (Kongolo), with sporadic rainfall from July to October in the northeast and from May to October in central and southern Katanga. The average monthly temperature maximum occurs in September and October at around 33°C when the sun is at its highest. Daytime minimum temperatures are generally observed in Lubumbashi at 6°C in July. Haut-Katanga's location in the DRC's south means its temperatures are lower on average than temperatures in the equatorial zones.

The province of Haut-Katanga is the cradle of all the major rivers that flow north toward the Central Basin, a veritable water tower. The Lualaba, the name given to the Congo River at its source, is the backbone of Katanga's hydrographic system. Its flow is strongly linked to the seasons. The Lualaba rises at the foot of Mount Musofi (elevation 1,500 m) in Haut-Katanga. For the first 400 km, it receives numerous tributaries and follows a torrent-like course through a zone of rapids at the N'zilo gorge, where there is a dam. Its main tributaries are the Lufira, Luapula, Luvua, and Lukuga. The river then flows north across a vast plain, becoming navigable for 630 km as far as Kongolo, where the Portes de l'Enfer marks the end of its navigability. Apart from the Lualaba River and Lake Tanganyika, which is navigable for its entire length, the waterfalls that intersect Katanga's waters prevent large-scale traffic. Although navigation is difficult on some of the province's rivers, many of their natural waterfalls are ideal for hydroelectric power generation.

The main asphalt roads in the area are from Lubumbashi to Kassoumalé near the Zambian border (90 km); Lubumbashi to Sakania near the Zambian border (200 km); Lubumbashi to Lukasi (125 km); and Lubumbashi to Kassouméné (150 km).

The national economic importance of this province lies in the fact that all its constituent territories abound in mineral wealth. These include cobalt, zinc, copper, manganese, and some gold. However, Haut-Katanga's ecology matters most to its rural residents due to their dependence on agriculture. Haut-Katanga is a Sudano-Guinean zone, where open forests mixed with bamboo plantations and extensive acacia savannahs dominate the landscape. The forests produce abundant firewood, which some households cut and transform into charcoal that is sold locally or in urban centers. Some wealthier households trade in timber. These forests also abound in resources like game antelopes, caterpillars, mushrooms, and termites, which villagers in their vicinity hunt and collect. In addition, the area has fish resources, including tilapia, catfish, and minnows, but only a minority of the population living close to lakes and rivers use these resources.

The area is a food-deficit zone in terms of households' capacity to produce their own food. The zone's agricultural output is low because it includes only small areas under cultivation and very poor soils; therefore, the zone's yields are low without applying chemical fertilizers. At the same time, there is a large and growing population. In an average year, only wealthier rural households manage

to cover 12 months of their food needs from their own production. The area receives no food assistance from the government or other partners, and it relies mainly on imports from Zambia to make up the shortfall (e.g., maize, rice, groundnuts, beans, and other staples). Poorer wealth groups, therefore, rely heavily on wage labor to meet their income needs, doing agricultural work for wealthier households and working in mining and construction.

CD01 experiences several hazards that affect rural livelihoods. The main hazards are rainfall irregularity, epizootic disease, crop pests (especially armyworms), and flooding. Rainfall irregularity and crop pests occurred in three years out of five, epizootic disease occurred once every two years, flooding occurred one year out of five, and poor soils existed every year. The most common crop pest was the autumn lesion caterpillar for maize, which occurred three years out of five. The most common livestock diseases were *peste des petits ruminants* (PPR) for goats, swine fever for pigs, and Newcastle disease for poultry. These livestock diseases occurred every other year.

Agriculture is by far the most important economic driver for households in CD01. The crops that form the staple diet are maize and cassava, which are both produced and purchased, but groundnuts, sweet potato, and rice are also important foodstuffs. Poorer households use the hoe and *daba* (adze) for land preparation, whereas wealthier households use tractors. Payment for labor is usually in cash, but payments occasionally consist of in-kind payments, often in the form of food. Nearly 60% of households use chemical fertilizers and improved seeds. Wealthier households generally use labor for all cultivation activities — from land preparation to harvesting. Women are equally involved in almost every stage of agricultural production: sowing, weeding, harvesting, winnowing, and production sales. Along with these tasks, men also prepare land, scare birds, and manage storage. Some villages in the area have village associations that set up collective fields to produce crops to sell to households during the Lean Season at prices lower than those available on the market. These associations also defend producers' interests in dealings with the authorities and partners.

Livestock is not a major source of income in this zone. The main types of livestock are goats, which live off brush and crop residues; pigs, which live off food scraps; and poultry, which live mainly by scavenging. Some very wealthy farmers raise beef cattle, and a few farmers own dairy cows. All wealth groups sell livestock throughout the year, with peak sales in December. Livestock migration is not typical in any season; the few animals that households have remain on site all year round. Men's and women's tasks both include livestock and poultry sales and watering animals in the Dry Season, but men also construct livestock shelters, otherwise care for livestock, and perform slaughter.

Apart from crops and livestock, men, women, and boys in the poorest wealth groups sell charcoal directly in the villages. These sales occur year-round but more intensively from June to October. Men, women, and boys in the poorest wealth groups also pick and sell wild produce. They gather products like caterpillars, mushrooms, wild onions, and honey and then either sell them to the wealthier households in the same village or take them to urban centers. This happens year-round. Wealthier men and women practice small-scale trading directly in the villages year-round. This

involves the purchase of various products, like milk, sugar, oil, petrol, cereals, vegetables, and tubers, which are then resold in retail. Other sources of income for men include bicycle transport services, fishing, and hunting, and other sources for women include the trade of small-scale vegetables, fish, and miscellaneous items.

The different wealth groups generally have similar access to services, with a few exceptions. They get drinking water from wells, surface water, collected rainwater, and boreholes. People from poorer wealth groups may also use river water. All groups pay for drinking water according to the number of cans used, but the cost only amounts to some 1% of total household expenditure. Households do not pay for livestock watering. In general, households use latrines, and households from all wealth groups obtain healthcare via dispensaries, health centers, and traditional remedies, but the wealthier households also have the means to access a hospital. Households from all wealth groups use flashlights for lighting, but wealthier households also use solar panels and batteries. Additionally, households from all wealth groups use firewood and charcoal for cooking fuel. Children in all wealth groups have access to primary and secondary education, but individuals from wealthier households also have access to secondary school. Poorer households get credit from lenders in the most affluent households, whereas wealthier households do not look for credit. Households do not keep significant cash savings on hand.

Markets

Access to CD01 during the Rainy Season is very difficult because the roads have deteriorated so much. During the reference year, this limited access contributed to the high cost of imported foodstuffs. However, in the Dry Season, CD01's roads are generally accessible, especially with the motorcycle taxis that provide most of the transport services for people and goods in the area. There are several types of roads: asphalt roads between Lubumbashi and some larger towns, all-season trails in certain areas and villages, and many heavily degraded tracks between other territories. Most bridges in the area are in poor condition, if not impassable. Periodically, this poor road quality entirely cuts off many villages from motor vehicle transport. Market access within the zone is, therefore, particularly poor during the Rainy Season but remains generally acceptable outside this period. The use of motorcycle taxis makes it much easier to move goods to various markets. Some villages also suffer from being so far from the nearest market.

The main market centers for the people in this livelihood zone are Kasenga, Pipuschi, Lubumbashi, and Lukasi. All the main crops and animals are sold at all these market centers. Maize is sold from June to August, cassava year-round, sweet potatoes from March to April, and market garden vegetables from June to September. Goats, pigs, and poultry are sold all year, and these sales intensify toward December, which is when celebrations typically happen. Groundnuts, wild collected items, and fresh and dried fish are the other main products sold. Peak sales happen from June to July for groundnuts, June to September for wild collected items, and December to February for fresh and dried fish.

The most important staples purchased are maize, cassava, beans, and rice. Maize and rice are imported from Zambia. Beans are imported from Tanzania through Zambia. Cassava is traded from other villages. Maize, cassava, and beans are mostly bought from December to March, and rice is bought year-round.

From outside CD01, migrant workers come mostly to the mines in Likasi, Kolwezi, and Kassumbalesa and are employed on a daily or monthly basis. Men and boys primarily migrate from this zone for work, generally from June to October, but labor migration to this livelihood zone is not typical. Approximately 50% of the casual work in this livelihood zone is done in the local rural area, 30% in local towns, and 20% involving migration outside the zone.

Timeline and Reference Year

This baseline assessment refers to a specific period called the "reference year." In the *Katanga Maize and Cassava Production with Urban and Mining Labor Livelihood Zone,* the reference year covers the consumption period from May 2022 to April 2023. During community leader interviews, informants were asked to score the last five years in terms of seasonal performance with "1" indicating a poor season and "5" indicating an excellent season. Table 1 summarizes the response of the community leaders.

Table 1. Timeline

Production Year	Score	Critical Events
2023-2024	2	Lack of rainfall with poor distribution, maize crop damage caused by armyworms, difficult access to improved seeds for the poorest people, falling yields, and poor agricultural production.
2022-2023	3	Good spatiotemporal distribution of rainfall over almost the entire area, low damage to cuttings caused by predators, less frequent cases of livestock diseases, little disruption to mining activities, a normal trend in staple food prices throughout the region.
2021-2022	3	Good spatiotemporal distribution of rainfall over almost the entire area, low damage to cuttings caused by predators, less frequent cases of livestock diseases, little disruption to mining activities, a normal trend in staple food prices throughout the region.
2020-2021	4	Essentially, the same factors as 2022-2023 but somewhat better.
2019-2020	2	Lack of rainfall with poor distribution, maize crop damage caused by armyworm, falling yields, and poor agricultural production.

5 = Excellent season for household food security (e.g., due to good rains, good prices, good crop yields)
4 = Good season or above average season for household food security
3 = Average season for household food security
2 = Below-average season for household food security
1 = Poor season for household food security (e.g., due to drought, flooding, livestock disease, pest attack)

Overall, CD01 has experienced the highest year of food insecurity in four years in the most recent year (2023-2024), having been scored a ”2” (below average). The year 2019-2020 also included food insecurity, rated again at a ”2” for the same reasons as the most recent year, except that in the most recent year, there was an additional struggle — the poorest households had difficulty accessing improved seeds. Still, 2020-2023 experienced better household food security. The period spanning 2020-2021 received a ”4” (a good season/above average), and the latter two years received a ”3” (average).

In years of higher household food insecurity, households coped by intensifying the production and sale of charcoal and firewood; increasing work migration to cities; increasing employment time in mines or quarries; and intensifying market gardening activities. In the most recent year (2023-2024), households resorted to small-scale trade, which they usually would not have done. Households in CD01 received no external support in the last five years. During the reference year (2022-2023), the number of births and deaths of cattle and goats was almost normal because of good breeding conditions. There was no reported conflict in the zone during the reference year.

Seasonal Calendar for Reference Year

The seasonal calendar (see Figure 2) illustrates the main economic activities and events of the reference year. It traces the rainy months, pastoral activities, movement of people and livestock, and food purchasing periods.

The agricultural economy revolves around two seasons: the Rainy and Dry Seasons. CD01 has a Rainy Season between November and April, and December is the wettest month. The rest of the year, from May to October, is dry and without any rain. The coldest month is generally July, and the hottest months are generally September and October.

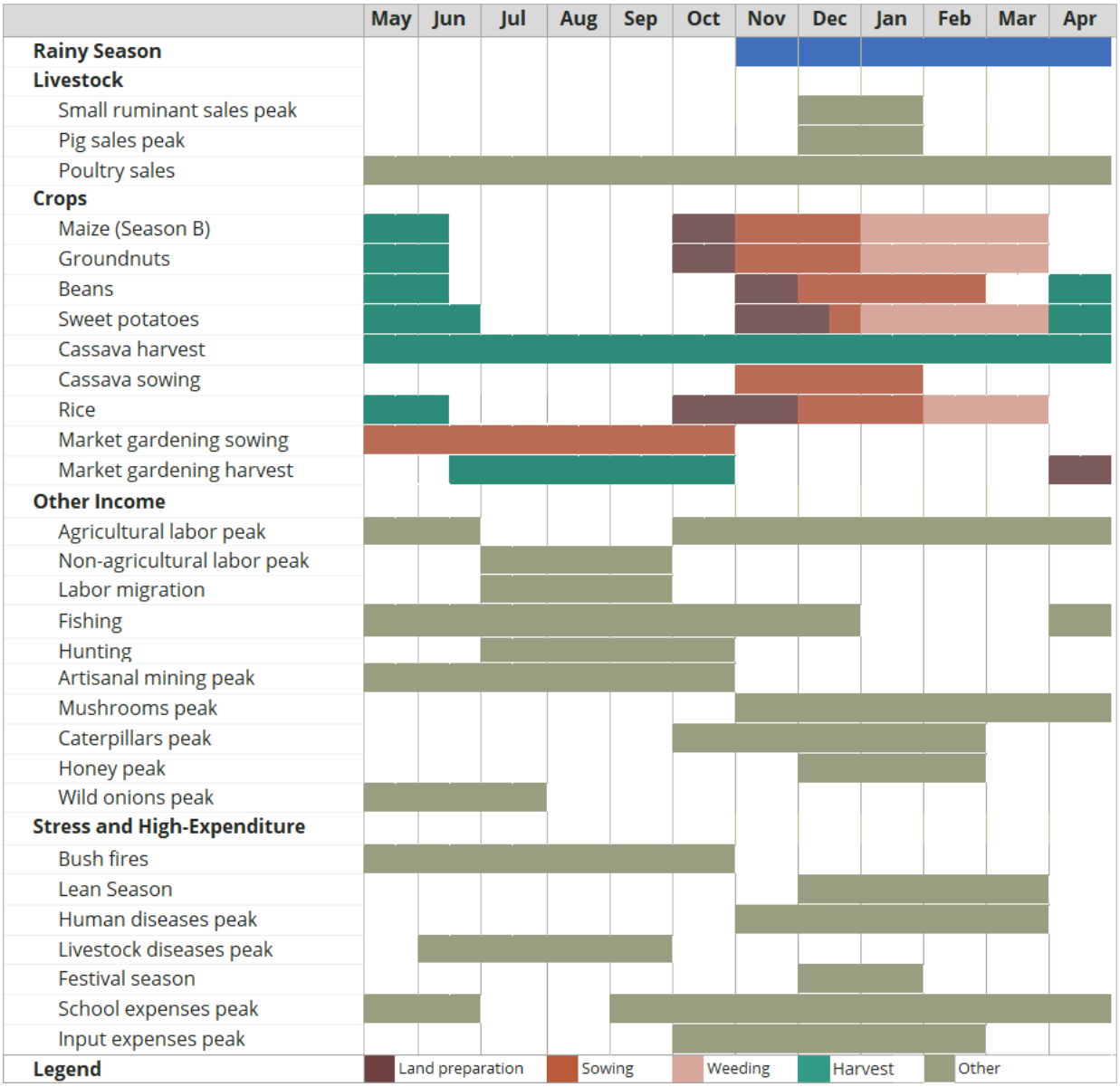
The calendar in Figure 2 shows that land preparation, sowing, and weeding generally occur from October to March for all crops except market garden crops, which are sown and harvested from May to October. The land is prepared in April. Cassava is harvested from February to October and sown from November to January. Cassava production commonly exceeds one year, and once cassava is mature, households can store the tubers in the ground for months so that the cycle in a given field might last up to two years.

Poorer households sometimes combine crops on the same plot, mainly to maximize the use of limited land. These households intercrop maize and cassava; groundnuts, beans, and cassava; maize and sweet potatoes; and cassava and sweet potatoes. Some poor farmers put all their crops in the same plot.

Poultry are sold year-round, whereas small ruminants and pig sales peak in the wettest months, December and January. This sale of small ruminants coincides with peak expenditure on ceremonies in December and January when households need additional cash. Livestock migration is not typical

in any season; the few animals households have remain on site all year. Peak livestock diseases occur during the Dry Season from June to September, but this does not seem to affect poultry sales. The most common livestock diseases are PPR for goats, swine fever for pigs, and Newcastle for poultry. In general, livestock farming remains underdeveloped in the zone.

Figure 2. Seasonal Calendar



Households do not closely supervise their animals and have little control over the timing of births. Most of the meat available on the market is imported from Zambia.

The Lean Season, or the period of peak food expenditure, is the most difficult period in terms of access to food because food stocks are depleted, especially for poorer households, and food prices are high. The Lean Season mainly occurs from December to March, which is also the Rainy Season.

Peak artisanal mining labor happens in the Dry Season partly because it is the off-season for cultivation but also because rains are inconvenient to work in, and heavy rain can cause dangerous conditions in mines.

Table 2 shows the typical division of labor, including how tasks are shared among men and women. Agricultural tasks, livestock tasks, and the collection and sale of firewood are shared between genders. Women and girls generally do the domestic labor, and men and boys generally do more physically demanding labor, like land preparation, slaughter, building shelter, construction, mining, and fishing.

Table 2. Typical Division of Labor

Shared Tasks	Women's Tasks	Men's Tasks
• Crop planting, weeding, harvesting, threshing, water application, sales • Livestock tasks • Collection and sale of firewood and charcoal • Small business/trade • Paid agricultural labor	• Winnowing • Collecting water for domestic use • Cooking meals • Collecting firewood for domestic use • Infant nutrition • Laundry	• Land preparation • Bird scaring • Caring for sick animals • Livestock slaughter • Fencing • Building shelters • Construction labor • Gold mining • Fishing

Wealth Breakdown and Productive Assets

Table 3 summarizes the types and numbers of productive assets that typical households within each wealth group own or manage. Asset holdings are shown in a range that reflects the diversity of households' situations within a wealth group. Figure 3 shows the percentage of households within the zone that falls in each wealth group. The communities themselves carried out the socioeconomic categorization of households in the zone.

The main characteristics of wealth in CD01 are land households own, land they cultivate, and household size in terms of family labor available to work on the land. Household size progresses very clearly by wealth group. The very poor wealth group includes households of approximately 4-6, the poor wealth group includes households of 7-10, the middle wealth group includes households of 8-12, and the better-off wealth group includes households of 10-14. A household's wealth tends to increase with its size and have more livestock and productive assets. In addition, wealthier households can hire mechanical means (such as tractors) to plow the fields. These households can also hire labor to work in the fields and purchase fertilizers and improved seeds. They own or have access to means of transport to reach markets.

Table 3 shows that the poor households generally own up to 2 ha of land, and better-off households own 4-8 ha of land; the better-off cultivate up to eight times the area the very poor cultivate. The

land, in principle, belongs initially to the traditional chiefs. In practice, these chiefs often sell it to better-off households. Very poor households, unable to buy, must rent from these chiefs and the wealthier households to ensure production. Women, whatever their socioeconomic category, inherit land from their parents and husbands when they die. The women own the land in their own name, and they farm the land as they see fit. The middle and better-off wealth groups produce a surplus of crops for sale, whereas the households in the poorer wealth groups generally cannot fulfill half their annual staples' requirement through their own production; they must even sell some of their production immediately post-harvest to cover debt repayments and other pressing costs, and they must purchase more food later in the year. The main crop difference between wealth groups is whether households grow cassava. In some places, poorer wealth groups do not cultivate cassava because its production cycle is very long (i.e., up to two years), and households in these wealth groups cannot wait this long to return to their labor. In some villages, poor households do not grow groundnuts because of their input requirements. Households from all wealth groups grow all crops apart from cassava and groundnuts. Households from poor, middle, and better-off wealth groups also sell green crops as a cash crop. Green crops are crops cut at an immature stage, before their sugar has turned to starch, so green crops (e.g., a formed but soft cob of maize) are more palatable but have fewer calories than mature crops. Green crops may be sold to better-off households as luxury items, but if poorer households eat them, it is because they have run out of food and must eat some items from their field before they mature.

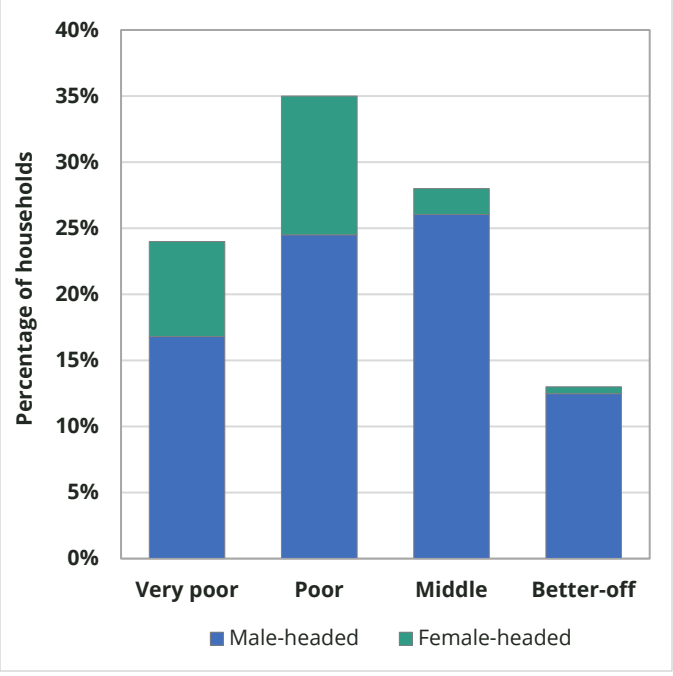
Table 3. Wealth Breakdown

Household Size and Productive Assets	Very Poor	Poor	Middle	Better-Off	Poor Female-Headed
Household size	4-6	7-10	8-12	10-14	4-6
Land (ha)	0-1	0-2	2-5	4-8	0-1
Land cultivated (ha)	0.4-0.6	0.8-1.5	1.75-2.75	2-5	0.4-0.75
Land cultivated – cash crops (ha)	0.05-0.2	0.05-0.2	0.05-0.35	0.05-0.5	0.05-0.2
Land cultivated – staple crops (ha)	0.1-0.55	0.7-1.15	1.7-2.5	3-4	0.1-0.7
Pigs	0	0	0-5	0-8	0
Goats	0	0	0-10	0-15	0
Poultry	0-20	5-20	8-20	10-40	0-15
Ducks	0	1	1	1-2	0
Mobile phones	2-4	3-5	4-7	5-10	2-3
Motorcycles	0	0	1	1-2	0

The availability of household labor affects the household's capacity to work on its own land and the amount of income the average household may generate from paid labor activities (including migrant work) outside its own farms, whether on wealthier households' land or elsewhere.
Livestock ownership is the third most important determinant of wealth in CD01, although it is generally modest. The main types of livestock are pigs, goats, and poultry. Cattle ownership is not typical, and only some better-off households own cattle. Usually, only households from the middle and better-off wealth groups own pigs and goats, and better-off households own twice the number of pigs than middle households own. Households from all wealth groups own poultry, although better-off households own twice the amount of poultry that poor households own. Women (from all wealth groups) usually buy a few hens, keep them for a while, and after multiplication, sell some on the market. All animals are bought and sold live. Middle households generate enough cash equivalent from this source to purchase 20-25% of their minimum annual food needs, and the corresponding figure for the better-off households is 40-45%. Milk sales are not typical.

Figure 3. Wealth Breakdown

Note: All results are the mid-point of a range



Households in the middle and better-off wealth groups have more savings/capital than other wealth groups and use it to engage in small business. Motorcycles are among the assets middle and better-off households use for small business.

Figure 3 shows the proportion of households in the community: 20-30% are very poor households, 30-40% poor households, 25-30% middle households, and 10-15% better-off households. Of these proportions, key informants at the village level reported that female-headed households accounted for 15-45% of households in the very poor wealth group, 25-35% in the poor, 5-10% in the middle, and less than 5% in the better-off. Female-headed households accounted for approximately 20% of all households in this livelihood zone.

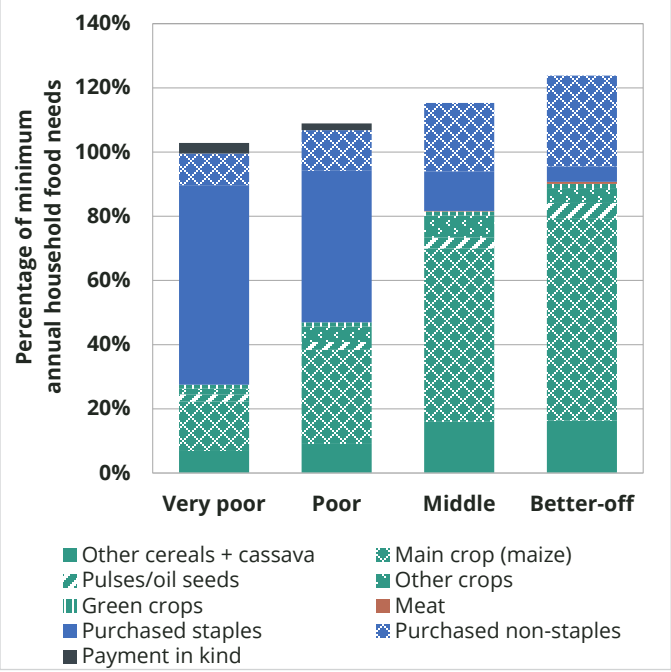
Across wealth groups, the main differences in agricultural production methods were in the use of fertilizers and pesticides. Only the better-off wealth groups used tractors for land preparation. Extreme soil poverty severely limited yields without the use of chemical fertilizers, and these inputs were expensive. The frequently irregular and poor distribution of rainfall also strongly affected crop yields. Crop pests (notably the lesion caterpillar on maize) also frequently appeared. Few households from any wealth group owned modern equipment, such as tractors. All households

used manual tools (mainly *dabas* and hoes). The recurrence of livestock diseases significantly constrained livestock rearing, partly due to the virtual absence of livestock vaccination campaigns.

Sources of Food

Figure 4 presents the sources of food for households in different CD01 wealth groups for the reference year, from May 2022 to April 2023. May represents the start of the consumption year because it is when the main harvest begins, thereby marking the end of the Lean Season. Figure 4 measures food by energy content, and the percentages are of the annual minimum kilocalorie (kcal) needs of the household based on the internationally accepted standard of 2,100 kcal per person per day, averaged over 12 months. Within the graph, 100% denotes the consumption threshold households must consume to meet their minimum requirement.

Figure 4. Sources of Food



Total food consumption in the reference year progressively increased with the amount of wealth. Overall, the very poor consumed 100-105% of minimum annual food needs, and the better-off consumed some 125%.

There were two main sources of food for households in the reference year: eating from their harvest and buying food from the market.

Food households obtained by producing their own crops increased progressively with the households' wealth. The middle and better-off wealth groups grew enough crops to cover their minimum consumption needs, whereas the very poor and poor wealth groups purchased most of their food. Crop production contributed to meeting 25-30% of the annual food needs for very poor households and 90% of the annual food needs for better-off households. Overall, the very poor consumed 25-30% of their minimum annual food needs from crop production, and the better-off consumed roughly 90%. The most important crops households grew for their own consumption were maize, cassava, sweet potatoes, and groundnuts.

Purchases were the most important source of food for the poor and very poor groups in the livelihood zone in the reference year, particularly purchased staples. All wealth groups purchased some staple foods. Even the wealthier households, which sold a surplus of some crops, purchased staple foods. But only about 5% of minimum annual food needs in better-off households came from purchased staples compared to 60-65% in very poor households. The most important purchased

items in terms of calorie contributions were maize, cassava flour, beans, and rice. In addition, all wealth groups purchased non-staple foods: vegetable and palm oil, sugar, groundnut seeds, and dried fish. The calorie contribution of non-staple foods ranged from 5-15% of annual needs for the very poor to 25-30% for the better-off.

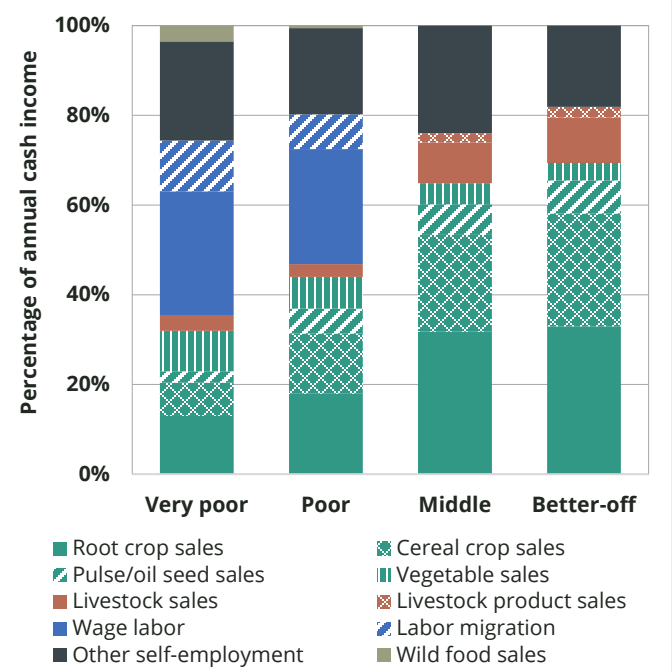
Payments in-kind were a minor source of food in CD01, accounting for less than 5% of recipient households' minimum annual food needs. Except in a few villages, payment in-kind in the form of food is not widespread, and casual work is almost always paid in cash. Only the very poor and poor wealth groups received payments in-kind in the reference year.

There was no food aid in the livelihood zone in the reference year, even for the poorest households. Private gifts were not typical, but the private gifts there consisted mainly of maize and, to a lesser extent, cassava. Households in the better-off wealth group offered these gifts to the poorest wealth groups, often in the form of *zakat*, the annual act of charity obligated in Islam. Although these gifts were made throughout the year, they were most pronounced during the harvest period.

Sources of Cash Income

In terms of cash income sources, the wealth groups can be split into two groups. The very poor and poor had similar income sources; wage labor, self-employment, and crop sales were their top three sources of cash. But the very poor depended more than the poor on migrant labor, and the poor generated more income from crop sales than the very poor.

Figure 5. Sources of Cash Income as a Percentage of Annual Cash Income

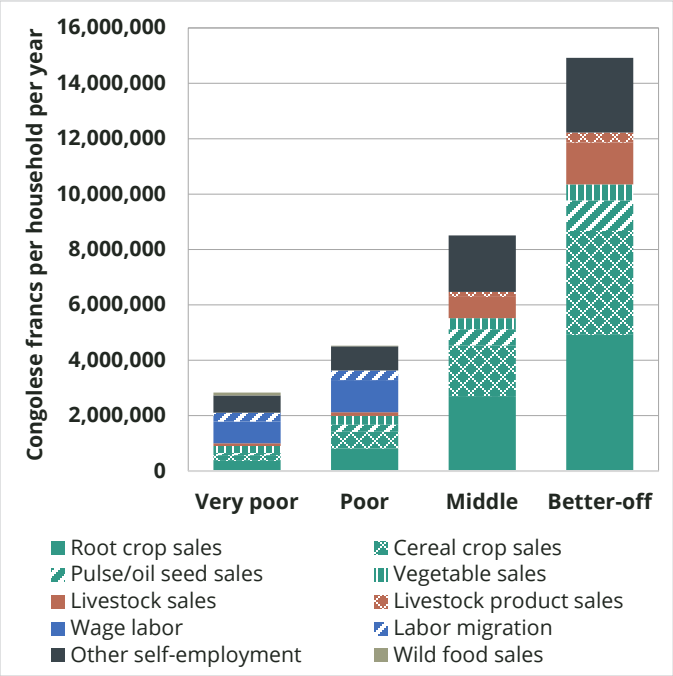


The middle and better-off also had similar income sources; crop sales, self-employment, and livestock sales were the top three sources of cash (see Figure 5).

Wage labor was the most important source of cash for very poor households and was an income source for only the very poor and poor wealth groups. It generated roughly 40% of total cash income for the very poor and 30-35% for the poor. The main types of labor men performed were agricultural work, including land preparation; planting, weeding, and harvesting; working on mining sites; and construction work. For women, the main

type of paid labor was agricultural labor, including preparing land, planting, weeding, harvesting, and winnowing.

Figure 6. Total Annual Cash Income



Crop sales were an income source for all wealth groups. These sales were the most important source of cash for poor, middle, and better-off households and the second most important income source for the very poor. Crop sales generated 30-35% of total cash income for the very poor, roughly 45% for the poor, 65% for the middle, and 70% for the better-off. The main food crops sold were maize, sweet potatoes, dried cassava, and groundnuts. As noted previously, wealthier households sold surplus maize, whereas poorer households sold from a harvest that did not begin to cover their requirements for the year; they were forced by the need to settle debts and other pressing expenses and bought maize later in the year. Different wealth groups also sold crops for different prices. The more affluent could wait until December, January, or even February for the most remunerative prices to sell their crops, but the poorest households sold their crops at harvest time in June and July, when prices were lowest.

Self-employment generated roughly 20-25% of income for households in all wealth groups. It was the second most important source of income for middle and better-off households and the third most important for very poor and poor households. For very poor and poor households, self-employment mainly involved woodcutting for firewood and charcoal and selling them year-round (with a peak from June to October) and making and selling bricks from June to October. Middle and better-off households primarily participated in motorcycle taxi transport and small-scale trading. This small-scale trading took place directly in villages and involved the purchase of various products like milk, sugar, oil, petrol, cereals, vegetables, and tubers, which were then resold in retail.

Livestock sales were the third most important source of cash for middle-class and better-off households, generating roughly 10% of their income. The main animals sold were pigs and goats.

Overall, crop sales and self-employment were both significant sources of income for all wealth groups in the reference year. Labor migration also generated a substantial proportion of income for very poor and poor households: roughly 10-15% for the very poor and 5-15% for the poor.

There were no transfers of aid cash within the livelihood zone in the reference year.

Differences between wealth groups in terms of the absolute amount of cash income they generated during the reference year were large, as shown in Figure 6 and Table 4. Overall, better-off households earned five to six times the cash income of very poor households. However, per capita, the better-off households earned twice as much as the very poor households.

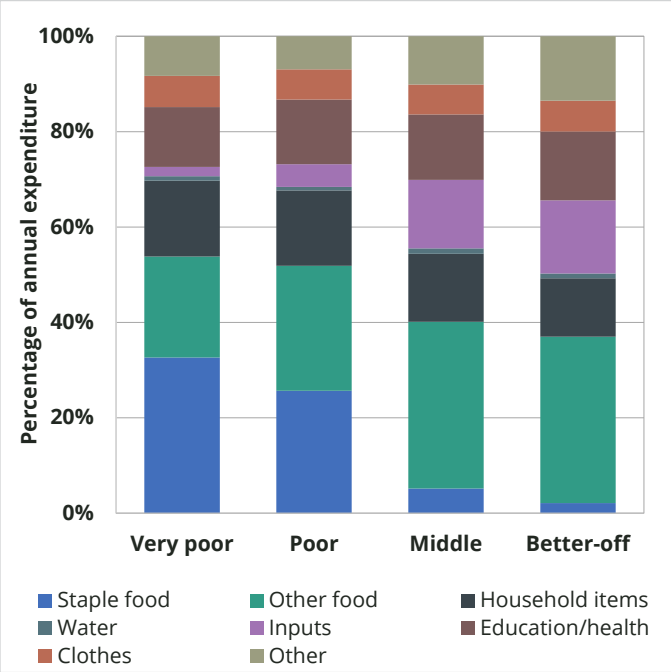
Table 4. Income Summary Table (Congolese Francs or CDF)[4]

Wealth Group	Very Poor	Poor	Middle	Better-Off
Annual income per household[5]	2,700,000-3,000,000	4,000,000-5,000,000	8,000,000-9,000,000	13,000,000-17,000,000

Expenditure Patterns

Figure 7 presents expenditure patterns for the 12 months of the reference year from May 2022 to April 2023. The absolute expenditure increased with wealth in line with total cash income, but this graph breaks down expenditure by percentage and shows the *relative* amount of income spent on different categories. Households had to cover a range of essential expenditures over the year, including staple foods, non-staple foods, household items and services (like salt, soap, tea, lighting, and milling), production inputs, social services (which include health and education), and clothing.

Figure 7. Total Annual Cash Expenditure by Category



For poor and very poor wealth groups, staple foods, non-staple foods, and household items were the top three expenditure items. For middle and better-off wealth groups, non-staple foods, production inputs, and health and school expenditures were the top expenditure items. Proportionally, all wealth groups spent a similar percentage of their total expenditure on water, clothes, health, and education.

The main staple foods purchased were maize, cassava flour, beans, and rice. Maize and cassava form the staple diet throughout this zone, and *fufu*, the most popular dish, is made from these two items. There was a progressive decrease in the share of

[4] The average exchange rate from May 2022 to April 2023 was 1 USD = 2,025 CDF.

expenditure on staple foods with an increase in wealth. Staple foods accounted for 30-35% of total expenditure by the very poor and less than 5% by the better-off.

Vegetable and palm oil, sugar, and groundnuts were the main non-staple foods purchased. At roughly 20% of total expenditures, non-staple foods accounted for the second largest share of total expenditures for very poor households and were the most important expenditure category for the poor, middle, and better-off wealth groups.

Household items accounted for the third largest share of total expenditures for very poor and poor households, and there was a progressive decrease in the share of these expenditures with an increase in wealth. Main items in this category included tea, coffee, salt, soap, cooking fuel, utensils, and other household services, like grinding. The wealthier groups also bought wood and charcoal, for which the poorest groups did not pay.

There was a progressive increase in the share of expenditures on productive inputs with an increase in wealth. Inputs accounted for well under 5% of total expenditures for very poor households, increasing to roughly 15% for the better-off. The main items in this category were labor, fertilizer, pesticides, seeds, and farming tools. Households in the better-off wealth group spent twice as much on hiring labor as households in the middle wealth group.

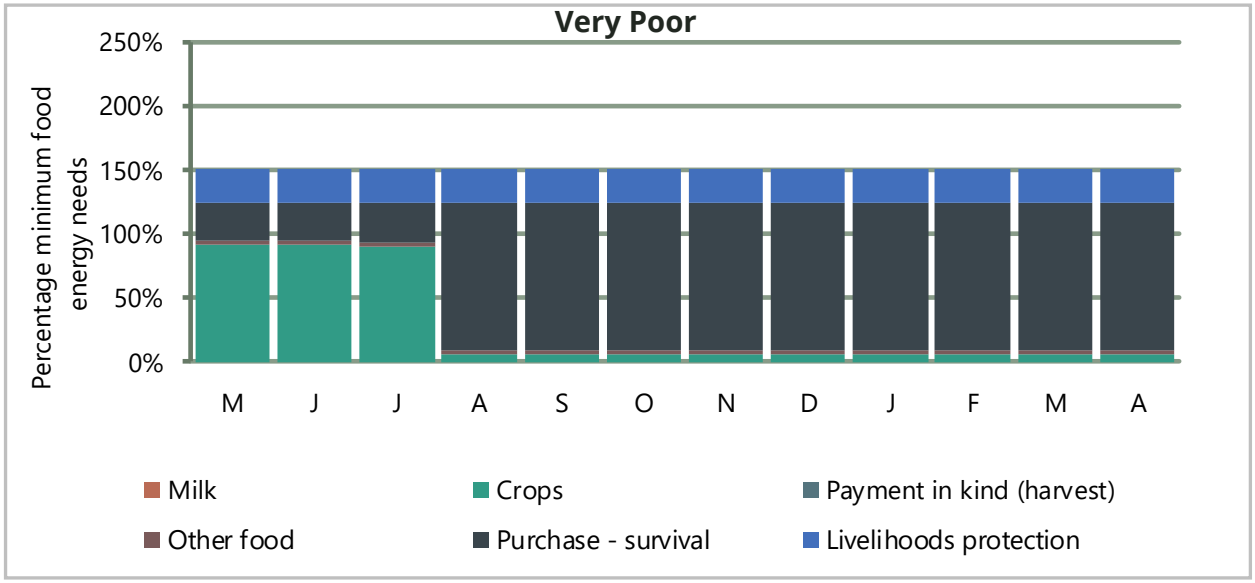
All wealth groups spent 13-15% of their total expenditure on health and education. All wealth groups also spent 6-7% of their total expenditure on clothes, and only about 1% on potable water. All wealth groups spent money on ”other” items, with 5-10% in the very poor wealth group increasing to 10-20% in the better-off wealth group.

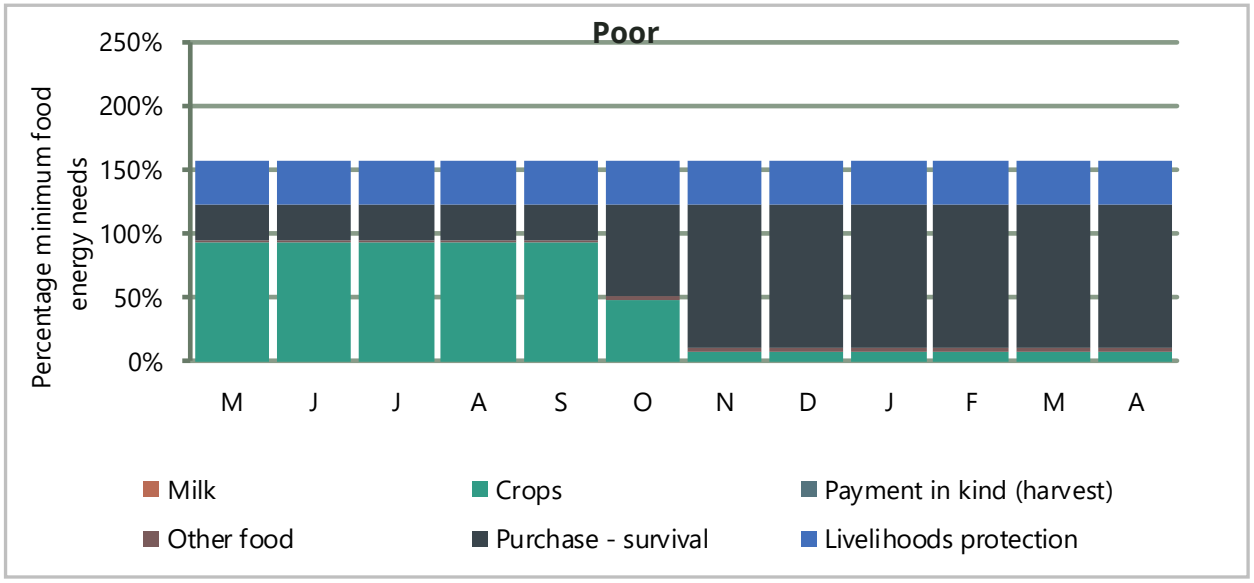
Food Access Calendars

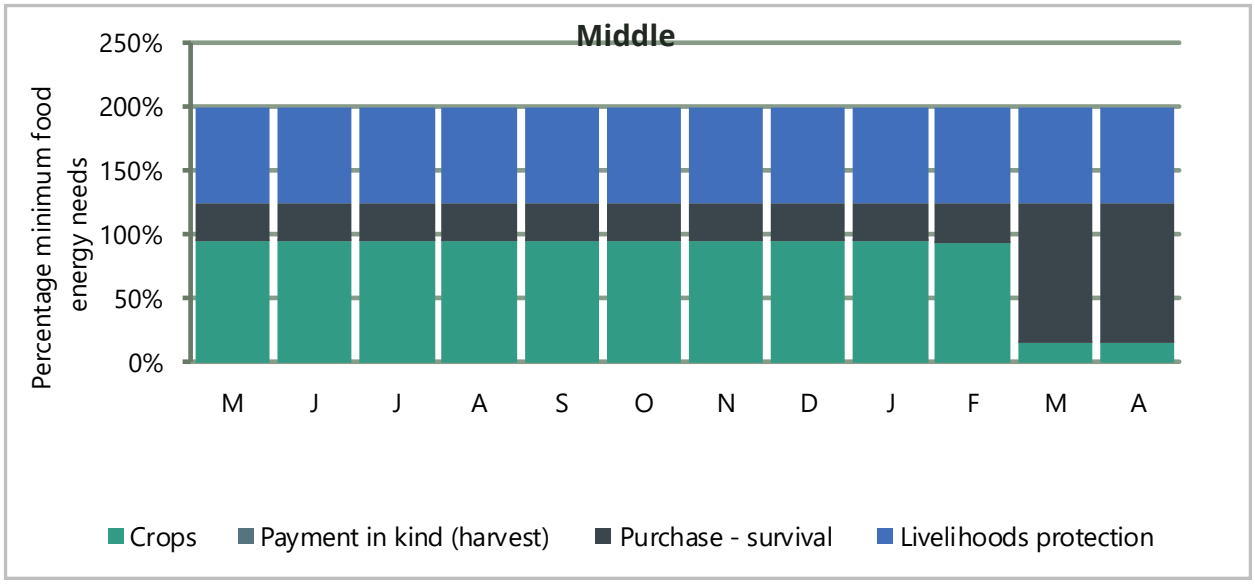
Figure 8 presents monthly food and cash access calendars for the four wealth groups.

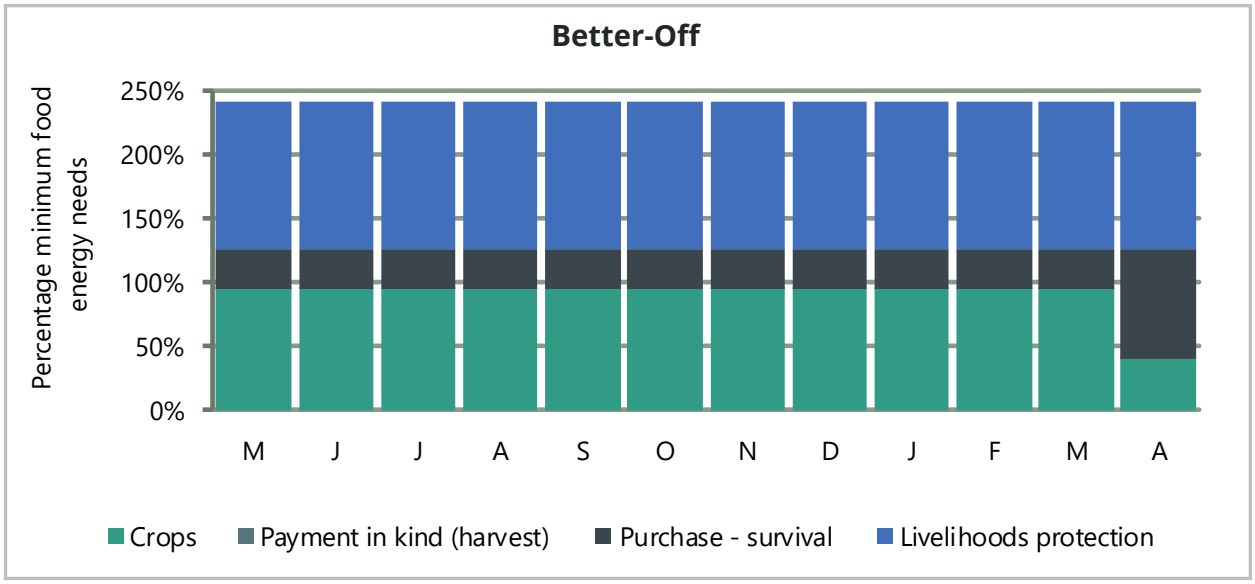
Households in all wealth groups could meet their survival and livelihood protection thresholds year-round in the reference year. The main harvest period in CD01 started in May, and households relied on their crop production to meet food needs for several months — increasing from about three months for very poor households to 11 months for better-off households. The dark blue rows that represent livelihoods protection show an increase in the proportion of the total along with wealth because wealthier households spent more on productive inputs, health, and education.

Figure 8. Seasonal Food and Cash Access Calendars per Wealth Group









Poor Female-Headed Households

Women in this livelihood zone have the right to inherit and own land and to share cropland. They also have the right to buy, inherit, and receive gifts of cattle, goats, and sheep. Female-headed households are mainly made up of widowed women and children. They are found in all wealth groups, but the majority are found in the very poor and poor wealth groups. During the baseline fieldwork, in-depth interviews were conducted with poor female-headed households.

The poor female-headed households experienced similar livelihood constraints to those that poor male-headed households experienced in the same wealth group, but poor female-headed households were disadvantaged by having less adult male labor, which has knock-on effects for asset ownership, farm production, and other income-generating activities.

Poor female-headed households commonly have reduced access to arable land and must rent cultivable land, with rent payments made at harvest time. They also have reduced access to appropriate working equipment, fertilizers, and improved seeds, which severely limits their agricultural yields. These households mainly keep poultry and, therefore, face the threat of Newcastle disease, which can kill their entire stock during an outbreak.

In terms of food, poor female-headed households consumed only a little less food than poor male-headed households, at some 105% of the minimum annual requirement compared to male-headed households' 110%.

Figure 9 shows that poor female-headed households and poor male-headed households met their food needs from similar food sources, mainly purchased staples and maize production. Poor male-headed households obtained 10% more calories from maize than poor female-headed households, which is why the female-headed households obtained more of their calories through market purchases. The three main food sources for both groups were, in order of importance, staple purchases, crop production, and non-staple purchases. Payments in-kind contributed no food for poor female-headed households compared to about 2% for poor male-headed households. As Figure 10 shows, poor female-headed households generated almost 40% less cash than poor male-headed households. However, poor female-headed households were much smaller than male-headed households, and per capita cash income was roughly the same.

Figure 9. Sources of Food: Poor Households vs Poor Female-Headed Households

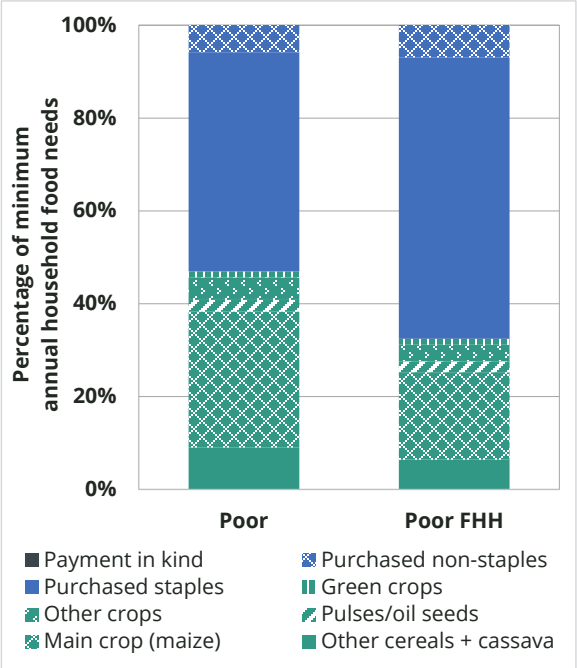
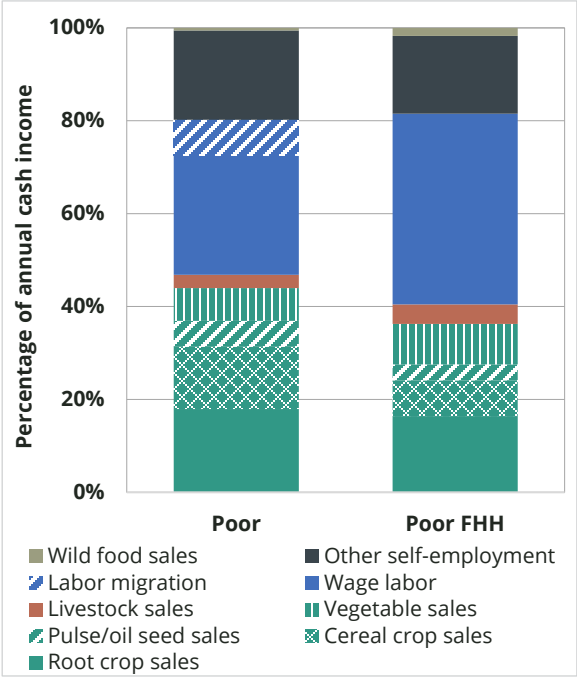


Figure 10. Sources of Cash: Poor Households vs Poor Female-Headed Households



As Figure 10 shows, the four main types of cash income for poor female-headed households were, in order of importance, wage-labor, crop sales, self-employment, and livestock sales. Crop sales made up a smaller percentage of annual cash income for poor female-headed households than for poor male-headed households, whereas wage-labor made up a larger percentage of their annual cash income: roughly 40% of annual income compared to 25% for male-headed households.

Staple foods made up a slightly larger percentage of annual expenditures for poor female-headed households because poor male-headed households could grow more crops. Other than this difference, however, the percentages for other expenditure items were similar.

Response Strategies

In response to hazards that impact production, households attempt to meet their minimum food and cash requirements through several strategies. Responses vary by wealth group, according to their assets and income possibilities. Below are common strategies employed by households.

Very Poor and Poor Households

Very poor and poor households try to increase self-employment through, for example, selling charcoal and wood and brickmaking. They intensify collecting wild foods, market gardening activities, and non-agricultural paid work, like mining. They also reduce non-essential expenses, such as cooking oil, tea, sugar, and communications.

Middle and Better-Off Households

These households intensify retail and small businesses and attempt to increase income from transport. They also intensify market gardening activities and reduce non-essential expenses, like on meat, fish, and gifts.

Key Parameters for Monitoring

The key parameters listed in Table 5 are food and income sources that make a substantial contribution to the household economy in the *Katanga Maize and Cassava Production with Urban and Mining Labor Livelihood Zone*. These should be monitored to track potential losses or gains to local household economies through ongoing monitoring systems or periodic assessments.

Table 5. Key Parameters for Monitoring

Item	Key Parameter – Quantity	Key Parameter – Price
Crop production	• Maize Season B – quantity produced • Cassava – quantity produced • Groundnuts – quantity produced • Sweet potatoes – quantity produced • Vegetables – quantity produced	• Maize Season B – producer price • Cassava – producer price • Groundnuts – producer price • Sweet potatoes – producer price • Vegetables – producer price
Livestock	• Pig sales – herd size • Goat sales – herd size • Poultry sales – flock size • Herd meat sales – quantity	• Pig sales – producer price • Goat sales – producer price • Poultry sales – producer price • Meat sales – producer price
Other food and cash income	• Agricultural labor (pre-harvest) – demand • Migration – demand • Charcoal/firewood sales - quantity • Agricultural labor (harvest) – demand • Self-employment – demand • Petty trade - demand	• Agricultural labor (pre-harvest) – wage rates • Migration – wage rates • Charcoal/firewood – producer price • Agricultural labor (harvest) – wage rates • Self-employment – daily earnings • Petty trade – daily earnings
Expenditure		• Maize – consumer price • Cassava – consumer price

CD02 Livelihood Zone

Reference Year: May 2023–April 2024

Savannah Cassava Livelihood Zone



Figure 1. CD02 Livelihood Zone Map

Summary: The *Savannah Cassava Livelihood Zone* (CD02) is a grassland and tree-covered area in the southern quadrant of the Democratic Republic of the Congo (DRC). It is predominantly characterized by its reliance on agriculture, and cassava is the main staple crop. Households engage in small-scale farming and rely heavily on crop production for consumption and income. Supplementary activities include livestock rearing, producing charcoal, and small-scale trading. The zone's challenges include poor soil fertility, recurrent crop diseases, poor distribution of rainfall, and inadequate infrastructure, which limit access to markets, especially during the rainy season. Livelihoods are largely shaped by the area of cultivated land. Poorer households tend to have less available family labor, which limits these households' access to cultivated land. Wealthier households typically farm larger plots by hiring labor.

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Zone Description

The *Savannah Cassava Livelihood Zone* (CD02)[1] is a grassland and tree-covered area in the southern quadrant of the DRC. It borders Angola to the west and south and shares a small border with Zambia in the south. The zone spans parts of the Lualaba and Haut-Lomami provinces, including the territories of Kamina, Kaniama, Dilolo, Kapanga, and Sandoa. Fieldwork for this baseline profile was undertaken in Dilolo and Sandoa territories. The population of CD02 is 1,039,281, with an average population density of 10 people per square kilometer, among the lowest in the DRC.[2] The main languages spoken are Swahili, Lunda, Sanga, and Tshokwe. The economy is primarily based on agriculture, and most households depend on crop production and paid work in the field for food and income. Although the region is rich in mineral resources, like copper, cobalt, manganese, gold, tin, and industrial materials (like limestone, quartzite, and dolomite), the local rural population does not typically exploit these resources.

Savannah woodlands dominate the natural vegetation and are interspersed with patches of dense forest in certain parts, particularly in areas less affected by forest clearing. CD02's terrain is hilly and rugged in the southeast. The zone also features several rivers, including the Lualaba River. These rivers are important sources of water for agricultural and household use. Seasonal rivers and smaller bodies of water are generally found in CD02's north, where low-lying areas may flood during the Rainy Season. The climate is warm and temperate in the zone's east, whereas the western areas experience a more humid tropical climate. The zone has one Rainy Season and one Dry Season, with the Rainy Season lasting for about eight months between September and April. Rainfall averages between 1,200 and 1,300 millimeters annually, and temperatures range from about 24°C to 38°C.[3]

CD02's primary crops are cassava and maize, which are the main staples for household consumption and sale. Cassava is particularly important because it resists drought and suits the region's climate and soil. Households cultivate groundnuts and rice in addition to cassava and maize. The soils in the zone vary by region. In the north, the soils are sandy, whereas in the south, they are sandy clay. The soils are generally low in organic matter. The poor soil fertility limits crop yields, contributing to the zone's agricultural challenges. Crop pests and diseases are a persistent threat to agriculture in the zone, particularly to cassava and maize. Cassava mosaic virus and fall armyworm are common and frequently reduce yields.

In CD02, livestock rearing supplements livelihoods. Households rear small numbers of cattle, goats, pigs, and poultry. These animals provide supplementary income through sales; households consume very little meat and no milk. Only the wealthier households own cattle, whereas households in all wealth groups keep poultry to generate quick income. However, livestock numbers

[1] Fieldwork for the current profile was undertaken from July 15 – August 10, 2024. The information presented in this profile refers to the reference year, which was the consumption year that covered the period May 2023 to April 2024. Provided there are no fundamental and rapid shifts in the economy, the information in this profile is expected to remain valid for approximately five to 10 years (i.e., until 2028-2033). All prices referred to in the document are for the reference year.
[2] FEWS NET Data Explorer, population data (2023), accessed 2025, https://fdw.fews.net/data-explorer/.
[3] FEWSNET Early Warning Explorer CHIRPS and LST dataset 10-year average.

are low overall, and animal husbandry practices in the zone are not advanced. Livestock diseases, such as Newcastle disease in poultry and various parasitic infections in goats and pigs, affect the condition and longevity of animals, limiting their potential as reliable sources of income.

In addition to raising their own crops and livestock, households engage in a range of other income-generating activities. For very poor and poor households, the most important is paid labor on farms of wealthier households. Another important activity for poorer households is charcoal production for sale. The zone is rich in forest resources, providing households, especially poorer ones, with an opportunity to cut firewood and produce charcoal. This activity is labor-intensive but provides a vital source of income, particularly during the Dry Season when agricultural work slows down. The charcoal production process involves cutting down trees and burning the wood in pits covered with soil to convert it into charcoal. The charcoal is then bagged and sold in local markets or transported to urban centers, where it sells for higher prices. However, widespread reliance on this activity has led to deforestation and, in turn, environmental degradation.

Another important income-generating activity is petty trade. Households, especially those near roads or towns, engage in the sale of various perishable goods, such as vegetables, fruits, and fish, as well as more basic commodities. Women are particularly active in this sector, often running small stalls or selling goods in local markets, but other household members are usually also involved. Finally, some households engage in seasonal labor migration, particularly during the Dry Season. Men and boys often migrate to nearby mining areas in the *Katanga: Maize and Cassava Production with Urban and Mining Labor Livelihood Zone* (CD01), where they can find temporary work in copper and cobalt mining. Mining provides an essential source of income for poorer households, especially during periods when agricultural activities are not profitable. However, the income earned from mining is unpredictable and dependent on the availability of jobs in a given period.

The *Savannah Cassava Livelihood Zone* (CD02) faces several critical hazards that significantly impact livelihoods. Crop pests and diseases are the most frequent problems, particularly fall armyworm, which affects maize in two out of every five years, and the cassava mosaic virus, which damages cassava crops annually, leading to reduced agricultural yields. Rainfall deficits and irregularities occur about every other year, further hindering crop production. Epidemics also affect livestock. For example, the porcine fever, swine erysipelas, and verminosis diseases affect pigs; Newcastle disease affects poultry; and *peste des petits ruminants* affects small ruminants. Floods occur approximately once every three years, and the zone is also burdened by poor soil quality.

Access to social services and sanitation in CD02 is generally limited. For water, households rely on a variety of sources, including open wells, shallow wells, boreholes, and seasonal rivers. In some areas, rainwater is also collected for domestic use. Sanitation services are basic across much of the zone. Most households, regardless of wealth group, use simple pit latrines, and domestic waste disposal is generally managed at the household level, with little formal infrastructure for waste collection or disposal. In terms of health services, the zone has dispensaries and health centers, which are the main sources of medical care for the population. However, access to hospitals and

more advanced medical services is limited, especially in more remote areas. Poorer households rely on traditional medicine when formal health services are unavailable or too costly. Wealthier households usually use formal health services. The maximum typical level of education for very poor and poor households is primary and secondary, while middle and better-off households also have access higher education. For lighting, poorer households primarily use flashlights, while wealthier households may have access to larger battery-powered lanterns or solar panels. The primary fuel sources for cooking are firewood and charcoal, and the latter is mostly used by wealthier households.

Markets

CD02 is connected by a few key trade routes that link the rural areas to larger market centers. The main roads, including the RN39 national highway, which crosses the zone from east to west before going north, provide trade access to major commercial hubs, such as Kasaji, Kolwezi, and Lubumbashi. Kasaji falls inside the livelihood zone CD02, while Kolwezi and Lubumbashi are in neighboring CD01. These cities serve as critical market centers where goods from the surrounding rural areas, such as cassava, maize, charcoal, and forest products, are traded. Kasaji and Kolwezi are also important destinations for households seeking to buy industrial goods, food supplies, and agricultural inputs. Despite the poor road conditions, these cities are essential trade links and gateways for goods entering and leaving the zone.

Transportation infrastructure in CD02 is generally underdeveloped and presents significant challenges for trade and other movement. The road network is mostly composed of unpaved, dirt roads that are prone to deterioration, especially during the Rainy Season, which lasts from September to April. Many other roads become impassable due to heavy rains and poor drainage, which severely disrupts the movement of goods and people. As a result, households face difficulties in accessing markets to sell their produce and purchase essential items like food and fuel. The lack of well-maintained roads increases transportation costs and drives up the price of goods in local markets, especially in more remote areas. In the Dry Season, from November to March, road conditions improve, which makes it easier for people and goods to move within the zone. Motorcycle taxis are a common means of transportation, used to transport goods to local markets and neighboring regions. However, the overall state of the road network remains poor, even during the Dry Season. In addition to the dirt roads, the region lacks bridges and reliable crossings over rivers and streams, which further complicates transportation during periods of heavy rainfall.

Households from all wealth groups sell cassava and households from poorer wealth groups sell charcoal typically in smaller local markets, before the cassava and charcoal are transported to larger towns and cities, where they sell for higher prices. Livestock (goats, pigs, and poultry) are typically sold in smaller, informal markets, where animals are sold either directly to local traders or to neighboring households. The urban markets in Kolwezi are particularly important for households looking to sell their products at better prices, as these urban areas have higher demand and more purchasing power than rural markets. Aside from Kolwezi and Kasaji, smaller market towns such as

Dilolo, Kamina, Sandoa, and Kapanga serve as secondary hubs for trade. These towns are important for local and regional trade, and households bring their produce to these markets to sell to traders. The traders then transport goods to larger urban centers. The zone's proximity to Angola and Zambia also influences trade. Cross-border trade is common, with goods like cassava, maize, and charcoal flowing to and from these neighboring countries. However, the zone's poor infrastructure means that during the Rainy Season, even these smaller markets can become isolated because the state of border infrastructure sometimes hinders cross-border trade, especially during times of heightened border controls or security concerns.

Timeline and Reference Year

The baseline assessment refers to a specific period called the "reference year." In CD02, the reference year covers the consumption period from May 2023 to April 2024. During community leader interviews, FEWS NET asked informants to score the last five years in terms of seasonal performance, with "1" indicating a poor season and "5" indicating an excellent season. Table 1 summarizes the responses of the community leaders. The reference year was characterized as a "3" as there were fewer disruptions in agricultural production and a reduction in the amount of crop diseases and pests that communities have faced in other years. Additionally, there were no major livestock epidemics, and overall, the reference year was unaffected by any significant disturbances.

Table 1. Timeline

Production Year	Score	Critical Events
2023-2024	3	Good rainfall in terms of amount and distribution. Average yields and fewer cassava diseases. Slight damage to maize crops due to armyworm. Stable prices for staple foods.
2022-2023	2	Lack of rainfall and poor distribution. Armyworm infestations reduced maize production. Decreased yields for cassava due to disease.
2021-2022	3	Good rainfall in terms of amount and distribution. Average yields with fewer crop pests and diseases. Stable prices on staple foods.
2020-2021	2	Lack of rainfall and poor distribution. Armyworm infestations reduced maize production. Decreased yields for cassava due to disease.
2019-2020	2	Lack of rainfall and poor distribution. Armyworm infestations reduced maize production. Decreased yields for cassava due to disease.

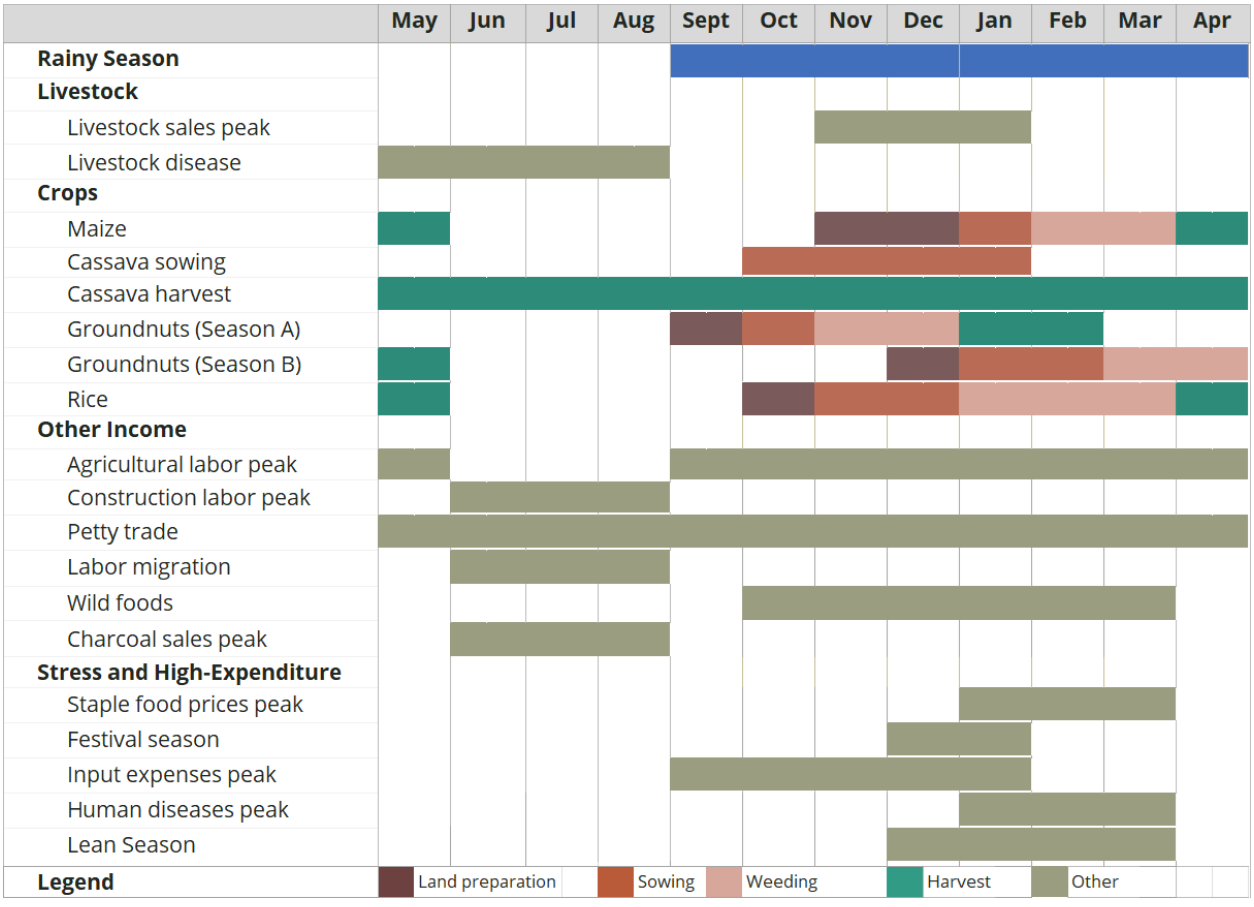
5 = Excellent season for household food security (e.g., due to good rains, good prices, good crop yields)
4 = Good season or above average season for household food security
3 = Average season for household food security
2 = Below-average season for household food security
1 = Poor season for household food security (e.g., due to drought, flooding, livestock disease, pest attack)

Key informants rated the seasons between 2019 and 2024, including the reference year, as either "3" (average) or "2" (below average) in terms of household food security. Rainfall patterns were erratic, with precipitation volumes fluctuating from year to year and often distributed unevenly. In some years, insufficient or poorly timed rains led to lower agricultural yields. Crop pests and diseases are also persistent challenges, particularly affecting staple crops, like cassava and maize. The cassava mosaic virus significantly reduces cassava yields, while fall armyworm frequently damages maize crops.

Seasonal Calendar for Reference Year

The seasonal calendar in Figure 2 illustrates the main economic activities and events of the reference year. It traces the rainy months, agricultural activities, wild food collection, peak labor periods, food purchasing periods, etc.

Figure 2. Seasonal Calendar



The agricultural calendar in CD02 begins with the Rainy Season, which typically starts in September and continues until April. This period is crucial for agricultural activities, as all crops are rain-fed. The Dry Season follows, from May to August, when agricultural activities slow down.

Crop production is a mix of single and multi-season crops. Households can keep cassava, the zone's staple crop, in the ground for several months after it matures to store food throughout the year (at least for those who grow a surplus), providing households with a flexible and continuous food source. Maize is typically grown in one season, with planting starting in January and harvesting around April and May. In contrast, groundnuts are grown in two seasons. The first planting (Season A) occurs in October, with harvesting around January, and a second season follows (Season B), with planting in January or February and harvesting in May. This diverse crop pattern helps households manage food and income sources throughout the year, with cassava providing the most consistent yield, while maize and groundnuts offer seasonal harvests.

Livestock sales are typically highest from November through January. This period coincides with when households prepare land and plant for maize, groundnuts, and beans, and when middle and better-off households need cash to pay agricultural workers. December and January are also the principal time for holiday celebrations, and livestock sales generate cash to pay for increased spending.

The Dry Season from May to August is marked by a slowdown in farming, but households from all wealth groups focus on other income-generating activities, such as brickmaking, producing charcoal, and migrating for seasonal work in mining areas like Likasi, Kolwezi, and Kassumbalesa. Petty trade takes place year-round. Gathering of forest products for sale is highest during the Rainy Season and peaks from October to March.

The Lean Season lasts from December to March; it aligns with the time when food stocks from previous harvests are typically depleted, and households rely more heavily on market purchases to meet their food needs. It is important to note that although cassava seems to be available all year, very poor and poor households sell upward of 60% of their cassava during the year to pay for essential items, so these households may have little surplus available in the lean months.

Table 2 outlines the typical division of labor, highlighting tasks that are shared and divided between men and women. While many activities, such as agricultural labor, trade, small business, and self-employment, are shared by all household members, certain responsibilities are more gender-specific. Men typically handle livestock production (except for poultry), motorcycle taxi services, brickmaking, and labor migration. Women primarily manage domestic duties, including collecting water, cooking, taking care of children, and laundering clothes. Men also contribute to domestic tasks, particularly in firewood collection and construction-related activities.

Table 2. Typical Division of Labor

Shared Tasks	Women's Tasks	Men's Tasks
• Agricultural paid labor – preparing land, sowing, weeding, and harvesting • Agricultural product sales	• Household water collection • Meal preparation • Laundry	• Livestock slaughter • Livestock care and sales • Motorcycle taxi services • Brickmaking

Shared Tasks	Women's Tasks	Men's Tasks
• Petty trade • Collection and sale of wild foods • Household firewood collection • Production and sale of charcoal	• Care and feeding of young children • Poultry sales • Meat sales	• Labor migration • Household construction and repairs

Wealth Breakdown and Productive Assets

Table 3 summarizes the types and numbers of productive assets that typical households within each wealth group own and/or manage. Asset holdings are shown in a range that reflects the diversity of households' situations within a wealth group. Figure 3 shows the percentage of households that fall in each wealth group. Local communities carried out the socioeconomic categorization of households in the zone themselves.

Table 3. Wealth Breakdown

Household Size and Productive Assets	Very Poor	Poor	Middle	Better-Off	Poor Female-Headed
Household size	4-6	6-8	8-10	10-12	3-5
Land (hectares [ha])	0.5-1	1-2	2-4	3-6	0.5-1.5
Land cultivated (ha)	0.4-0.8	0.5-1.5	1.5-2	2-3.5	0.5-0.75
Land cultivated – food crops (ha)	0.3-0.5	0.5-1	1-1.5	1.5-2.5	0.3-0.5
Land cultivated – cash crops (ha)	0.1-0.25	0.1-0.4	0.25-0.75	0.5-1	0.1-0.3
Cattle	0	0	0-5	0-10	0
Pigs	0	0	0-6	0-10	0
Goats	0	0	4-6	8-12	0
Poultry	8-15	10-20	10-25	15-25	10-20
Hoes, plows, and farm equipment	2-4	2-4	4-6	8-10	2-3
Motorcycles	0	0	1	1-2	0

The key differences between wealth groups in CD02 are in their land ownership, livestock ownership, access to farming equipment, and access to transportation. These factors heavily influence household food security and income generation, with better-off households having higher

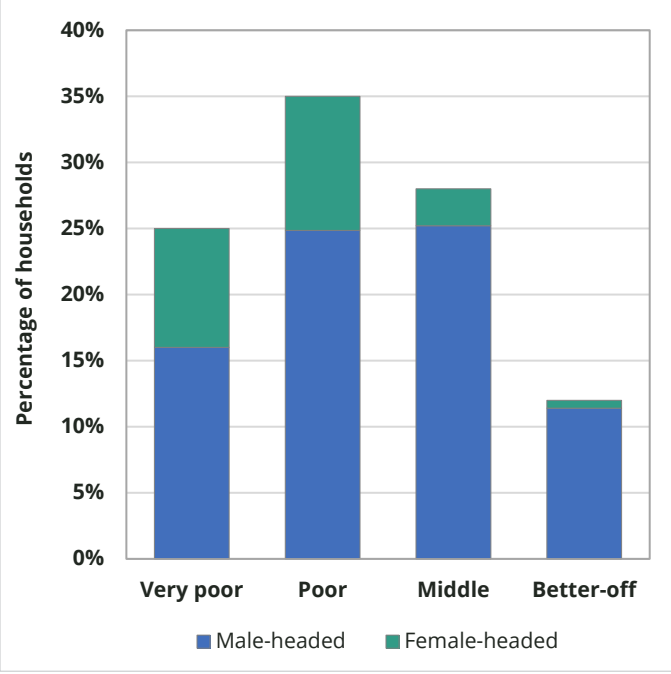
capacity to produce food, raise livestock, and access markets, and very poor and poor female-headed households struggling to meet their basic needs.

Land ownership varies widely between wealth groups, with very poor households typically owning 0.5-1 ha and better-off households owning 3-6 ha. The amount of land cultivated for food and cash crops also differs substantially between groups. Better-off households cultivate 2-3.5 ha of food crops and up to 2.5 ha of cash crops, whereas very poor and poor female-headed households cultivate much smaller areas. This disparity in land ownership and cultivation capacity plays a significant role in determining the amount of food produced and the income generated through the sale of surplus crops.

Wealthier households typically have more members than poorer households. Better-off households typically consist of 10-12 members, allowing them to benefit from a larger labor force for agricultural production and other income-generating activities. In contrast, middle households have slightly fewer members, usually 8-10, while poor male-headed households consist of 6-8 members. Very poor households are generally smaller, with household sizes ranging from 4-6 members. Poor female-headed households tend to have even fewer members, typically 3-5, which further constrains their ability to cultivate larger areas of land or engage in activities that require more effort, like livestock rearing.

Figure 3. Wealth Breakdown

Note: All results are the mid-point of a range



Livestock ownership also highlights the wealth gap between households. Very poor and poor households, including poor female-headed households, typically have no larger livestock, only poultry, but in numbers just slightly less than wealthier households. In contrast, better-off households have substantial livestock holdings, including up to 10 cattle, up to 10 pigs, and 8-12 goats.

Better-off households are also more likely to own a variety of productive assets, like hoes, plows, and other farm equipment, which they use to enhance agricultural productivity. These households typically own 8-10 pieces of farming equipment, compared to the 2-4 pieces found among poor male-headed households, and 2-3 among poor female-headed households.

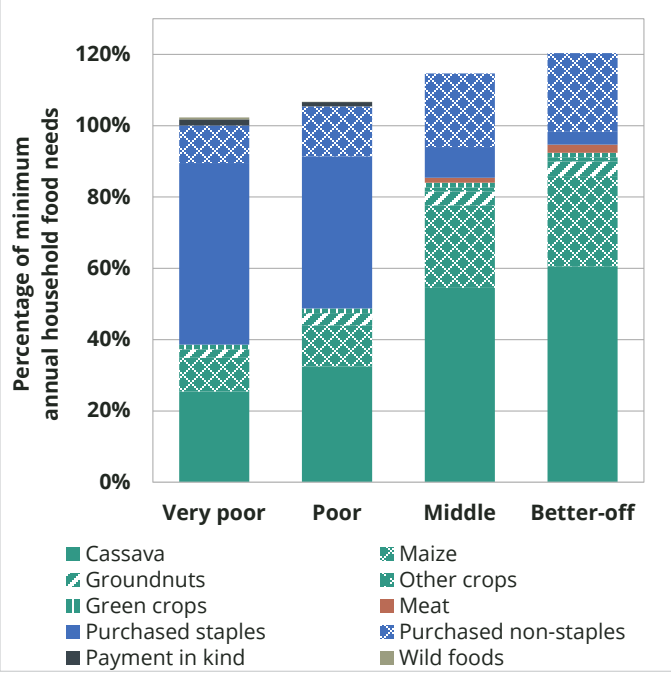
Another key difference between wealth groups is access to transportation. Middle and better-off households are more likely to own motorcycles, which facilitate access to markets and social services. In contrast, very poor, poor, and poor female-headed households rely primarily on public transportation. This difference in transportation access further widens the gap between wealth groups, as wealthier households can more easily sell their produce in distant markets where they may fetch higher prices, while poorer households are often limited to local markets with lower demand and reduced prices.

Female-headed households make up a portion of all wealth groups, including the better-off, with the highest percentage found within the very poor group (see Figure 3). In terms of land owned, poor female-headed households have an asset profile similar to poor male-headed households. The main differences between poor female-headed households and poor male-headed households are the household size and amount of land cultivated. The average household size for poor female headed households is 3-5 members while for poor male headed households it is 6-8 members. The amount of land cultivated by poor female-headed households 0.5–0.75 ha, compared to 0.5-1.5 ha for poor male-headed households.

Sources of Food

Figure 4 presents sources of food for households in each wealth group in CD02 for the period from May 2023 to April 2024 (the reference year). May represents the start of the consumption year and the peak harvest season for rice, maize, and groundnuts. Figure 4 shows food sources as a percentage of the annual kilocalorie (kcal) needs of the household based on the internationally accepted standard of 2,100 kcal per person per day.

Figure 4. Sources of Food



Total food consumption progressively increased with household wealth. Overall, very poor households consumed roughly 100% of minimum annual food needs and better-off households roughly 120%. There were two main sources of food in this zone and four minor sources. The main sources were crops and purchased food. The four minor sources were wild foods, payments in-kind, meat, and gifts.

The main difference in food sources among wealth groups was that wealthier households tended to rely on more of their own crop production to meet their food

needs, whereas poorer households tended to rely heavily on purchased staples.

Cassava was a key staple for households in all wealth groups, and its contribution to food consumption increased with household wealth, with very poor households obtaining around 25% of their food from their own cassava harvest and better-off households relying on cassava for roughly 60% of their food. Maize also played an important role, with better-off households sourcing about 25% of their food from maize, compared to about 10% for very poor households. Overall, better-off households met over 90% of their total food needs through their own crop production, while poorer households' own crops provided 40-50% of total food needs. It should be noted that households from all wealth groups, including very poor, sell a majority of their crops — over 60% of their total cassava production and over 50% of their maize production. Poorer households sold this high proportion of their crops because they had many costs that they could not fully cover with other income sources, including paid labor.

Poorer households depended on purchasing food from the market. Purchased staples, such as maize and cassava, made up a substantial portion of the diet for very poor households, contributing about 40-50% of their food intake, while better-off households purchased less than 5% of their staple foods. This heavy reliance on market purchases among the very poor and poor makes them more vulnerable to price fluctuations, especially during the Lean Season. Non-staple food purchases, such as oil and sugar, were higher among wealthier households, with better-off households sourcing roughly 20% of their kilocalorie requirements from these purchases, compared to about 10% for very poor households.

Sources of Cash Income

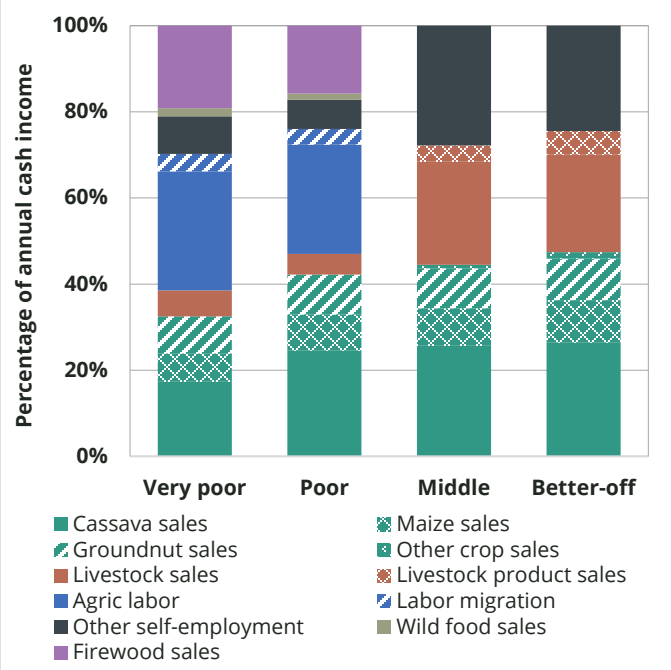
Agriculture is the main livelihood activity in CD02. However, the main source of cash income in this zone varies by wealth group (see Figure 5). Absolute income is shown in Table 4 and Figure 6.

In terms of patterns of income, the wealth groups can be divided into two categories. Wealthier households primarily generated income from crop sales and livestock sales. Poorer households depended more heavily on paid labor and self-employment activities (including firewood and charcoal sales). Overall, crop sales accounted for about 30% of cash income for very poor households, just over 40% for poor and middle households, and nearly 50% for better-off households. Cassava sales were a significant income source for all wealth groups, contributing around 17% of cash income for very poor households, and 25% for poor, middle, and better-off households. Groundnut and maize sales provided additional income across all groups, with wealthier households selling slightly more. Only middle and better-off households generated income from rice sales.

Wealthier households generated significant income from livestock sales, which contributed about 25% of their cash income, while poorer households received much less income from livestock sales, about 5%. In addition to livestock, better-off households benefited from selling meat from their

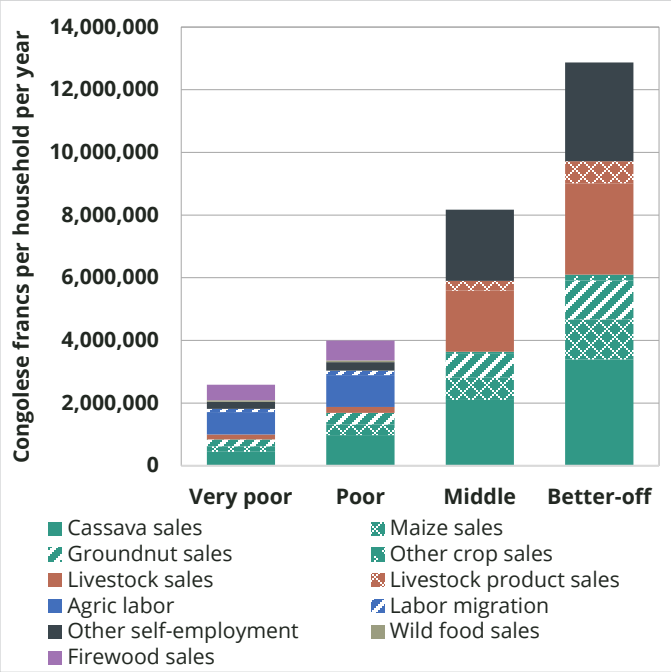
animals, which contributed about 5% to their income, while meat was not sold by poorer households.

Figure 5. Sources of Cash Income as a Percentage of Annual Cash Income



Poorer households relied heavily on paid agricultural labor as a key source of income, contributing approximately 25% to the income of very poor and poor households. Firewood sales also played an important role, accounting for about 20% of cash income for very poor households and 15% for poor households. Additionally, many very poor and poor households sought labor opportunities outside the zone, particularly in nearby mining areas. Men migrated to copper and cobalt mining regions for daily or monthly employment, which provided around 5% of income for poorer households during the reference year.

Figure 6. Total Annual Cash Income



Other self-employment activities were of relatively minor importance to poorer households (about 10% of total cash income) and mainly consisted of brickmaking. For wealthier households, self-employment accounted for some 25% of their cash income, mainly from trading activities.

Differences in the absolute amount of cash income generated during the reference year were very large between wealth groups. Overall, better-off households earned about five times the cash income of very poor households and three times that of poor households. Given the bigger sizes of wealthier households, the differences in per capita income were smaller, but still substantial. Better-off households earned close to twice the annual per capita cash income of very poor households.

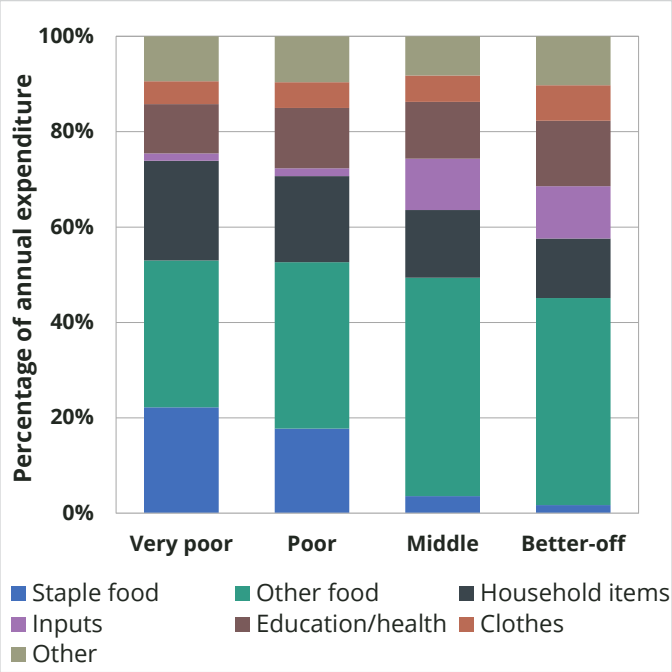
Table 4. Income Summary Table (Congolese Francs or CDF)

Wealth Group	Very Poor	Poor	Middle	Better-Off
Annual income per household[4]	2,000,000–3,000,000	3,500,000–4,500,000	7,000,000–9,000,000	10,000,000–14,000,000

Expenditure Patterns

Figure 7 presents expenditure patterns for the reference year from May 2023 to April 2024. While absolute expenditure increased with wealth in line with total cash income, the expenditure breakdown by percentage shows the *relative* amount of income spent on different categories. Households in CD02 need to cover a range of essential expenditures over the year. These include staple foods, non-staple foods, household items/services (like salt, soap, tea, lighting, milling, etc.), productive inputs, social services (which include health and education), clothing, as well as other essential and non-essential items.

Figure 7. Total Annual Cash Expenditure by Category



In relation to expenditure, very poor and poor households had a similar pattern, with non-staple foods, staple foods, and household items as their top three expenditure items. For middle and better-off households, non-staple foods, household items, and education/health were the top three expenditure items.

Staple foods accounted for roughly 20% of total expenditure by poorer households and less than 5% by wealthier households. The main staple foods purchased were cassava flour and maize.

Non-staple "other" foods accounted for the largest share of total expenditure for households from all wealth groups. There was a progressive increase in share of expenditure with increasing wealth. Expenditure increased from about 30% for poorer households to about 45% for wealthier households. Non-staple food purchases included meat, oil, sugar, beans, and fish.

Household items/services made up approximately 15-20% of total expenditure across households from all wealth groups. These items/services included tea, cola nuts, salt, soap, milling costs, and kitchen utensils. Health and education expenses accounted for 15-20% of total spending among very

[4] The average exchange rate from May 2023 to April 2024 was 1 USD = 2,545 CDF.

poor households, while middle households allocated 20-25% — the smallest and largest shares, respectively, among wealth groups. Clothing represented around 5% of total expenditure for all wealth groups. The "other" items category essentially covered transport, which comprised roughly 10% of household spending for all wealth groups.

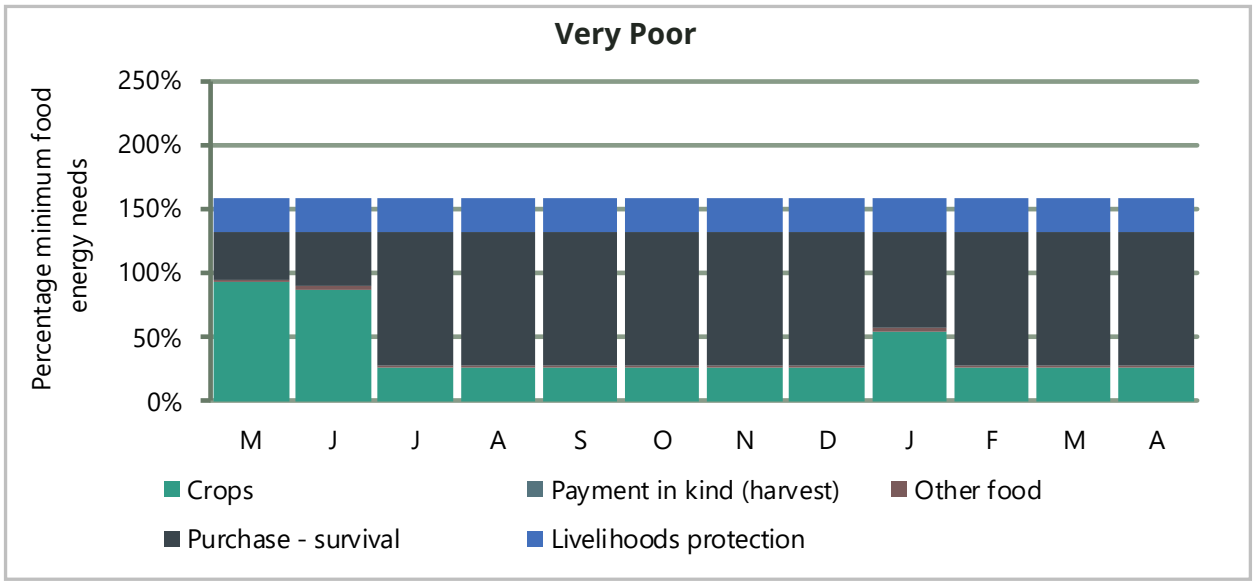
Spending on productive inputs accounted for less than 10% of total expenditure for wealthier households, which invested more in hiring labor. Poorer households spent less than 3% on productive inputs, mainly seeds and tools. Neither chemical fertilizers nor pesticides were typically bought by households in any wealth group.

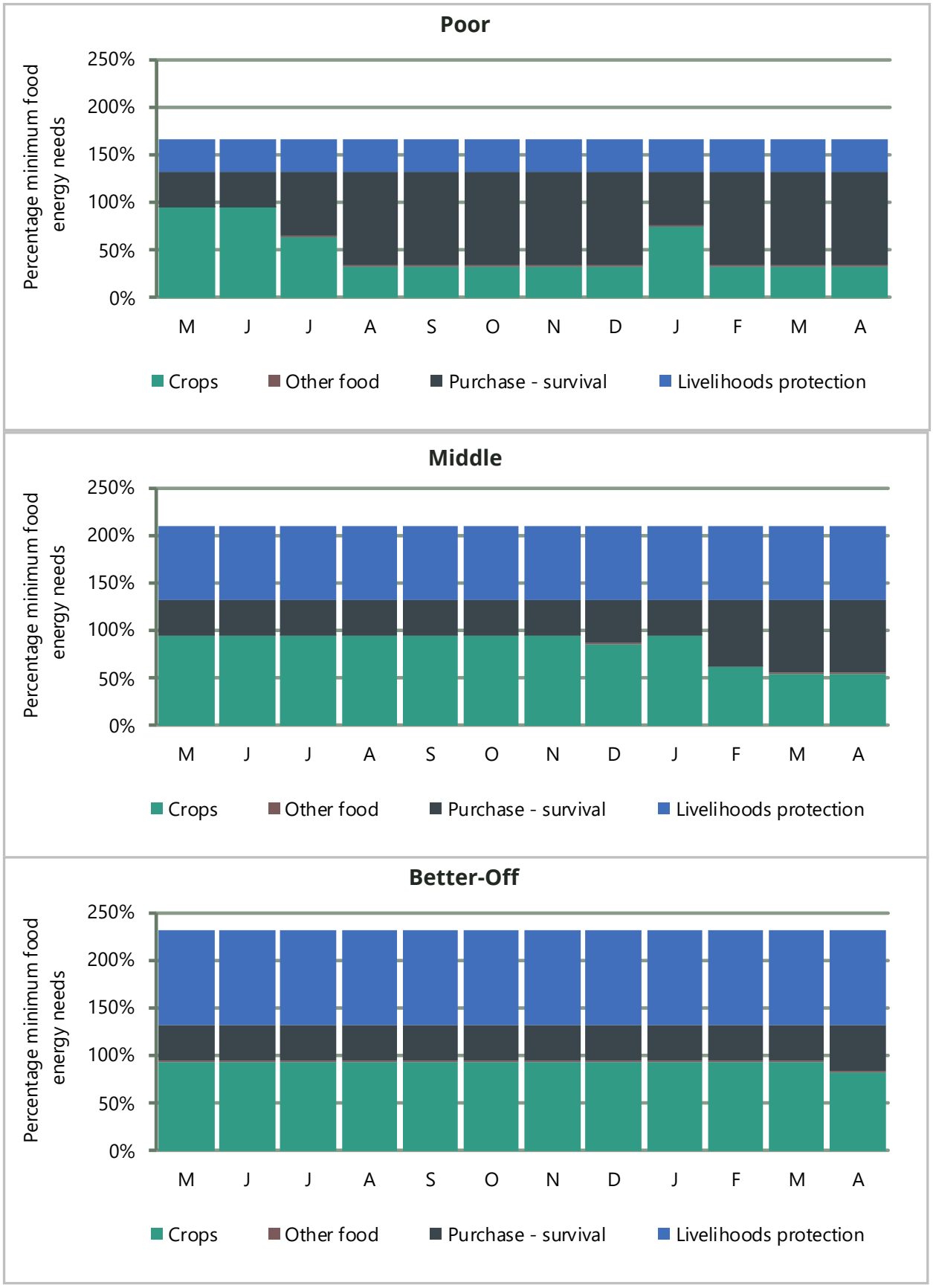
Food Access Calendars

The graphs in Figure 8 present monthly food and cash access calendars for the four wealth groups.

Households in all wealth groups were able to meet their survival and livelihoods protection thresholds year-round in the reference year. The main harvest period in this livelihood zone started in May, and households relied on crop production to meet food needs for a number of months, increasing from less than three months for very poor households to twelve months for better-off households. Very poor and poor households relied on food purchases for much of the year in CD02. The dark blue "livelihoods protection" sections of the bars increase as a proportion of the total with wealth because wealthier households spend more on productive inputs, health, and education.

Figure 8. Seasonal Food and Cash Access Calendars per Wealth Group




Poor
Percentage minimum food energy needs
250%
200%
150%
100%
50%
0%
M J J A S O N D J F M A
Crops
Other food
Purchase - survival
Livelihoods protection
Middle
Percentage minimum food energy needs
250%
200%
150%
100%
50%
0%
M J J A S O N D J F M A
Crops
Other food
Purchase - survival
Livelihoods protection
Better-Off
Percentage minimum food energy needs
250%
200%
150%
100%
50%
0%
M J J A S O N D J F M A
Crops
Other food
Purchase - survival
Livelihoods protection

Poor Female-Headed Households

Poor female-headed households are typically led by women who are divorced, were abandoned by their husbands, or are widowed with children under working age. They are likely to lack at least one able bodied male compared with poor male-headed households. Widows may inherit land from their deceased husbands or obtain land from their family, and if that is not sufficient to provide for their livelihood, they can borrow land from traditional leaders. Similar to poor male-headed households, these households struggle to invest in agricultural inputs and purchase improved seeds due to lack of income, which further limits their agricultural productivity. Additionally, limited financial resources and household labor limit their ability to engage in other off-farm economic activities. Despite these challenges, poor female-headed households covered their minimum annual food needs (approximately 105%) during the reference year.

Figure 9 indicates that poor female-headed and poor male-headed households followed a similar pattern of food access in the reference year, with each group meeting their minimum annual food energy needs primarily through market purchases and crop production. However, poor male-headed households cultivated more land compared to poor female-headed households (0.5-1.5 ha versus 0.5-0.75 ha). As a result, female-headed households sourced approximately 40% of their annual food needs from their own crops, about 10% less than male-headed households. To compensate, female-headed households relied more on purchased staples and covered around 55% of their food needs from the market, whereas male-headed households covered around 45% of their food needs from the market. Additionally, female-headed households purchased slightly fewer non-staple foods, accounting for about 10% of their food sources compared to about 15% for male-headed households. These differences emphasize that poor female-headed households depend more heavily on market purchases for staple foods, while poor male-headed households can rely more on their own crops.

The income graph in Figure 10 shows that poor male-headed households and poor female-headed households had roughly similar sources of cash income in the reference year. In terms of total cash income, poor female-headed households earned significantly less than their poor male-headed counterparts, with female-headed households bringing in about 40% less overall.

However, because poor female-headed households are generally smaller, their per capita cash income was in fact roughly the same. The primary sources of cash income for poor female-headed households, in order of importance, were crop sales, followed closely by agricultural wage labor, charcoal/firewood sales, and livestock sales. Crop sales made up a slightly smaller portion of the total cash income for female-headed households than for male-headed, contributing around 40% and 45%, respectively.

Nevertheless, poor female-headed households earned a larger percentage of their total cash income from agricultural wage labor and livestock sales than poor male-headed households. Wage labor accounted for about 35% of their annual income, compared to 30% for poor male-headed

households. Neither poor female-headed households nor poor male-headed households earned much income from livestock sales. A key distinction between the two household types is that poor female-headed households did not engage in labor migration or earn any income from brickmaking, and poor male-headed households did.

Figure 9. Sources of Food: Poor Households vs Poor Female-Headed Households

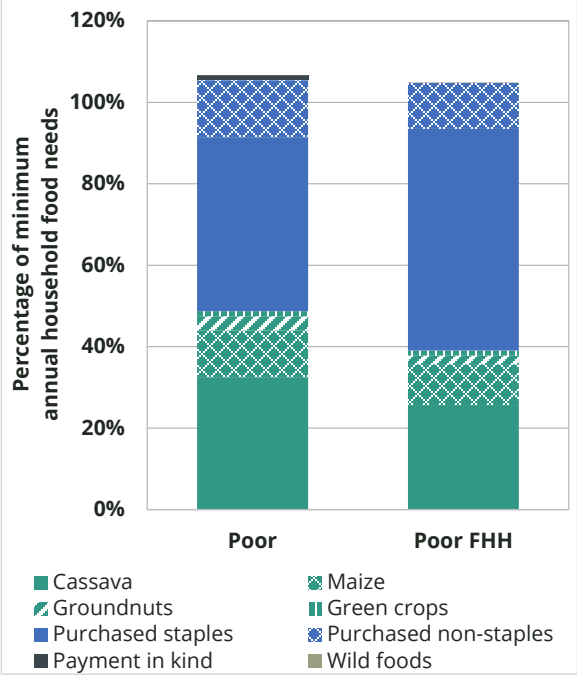
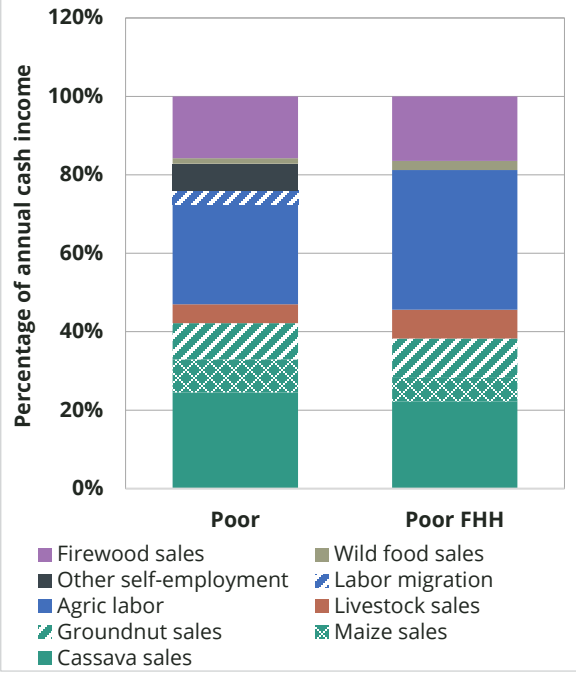


Figure 10. Sources of Cash: Poor Households vs Poor Female-Headed Households



In terms of cash expenditure, poor male-headed and female-headed households were very similar. The five main expenditure categories for poor female-headed households, in order of importance, were non-staple foods, household items, staple foods, health and education, and other non-essential items. Compared to poor male-headed households, female-headed households spent about 3% more on staple foods and around 5% less on non-staple foods. They also allocated 5% more toward essential household items, while spending approximately 2% on education and health.

Response Strategies

In response to hazards and years with lean production, households attempt to meet their minimum food needs and cash requirements through several strategies. Some responses implemented were different across wealth groups, while others were similar. Below are some common strategies employed by households, followed by wealth group-specific strategies.

Households in all wealth groups try to reduce expenditure on non-essential or more expensive items first, such as cutting down or not buying clothes or utensils that year. Households in all wealth groups increase sales of livestock, including poultry.

Very Poor and Poor Households

Very poor and poor households try to increase cash income by intensifying self-employment activities such as selling charcoal and firewood and brickmaking. They also seek out additional non-agricultural work, including migration for paid labor in mines. These households also increase the collection of wild foods.

Middle and Better-Off Households

Middle and better-off households cope with hazards differently. Middle and better-off households sell additional livestock to cover basic food and non-food expenses in bad years. They also increase self-employment activities, such as small-scale commerce and transportation activities.

Key Parameters for Monitoring

The key parameters listed in Table 5 are food and income sources that make a substantial contribution to the household economy in CD02. These should be monitored to track potential losses or gains to local household economies through ongoing monitoring systems or periodic assessments.

Table 5. Key Parameters for Monitoring

Item	Key Parameter – Quantity	Key Parameter – Price
Crop production	• Maize Season B – quantity produced • Cassava – quantity produced • Groundnuts Season B – quantity produced	• Maize Season B – producer price • Cassava – producer price • Groundnuts Season B – producer price
Livestock Production	• Cattle – herd size • Pigs – herd size • Goats – herd size • Poultry – flock size	• Cattle – producer price • Pigs – producer price • Goats – producer price • Poultry – producer price
Other food and cash income	• Cultivation labor – number of days • Labor migration – number of days • Charcoal and firewood – quantity gathered • Brickmaking – quantity produced • Petty trade/trade – number of days • Transportation/taxi service – number of days	• Cultivation labor – wage rates • Labor migration – wage rates • Charcoal and firewood – producer price • Brickmaking – producer price • Petty trade/trade – daily earnings • Transportation/taxi service – daily earnings
Expenditure		• Maize – consumer price • Cassava flour – consumer price

CD03 Livelihood Zone

Reference Year: January–December 2022

Southeast Savannah: Maize, Cassava, and River Fishing Livelihood Zone

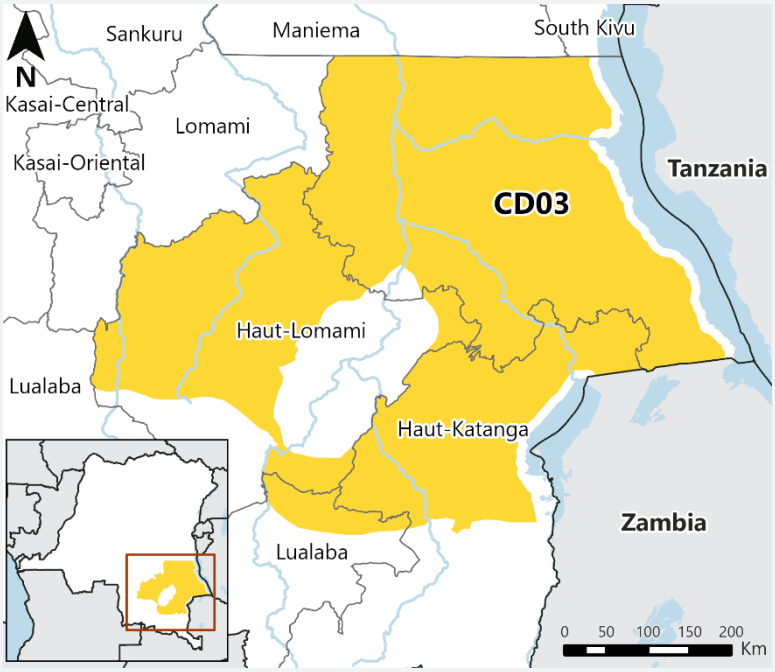


Figure 1. CD03 Livelihood Zone

Summary: The *Southeast Savannah: Maize, Cassava, and River Fishing Livelihood Zone* (CD03) includes most river plain and savannah areas of Tanganyika Province in the Democratic Republic of the Congo (DRC). The zone gets rainfall of between 800 and 1,200 millimeters (mm) per year. Cultivating crops, livestock rearing, and fishing are the main livelihood activities. The zone is known as a food surplus area, but there are periods in the year when some households are forced to turn to the market for staple food purchases. Persistent communal violence and armed conflict also greatly compromise food security and livelihoods in this zone. The presence of monkeys and elephants limits agricultural production because they eat and destroy crops.

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Zone Description

The *Southeast Savannah: Maize, Cassava, and River Fishing Livelihood Zone*[1] (CD03) covers most of Tanganyika province, which means most of the river plain and savannah areas of the northern part of the former Katanga Province, in the DRC. Tanganyika Province (and CD03[2]) is bordered to the north by Sud-Kivu Province; to the east by the Republic of Tanzania; to the south by the Republic of Zambia and Haut-Katanga Province; and to the west by Haut-Lomami and Lomami Provinces. The capital of the province is Kalemie.

Territories in the province include:

- Kalemie (which is the provincial capital and benefits from its proximity to Lake Tanganyika for trade and fishing)
- Kabalo (known for its agricultural potential with notable cassava and maize production, but has limited access to infrastructure and markets, and damage caused to crops by monkeys and elephants)
- Kongolo (which has a predominantly agricultural economy and faces similar challenges to those in Kabalo)
- Manono (which is rich in mineral resources but faces challenges to the security and livelihood of its residents due to artisanal mining and conflict)
- Moba (which stands out for its cattle breeding and bean farming on the Marungu High Plateau)
- Nyunzu (which is the province's granary and relies heavily on agriculture as its main source of income)

The zone is semi-arid (i.e., characterized by hot plains) and experiences a tropical and humid climate with two seasons — a Dry Season from June to August and a long Rainy Season from September to May. July is the driest month, and December is the rainiest month. The zone gets between 800 and 1,200 mm of rain per year. Temperatures are relatively moderate, ranging from 21°C to 33°C year-round. The topography of the zone is dominated by hills, undulating and flat plains, valleys, and rivers. The Congo River and its tributaries (Lukuga, Nyemba, Lufira, Lovoi, Kabeya Mayi, Luizi, Luvidjo, and Luvua) are the main rivers in the zone. The vegetation mainly comprises bushes, savannah grassland, marshes, and agricultural land. The soils are primarily clayey, sandy, and lateritic. The ferralsols occasionally have nitic properties and are generally moderately fertile.

[1] Fieldwork for the current profile was undertaken from February 27 to March 23, 2024. The information presented in this profile refers to the reference year, which was the consumption year that covered the period January to December 2022. Provided there are no fundamental and rapid shifts in the economy, the information in this profile is expected to remain valid for approximately five to 10 years (i.e., until 2029-2034). All prices referred to in the document are for the reference year.
[2] Bordered to the north by CD06 and CD08; to the east by CD05 and Lake Tanganyika; to the southeast by CD05, Lake Tanganyika, and Zambia; to the south by CD01; to the southwest by CD02; to the west by CD23 and CD24; and to the northwest by CD25.

Natural resources found in this zone include wood, game, fish, and wild foods, which are all exploited by households in the zone. The population of CD03 is 2,984,495, but it is sparsely populated, with an average population density of 14 people per square kilometer.[3]

CD03 is largely an agricultural zone, with crop production and sedentary livestock farming mainly practiced. Other important sources of food and income include artisanal fishing, casual labor, hunting and gathering, petty trade, and fish farming. There are pockets within the zone that have completely different livelihoods from the rest of the zone. An example is Manono, which is rich in mineral resources, but also faces security and livelihood issues due to artisanal mining and conflict. Although agriculture is practiced in Manono, artisanal mining makes a fundamental economic difference to livelihoods in this location.

Crop production in the zone is predominantly rainfed. The local climate and low population density are well suited for farming, especially for subsistence, rainfed farming. Cassava, maize, groundnuts, cowpeas, beans, sweet potatoes, and taro are the main crops cultivated for households' own consumption and for sale. Rice is also cultivated in moisture-retaining lowland areas of the zone through flood recession farming. The long rainy season (with nine months of rain) allows households to cultivate two seasons of short-cycle crops. Households produce crops other than cassava in two seasons of the year. Rice is, however, produced in just one season. Maize is usually intercropped with cowpeas or beans. Long periods of rain in the zone impede the drying of maize from the first harvest in February/March, hence the main crop grown for household consumption (especially for poorer households) is cassava. The size of land cultivated in the reference year per household ranges from up to 1 hectare (ha) for poorer households to 1-5 ha for wealthier households. Households from all wealth groups mainly prepare land by hand, as neither animal nor motorized traction is used in the zone.

Sedentary livestock rearing is a small-scale livelihood activity, and households from all wealth groups own at least a few animals (e.g., pigs, goats, sheep, or poultry). Although some households keep a few cattle, production (and the use of these animals in farming activities) is limited by the prevalence of tsetse flies and trypanosomiasis. Goats and sheep feed free-range grazing and stall-feeding. They feed on grass and brush, crop or food residues, and cereals. Pigs also freely graze on grass and brush, crop or food residues, and cereals. Wealthier households (i.e., middle and better-off) also purchase livestock feed during peak cropping periods when animals are usually kept in stalls to avoid damage to crops. Water for livestock is obtained freely throughout the year from surface water sources alongside shallow and deep wells in some localities. Livestock are not milked. Sales of livestock are highest in March and from November to December because of Easter, Christmas, and New Year celebrations. Households in the zone purchase livestock to obtain the best breeds for marketability and herd growth. All types of livestock are slaughtered for annual celebrations, christenings, weddings, and other ceremonies. The development of the livestock sector is impacted

[3] FEWS NET Data Explorer, population data (2023), accessed 2025, https://fdw.fews.net/data-explorer/.

by the lack of veterinary products and inputs, disease outbreaks, the inadequacy of zoo-sanitary infrastructure, and the absence of feed mills.

Households living on the edges of open forests or along the banks of rivers (the Congo and its tributaries) have the option of engaging in bottomland farming, artisanal line fishing, or, to a lesser extent, hunting activities. Fishing and fish farming[4] is done in rivers and ponds, respectively. Men and boys engage in artisanal fishing year-round.

Households with less land and livestock engage in casual agricultural labor throughout the year. Men, women, boys, and girls from poorer households work in the fields of wealthier households for land preparation, planting, weeding, and harvesting/threshing.

Sale of wood and charcoal obtained from the forests in the zone is another livelihood activity carried out year-round by men and boys from poorer households.

Other income sources in the zone include migratory labor and transport business, which men provide on motorcycles or bicycles. Women obtain other income through vegetable sales (e.g., leafy greens) and handicrafts (e.g., mat making).

Conflict broke out in eastern DRC in 2004 between the DRC's military (Armed Forces of the Democratic Republic of the Congo or FARDC) and the ethnic Hutu group, Democratic Forces for the Liberation of Rwanda (FDLR).[5] Since 2014, Tanganyika Province, once a peaceful place, has become the scene of regular clashes, intercommunity conflict, and violence carried out by armed groups and militias.[6] Communal violence and armed conflict have compromised food security and livelihoods. Most of those who were previously displaced have returned to their land in 2019 and 2021, but their living conditions remain precarious. In Tanganyika, there are various household profiles: families displaced by violence, those returning to their land after fleeing, and those that stayed. Whatever their profile, they have all seen their livelihoods disrupted by violence.

CD03 experiences several hazards that affect the zone's economy and livelihoods. The main hazards are crop diseases, human-wildlife conflict, livestock diseases, and market access problems. Crop diseases occur every year, with the most frequent diseases being cassava rot and maize yellowing. Human-wildlife conflict is a yearly occurrence, with monkeys and elephants causing damage to crops, thereby affecting overall crop production. Livestock diseases include swine and small ruminant fever in pigs, goats, and sheep, and avian influenza in poultry. These are controlled by vaccination or treatment.

[4] Either fishing or fish farming, if not both, is common, depending on the location of the village. In villages near rivers, fishing is important. Fish farming is most typical for middle and better-off households.
[5] "Kivu Conflict," Wikimedia Foundation, November 4, 2024, https://en.wikipedia.org/wiki/Kivu_conflict.
[6] Franck Kaseya, "In DRC, Tanganyika Conflict Mitigation and Reconciliation Project builds peace, better conditions for communities," *Pact*, March 12, 2024, https://www.pactworld.org/blog/drc-tanganyika-conflict-mitigation-and-reconciliation-project-builds-peace-better-conditions.

For service provision, in terms of housing, poorer households mostly live in houses made of adobe bricks (sun-dried bricks made of mud and straw), uncemented floors, and straw roofing. Wealthier households have different types of houses, depending on the village. Some have similar houses to the poor, whereas others have houses made of baked adobe bricks, cemented floors, and iron sheet roofing. Water for drinking and domestic use is obtained for free by households from all wealth groups from rivers, surface water, boreholes, open and drilled wells, streams, and rainwater. In terms of sanitation, households in all wealth groups use either hand-dug traditional latrines without slabs, direct latrines, or toilets. Primary healthcare is accessed through health centers by households in all wealth groups. Traditional medicine and pharmacies are also used by households in all wealth groups. Wealthier households also access healthcare in general reference hospitals. For lighting, most poorer households use battery-operated flashlights and palm oil and wick lamps, while wealthier households use a variety of sources, including battery-operated torches, solar panels, and generators. Although households from all wealth groups use firewood for cooking, wealthier households also use charcoal. Mobile phone service and use is limited in this zone. Most poorer households do not own phones. Wealthier households typically have at least one phone per household. For education, poorer households usually send their children through primary school, with only a few getting to secondary school; better-off households send their children through secondary school, with a few continuing through college/university. Financial services are scarce, and access to credit is difficult but may be accessed from cooperatives and/or moneylenders, mainly by wealthier households. Saving banks are virtually nonexistent in the zone due to insecurity. However, in some communities, households save through AVEC groups (community savings and credit groups, made of about 15-20 members who commit themselves to accumulate savings week-by-week, also known as *tontines*) or cooperatives.

Markets

Market access in this zone is difficult, not because of the distance from market centers but because of the deteriorated state of the roads. Road conditions are generally very poor and connections between the different territories are difficult and require long periods of time to cover short distances. Market access roads are essentially rural tracks in CD03, although some are classified as national roads. These roads are uneven, posing enormous challenges for the use of automobiles (cars and trucks). Even 4x4 vehicles are unable to drive on some of these tracks due to their poor condition. The most common means of transporting produce is still by bicycle, pushed by human power without pedaling, and to a lesser extent motorcycles, which are owned by wealthier households. Trucks transporting goods can often take a month or more to cover less than 200 km distance. As a result, there are often shortages of certain products in most of the territories in the livelihood zone. Road access deteriorates during the Rainy Season. During periods of heavy rain, some roads are completely cut off due to runoff. Road access improves during the Dry Season (June to September). In this zone, there are a small number of bridges, and those that do exist are often makeshift bridges built by the local people themselves. There are railway lines linking certain

territories to the provincial capital and to Lubumbashi. These are also affected by heavy rainfall, which disrupts the railroad line and prevents supplies from being delivered by train.

The main local market centers frequented by people living in Kalémie Territory are in Kalémie center, Lukuga, Tembwe, and Nyemba; and Nyunzu center, Lengwe, Lwizi, Kisengo, and Ngoy in Nyunzu Territory. The area is linked to the larger markets via several trade routes, facilitating trade between Kalémie and major markets such as Uvira, Lubumbashi, and Tanzania. Province-wide, the main commodity exchanges take place in one direction between Kabimba and Kalémie (maize flour), Moba and Kalémie (maize), Kabalo and Nyunzu (cassava, maize, groundnuts), and Kongolo and Nyunzu (palm oil, groundnuts), and in the other direction between local markets in the territories and Kalémie, then Uvira (maize, cassava markets, groundnuts). It should be noted that for a long time, the Nyunzu Territory was one of the main production markets, supplying other territories via the Kalémie market, but has remained in deficit since intercommunity conflicts have arisen. The main foodstuffs purchased at local markets are maize and cassava flour, with a peak in demand accompanied by price rises between September and December, corresponding to the Lean Season. In general, access to markets is limited by long distances between trading centers, poor quality roads (particularly in Nyunzu Territory), and persistent insecurity on certain routes.

Households find casual work mostly within the CD03 livelihood zone. Approximately 70% of casual labor is undertaken within the local rural area, and around 10% is work conducted in towns within the zone. Around 20% of casual labor is done outside of CD03 in neighboring zones, mostly the provincial capitals, including Bukavu, Lubumbashi, and Goma. Migration for labor is a yearly occurrence, where able-bodied men move out of the zone in search of casual labor, with peak departures in the Lean Season between June and September when local agricultural activity is low. In bad years, the scale of migration increases, and the stay is longer than in average years. Seasonal migration to neighboring villages to work in the fields of better-off households also occurs in the zone, peaking during the December/January cropping season.

Timeline and Reference Year

The baseline assessment refers to a specific period called the “reference year.” In the *Southeast Savannah: Maize, Cassava, and River Fishing Livelihood Zone,* the reference year covers the consumption period from January to December 2022. During community leader interviews, informants were asked to score the last five years in terms of seasonal performance, with “1” indicating a poor season and “5” indicating an excellent season in relation to seasons they can remember. Table 1 summarizes the response of the community leaders.

Overall, insecurity has grown in the zone each year. Most parts of Tanganyika Province (which CD03 encompasses) have seen increasing insecurity since the outbreak of the armed conflict in the eastern DRC in 2004. Since 2014, the province has become the scene of regular clashes, intercommunity conflict, and violence carried out by armed groups and militias, all of which disrupt

livelihoods, limit access to markets, and reduce agricultural production, contributing to acute food insecurity conditions.

Table 1. Timeline

Production Year/ Season	Score	Critical Events
2023/Season B	2	Poor agricultural production with cassava rot and corn yield decline, unfavorable livestock health situation with swine and goat diseases.
2022-2023/Season A	2	Poor agricultural production with cassava rot and corn yield decline, unfavorable livestock health situation with swine and goat diseases.
2022/Season B	3	Average agricultural production, situation of crop pests normal, relatively average livestock health.
2021-2022/Season A	3	Average agricultural production, situation of crop pests normal, relatively average livestock health.
2021/Season B	2.5	Low agricultural production because of cassava rot, corn yellowing, etc., high food prices, low level of market supply of foodstuffs of local origin.
2020-21/Season A	2.5	Low agricultural production because of cassava rot, corn yellowing, etc., high food prices, low level of market supply of foodstuffs of local origin.
2020/Season B	3	Average agricultural production, situation of crop pests normal, relatively average livestock health.
2019-2020/Season A	3	Average agricultural production, situation of crop pests normal, relatively average livestock health.
2019/Season B	3	Average agricultural production, situation of crop pests normal, relatively average livestock health.
2018-2019/Season A	3	Average agricultural production, situation of crop pests normal, relatively average livestock health.

5 = Excellent season for household food security (e.g., due to good rains, good prices, good crop yields)
4 = Good season or above average season for household food security
3 = Average season for household food security
2 = Below-average season for household food security
1 = Poor season for household food security (e.g., due to drought, flooding, livestock disease, pest attack)

Despite the situation, key informants ranked most of the seasons between 2019 and 2023, including the reference period, as “3” (average) in terms of household food security except for 2021 and 2023, which were ranked as “2.5” (poor to average) and “2” (poor), respectively. The problems experienced in those years included low agricultural production due to cassava rot and corn yellowing, high food

prices, and low level of market supply of foodstuffs of local origin in 2021; and poor agricultural production, with cassava rot and corn yield decline, and swine and goat diseases in 2023.

According to key informants, the reference year was average for the main activities and conditions in the area, including average agricultural production thanks to average rains, which were well distributed in time and space. Pests had a minimal impact on crops, and diseases had a minimal impact on livestock. Furthermore, the reference year was relatively calm in the area with less conflict than some other years. However, neighboring territories experienced conflict in earlier years, resulting in population displacement. Kongolo, one of the territories in the study, was a place of refuge for many of these displaced populations, who now live there, but without any major impact on the normal life of the resident populations.

Seasonal Calendar for Reference Year

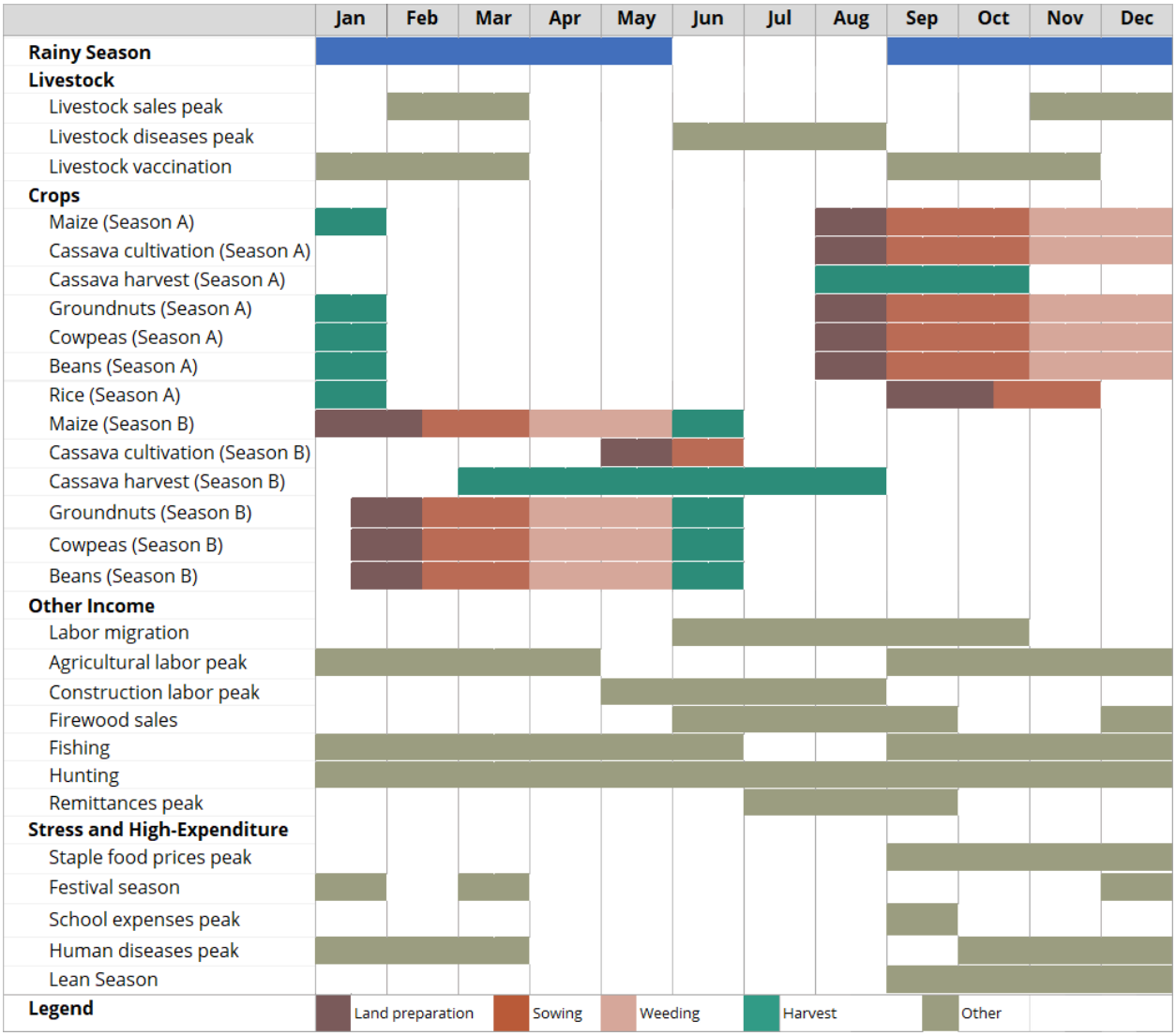
The seasonal calendar (in Figure 2) illustrates the main economic activities and events of the reference year. It traces the rainy months, agricultural activities, non-agricultural activities, and food purchasing periods.

CD03 has one long Rainy Season between September and May and a hot Dry Season between June and August. Crop production is largely determined by the rains. The long Rainy Season allows at least two cropping seasons (Season A and Season B) in the zone. Season A spans from August to January for all crops and Season B from January to June. Land preparation for Season A is carried out from August to September, planting/sowing in September to October, weeding in November to December, and green consumption in December for maize, beans, and groundnuts. The main harvest is in January/February. Season B starts during the harvest of the main crops for Season A, with land preparation and planting/sowing in January/February, weeding in April, green consumption in May, and harvest for main crops in June/July. Cassava is an exception to the double season, as its vegetation cycle only allows for a single season. The cassava harvest is spread throughout the year, thereby allowing producers to harvest smaller portions at a time depending on their needs.

Small-scale livestock production of pigs, goats, sheep, and poultry is an income source for households in CD03. Households sell livestock throughout the year, with peak periods in February to March and again in November to December. Increased livestock sales coincide with festivals.

Livestock diseases can occur at any time of the year. However, the peak period is during the Dry Season from June to August. During this period, there was increased expenditure on livestock drugs. Livestock vaccination campaigns were conducted some months before the peak disease period, from January to March, and again immediately after the disease peak period, from September to November.

Figure 2. Seasonal Calendar



Human diseases can occur at any time of the year. However, diseases such as malaria and respiratory diseases peak during the wettest months of the Rainy Season from October to March.

The Lean Season mainly occurs from August to December, peaking in November and December. It is characterized by low or depleted food stocks, especially for poorer households, except for cassava, which is available year-round. The Lean Season is also characterized by high staple food prices, which peak between September and December, affecting household purchasing power.

Table 2 shows the typical division of labor. Men and women share most crop production activities, casual labor (agricultural and domestic), and self-employment activities (including firewood/charcoal sales and trade/small business). Men are largely responsible for livestock production activities. Women perform all domestic work — including collecting water for domestic use, cooking meals, collecting firewood for domestic use, taking care of children, and doing laundry — except house

construction and maintenance, which men do. Men are solely responsible for fishing, construction labor, sale of construction materials, and labor migration.

Table 2. Typical Division of Labor

Shared Tasks	Women's Tasks	Men's Tasks
• Land preparation • Planting • Weeding • Harvesting • Threshing/winnowing • Market selling – crops • Agricultural labor • Trade/small business • Firewood collection/ charcoal production and sale	• Brewing • Water collection for domestic use • Cooking meals • Firewood collection for domestic use • Feeding small children • Washing clothes • Poultry sales	• Livestock herding • Livestock sales (except poultry) • Livestock watering • Care for sick livestock • Livestock slaughter • Fencing • Building livestock shelter • Handicraft production and sale • Construction labor • Migratory labor • Sale of construction materials • House construction/ maintenance

Wealth Breakdown and Productive Assets

Table 3 summarizes the types and numbers of productive assets that typical households within each wealth group own and/or manage. Asset holdings are shown as a range. Figure 3 shows the percentage of households within the zone that fall in each wealth group. The socioeconomic categorization of households in the zone was carried out by the communities themselves.

The main determinant of wealth in this zone is the amount of land owned and cultivated. Other wealth determinants include the number and type of livestock owned, and ownership of productive assets, such as bicycles, fishing nets, and canoes.

Most households cultivate all their land. Some better-off households have surplus land and give part of their land to poorer households in return for labor. Casual agricultural labor for payment in cash or in food is also common, with people from very poor and poor households working for middle and better-off households. Communal agricultural labor, which involves workgroups, is also common; workgroup members collaborate and rotate the fields they cultivate.

The crops cultivated are the same for all wealth groups, except palm trees, which are mainly owned by middle and better-off households. These plantations are generally old and can only be exploited by other wealth groups with the owner's permission.

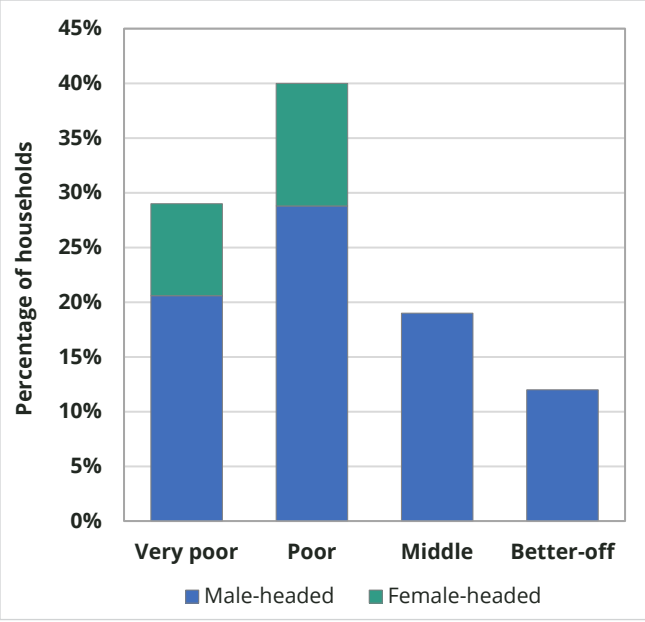
Constraints to agricultural production include lack of technical support, insufficient production equipment, lack of agricultural inputs (pesticides and fertilizers), and insufficient availability of improved seeds.

Table 3. Wealth Breakdown

Household Size and Productive Assets	Very Poor	Poor	Middle	Better-Off	Poor Female-Headed
Household size	5-7	7-10	10-12	10-20	5-7
Land (ha)	0-0.25	0.25-1	1-2	2-4	0.125-0.5
Land cultivated (ha)	0-0.25	0.25-1	1-2	1-3	0.125-0.5
Pigs (total at start of year)	0	0	0-10	0-15	0
Goat: (total at start of year)	0	2-4	3-8	5-15	0
Sheep (total at start of year)	0	0-4	2-10	5-10	0
Poultry	2-4	5-7	10-14	15-25	4-6
Bicycles	0	0-1	0-1	0-1	0
Fishing nets	0	0-2	0-3	0-6	0
Canoes	0	0-1	0-1	0-1	0
Mobile phones	0	0	0-1	1	0

Figure 3. Wealth Breakdown

Note: All results in this figure are the mid-point of a range



Pigs, goats, sheep, and poultry are reared mainly for consumption of meat and for cash income through live animal sales. A few households have a small number of cattle, but cattle ownership is not typical, even in the better-off wealth group. Poor, middle, and better-off households keep pigs, goats, sheep, and poultry, with the better-off households having larger holdings. Very poor and poor female-headed households hardly have any livestock except a few poultry. Members of the same extended family can borrow female livestock to allow them to build up their livestock holdings. The arrangement is that out of every two births, one animal belongs to the owner and the other to the borrower. In the zone, women can buy their own pigs, goats, and sheep and can also inherit from their husbands and families. Some poor, middle, and better-off

households own a bicycle, a canoe, and a small number of fishing nets. Bicycles and canoes are used for transport. Canoes and nets are used for fishing.

Wealthier households tend to have larger household sizes. Very poor and poor female-headed households have a household size of approximately 5-7, poor households 7-10, middle households 10-12, and better-off households 10-20. In general, the wealthier the household, the larger it is, with more land, livestock, and productive assets.

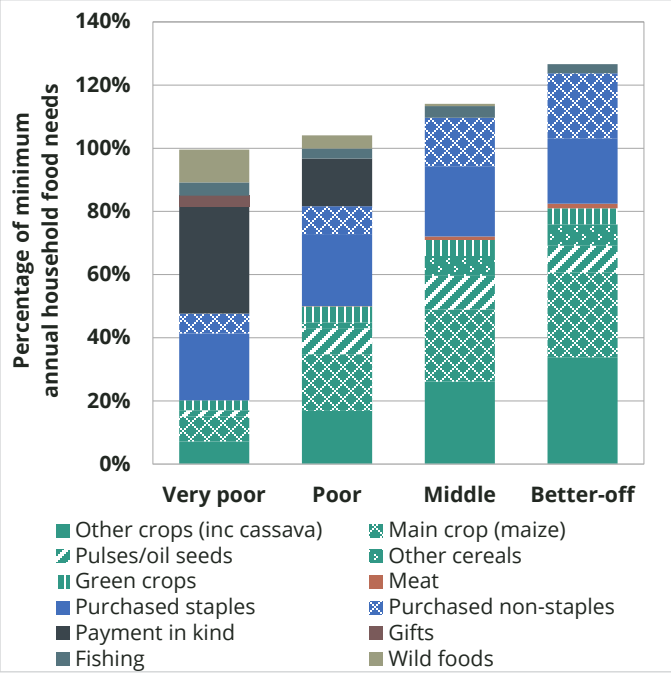
The proportion of households in each wealth group in the community is as follows: 25-35% very poor, 30-50% poor, 15-25% middle, and 10-15% better-off.

In some areas of the zone, there are pygmy people (called *twa* in the local language) who own no land and have no fields. They live mainly from hunting, gathering, and agricultural labor.

Sources of Food

Figure 4 presents the sources of food for households in each wealth group in the livelihood zone for the period January to December 2022. January represents the start of the consumption year as all crops are ready for consumption and harvest, thereby marking the end of the annual Lean Season. Food is presented as a percentage of the annual kilocalorie (kcal) needs of the household based on the internationally accepted 2,100 kcal per person per day.

Figure 4. Sources of Food



The two main food sources households in CD03 in the reference year were their own crop production and market purchases. Other food sources included payment in-kind and gifts (for very poor and poor households), wild foods (including hunting and fishing, for all wealth groups), and livestock production (for middle and better-off households).

The contribution of households' own crop production increased with wealth, ranging from about 20% of minimum kcal needs for very poor households to about 80% for better-off households. Purchased foods contributed about 25-45% of annual food needs for households in all wealth groups in the reference year. The main staple foods were maize, cassava flour, and rice. Non-staple foods purchased by households in all wealth groups included cowpeas, groundnuts, vegetable oil, fish, and vegetables. Non-staple foods purchased included sugar and meat, except for very poor households.

Very poor and poor households received 15-35% of their annual food needs from payment in-kind in return for casual agricultural labor for middle and better-off households and a small amount of migratory labor. Very poor and poor households received 5-10% of their annual food needs from wild food gathering and hunting. Wild foods collected included mushrooms, snails, yams, and insects. Households from all wealth groups received a proportion of their annual food needs, about 1-5%, from fishing or fish farming. Wealthier households engaged in fish farming, while poorer households engaged in wild fishing. Very poor households received up to 5% of their annual food needs from gifts.

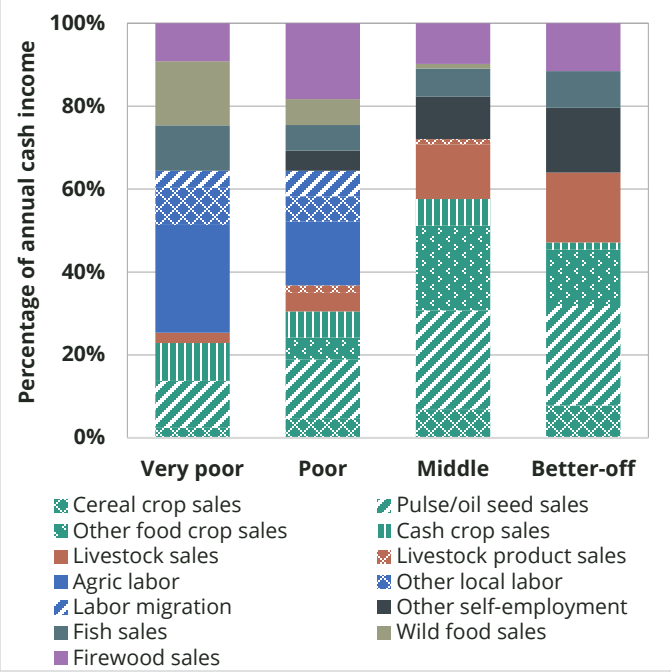
Middle and better-off households received roughly 1-2% of their annual food needs from their own meat production, mainly from slaughtering pigs for consumption.

Overall, the reference year was average in terms of food security, with households meeting their minimum annual food needs.

Sources of Cash Income

Agriculture is the main livelihood activity in the *Southeast Savannah: Maize, Cassava, and River Fishing Livelihood Zone*. However, the primary sources of cash income in this zone varies by wealth group (see Figure 5).

Figure 5. Sources of Cash Income as a Percentage of Annual Cash Income



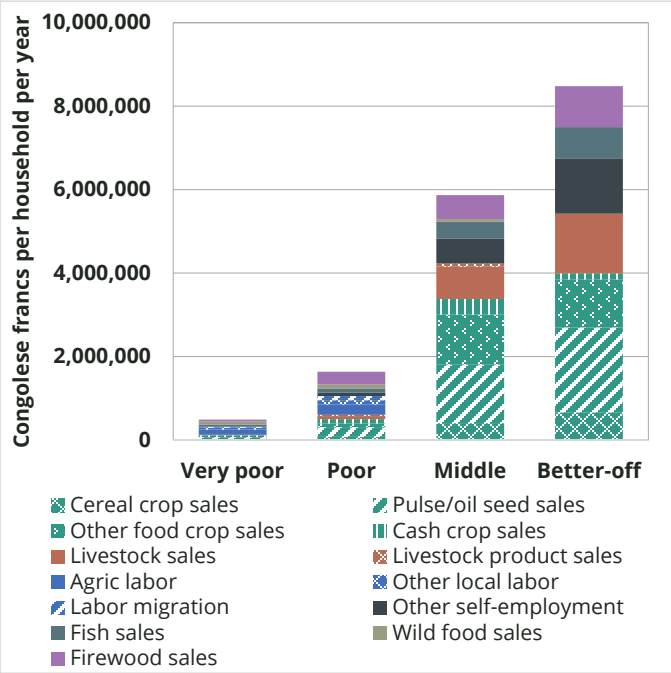
Crop sales constituted the main source of cash income for households in the poor, middle, and better-off wealth groups. The main source of cash income for very poor households was labor. The main crops sold by households were cassava, maize, groundnuts, rice, cowpeas, sweet potatoes, and palm oil. Cassava and maize are the crops with the highest returns.

Other cash income sources included live animal sales for households from all wealth groups; livestock product (meat) sales for poor and middle households; agricultural labor and domestic labor (wood/straw collection) for very poor and poor households; construction labor and migratory labor for very poor and poor households; firewood and fish sales for households from all wealth groups; wild food sales for very poor, poor, and middle households; petty trade for poor,

middle, and better-off households; and small mixed business (mainly by women) for better-off households.

Very poor households generated nearly 40% of their cash income in the reference year from labor alone, which included agricultural, construction, migratory, and domestic labor. Because they have smaller plots of land, fewer livestock, and fewer productive assets, they tended to rely on their own labor to generate 20-25% of their total annual cash income in the reference year. Wild food sales generated another 10-20% of total cash income, while fish sales generated roughly 10%. Firewood sales accounted for 5-10% of total annual cash income. Sales of poultry accounted for less than 5% of total annual cash income for very poor households.

Figure 6. Total Annual Cash Income



Poor households generated 25-35% of their cash income in the reference year from crop sales. Labor (including agricultural, construction, migratory, and domestic labor) accounted for another 25-30%; firewood 15-20%; and petty trade about 5%. Wild food and fish sales each generated up to 10% of annual income. Livestock and livestock product sales accounted for another 0-10%.

Middle households earned more than half of their annual cash income (50-65%) from crop sales in the reference period. They earned 10-20% from livestock and livestock product sales. Firewood and commerce/small business each generated roughly 5-15% of annual income. Fish sales contributed another 5-10%, while wild food sales were a very minor source of income for the middle wealth group.

Better-off households earned 40-55% of their total annual cash income from crop sales. Live animal sales contributed about 10-20%. Commerce/small business contributed 15-20% of total cash income in the reference year, firewood sales 10-15%, and fish sales 5-15%.

There is a large difference in wealth between the very poor/poor and the middle/better-off households. In the reference year, better-off households earned almost 17 times more than very poor households and about five times more than poor households. This gap is illustrated in Figure 6 and Table 4.

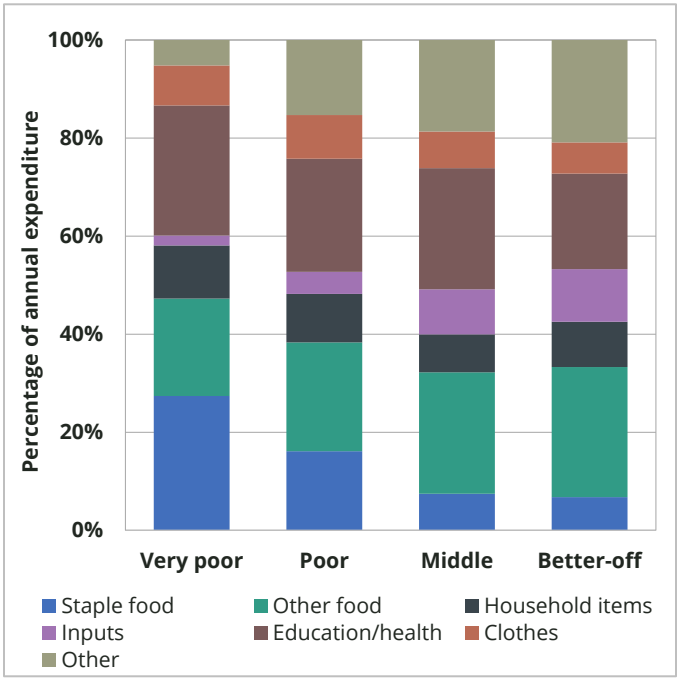
Table 4. Income Summary Table (Congolese Francs or CDF)

Wealth Group	Very Poor	Poor	Middle	Better-Off
Annual income per household[7]	300,000–700,000	1,000,000–2,500,000	4,500,000–7,000,000	7,000,000–10,000,000

Expenditure Patterns

Figure 7 presents expenditure patterns for the reference year, January to December 2022. While absolute expenditure increases with wealth in line with total cash income, this graph's expenditure breakdown by percentage shows the *relative* amount of income spent on different categories. Households in the zone need to cover a range of essential expenditures over the year. These include staple foods, non-staple foods, household items (like salt, soap, tea, lighting, milling/grinding services, etc.), productive inputs, social services (health and education), clothing, and other essential and non-essential items. Households did not purchase water.

Figure 7. Total Annual Cash Expenditure According to Category



Households from all wealth groups devoted a portion of their annual cash income to the purchase of staple and non-staple foods. As noted in the Sources of Food section, households CD03 secured 25-45% of their annual food energy needs from food purchases.

Very poor and poor households' expenditure on staple and non-staple foods accounted for 25-30% and 15-25% of annual expenditure, respectively. Purchases of household items, including utensils, accounted for about 10% of expenditure. Expenditure on productive inputs, namely agricultural tools, by very poor households accounted for less than 5%. Expenditure on education and health accounted for 25-30% of annual expenditure, clothing/shoes was 5-10%, and "other" was about 5% (including transportation, phone credit, and festivals).

At the other end of the wealth spectrum, better-off households' expenditure on staple and non-staple foods in the reference year accounted for 5-10% and 20-30% of their annual expenditure, respectively. Purchases of household items (including cooking charcoal, grain grinding costs, and

[7] The average exchange rate from January to December 2022 was 1 USD = 2,000 CDF.

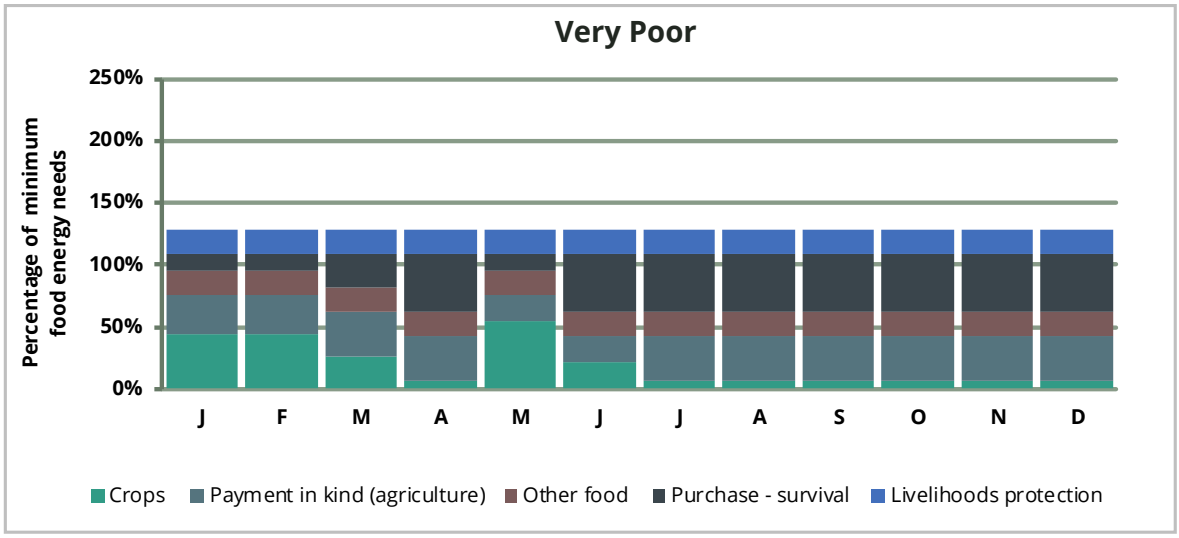
utensils) accounted for about 10% of annual expenditure. Expenditure on productive inputs (including animal salt purchase, agricultural tools, seeds, hiring agricultural and livestock workers, and livestock purchases) accounted for another approximately 10% of annual expenditure. Expenditure on social services (education and health) accounted for roughly 15-25% of annual expenditure, while clothing/shoes was less than 10% and "other" was about 15-25%.

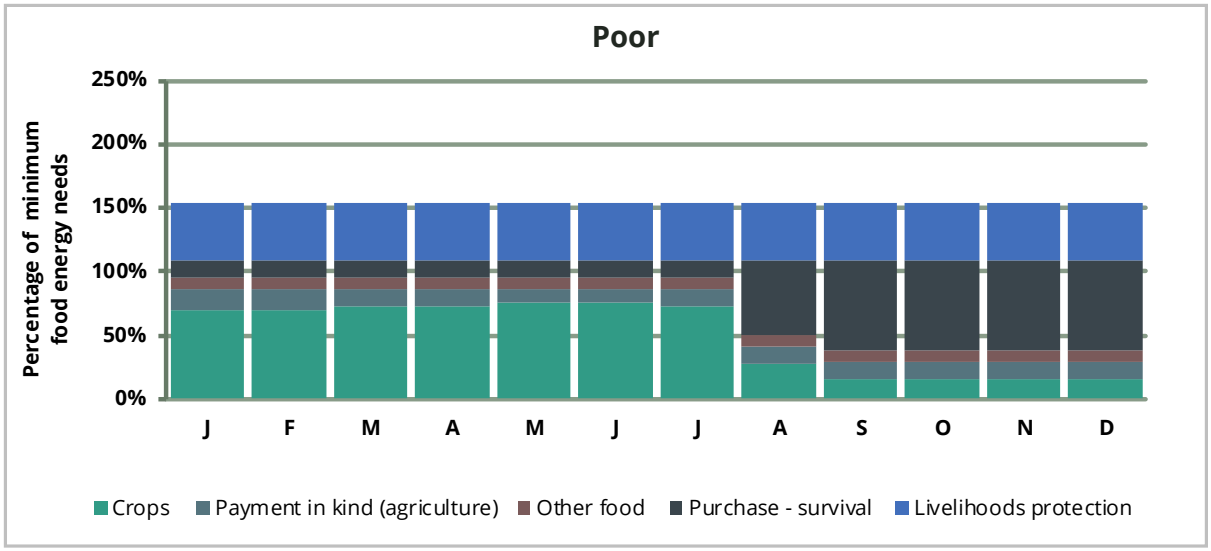
Food Access Calendars

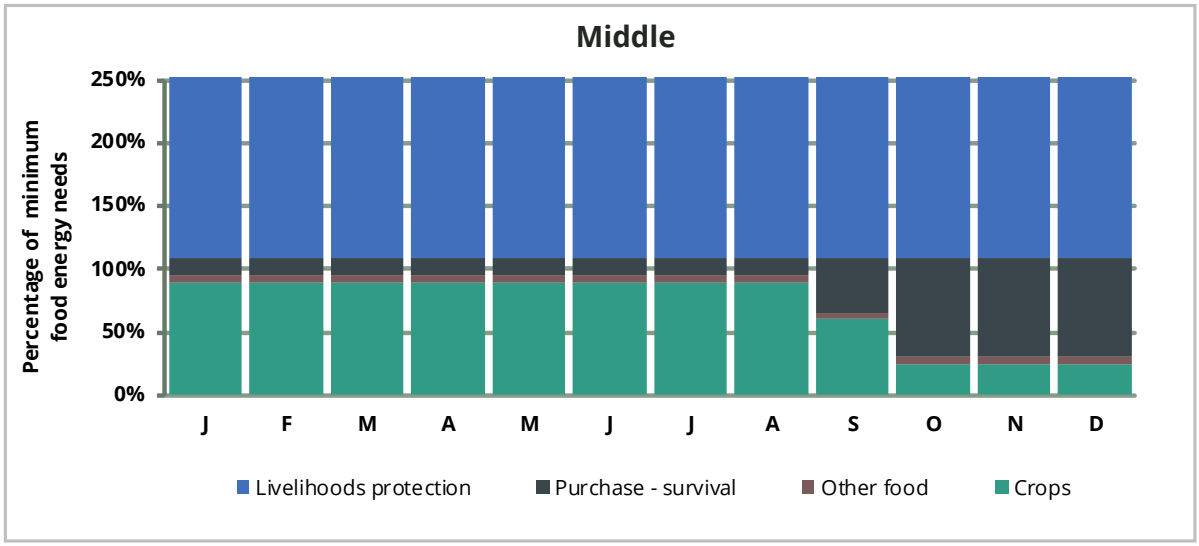
The graphs in Figure 8 present monthly food and cash access for the four wealth groups.

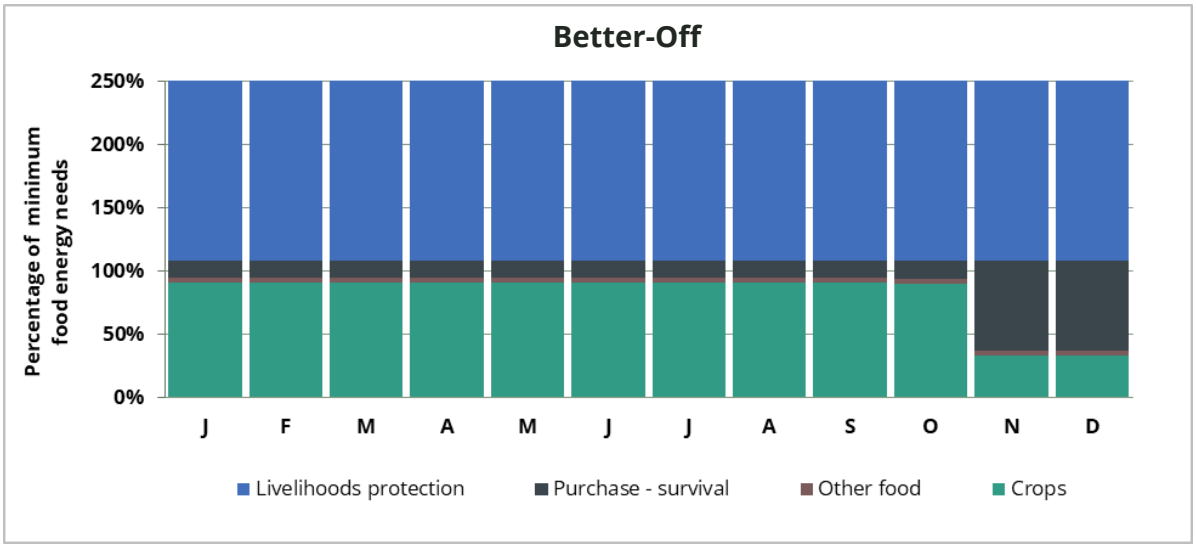
Households in all wealth groups were able to meet their survival and livelihoods protection thresholds year-round in the reference year. The main harvest period in CD03 started in January and the second harvest period started in May. Very poor and poor households obtained some food from payment in-kind for casual agricultural labor (in teal) and from other sources (including wild foods and fishing). Very poor households rely on market purchases to meet their needs from July to December, while households from other wealth groups are more self-sufficient, although even better off households make purchases toward the end of the consumption year. The dark blue "livelihoods protection" sections of the bars increase as a proportion of the total with wealth because wealthier households can afford to spend more on productive inputs, health, and education.

Figure 8. Seasonal Food and Cash Access Calendars per Wealth Group




Poor
Percentage of minimum food energy needs
250%
200%
150%
100%
50%
0%
J F M A M J J A S O N D
Crops
Payment in kind (agriculture)
Other food
Purchase - survival
Livelihoods protection


Middle
Percentage of minimum food energy needs
250%
200%
150%
100%
50%
0%
J F M A M J J A S O N D
Livelihoods protection
Purchase - survival
Other food
Crops


Better-Off
Percentage of minimum food energy needs
250%
200%
150%
100%
50%
0%
J F M A M J J A S O N D
Livelihoods protection
Purchase - survival
Other food
Crops

Poor Female-Headed Households

Female-headed households are typically found in very poor and poor wealth groups as shown in the wealth breakdown. During field work, data collectors conducted in-depth interviews with female-headed households from the poor wealth group. This is a group that faces similar constraints and characteristics as male-headed households in the same wealth group, but they are further disadvantaged by a lack of productive intra-household labor and, potentially, constraints on certain types of asset ownership, productive work, or income-generating activities.

Figure 9 shows that poor female-headed households and poor male-headed households share similar sources of food, except for gifts received by poor female-headed households. Poor male-headed households obtained about 20% more food from their own crops compared to poor female-headed households and the latter made up for this through increased food purchases, payment in kind, gifts, and wild foods.

Figure 9. Sources of Food: Poor Households vs Poor Female-Headed Households

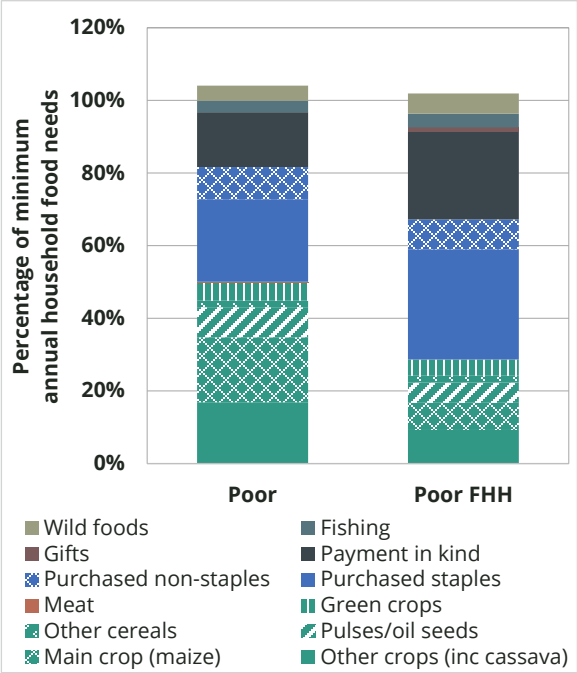


Figure 10. Sources of Cash: Poor Households vs Poor Female-Headed Households

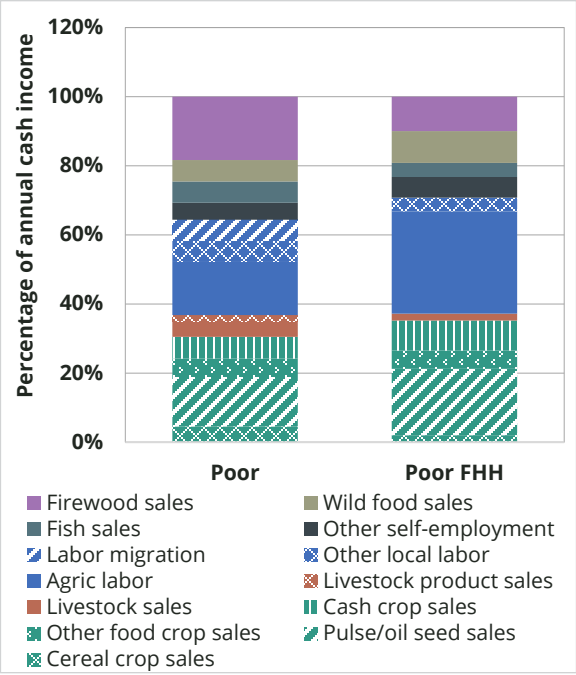


Figure 10 shows that poor female-headed households have similar options for obtaining cash income as poor male-headed households: crop sales, livestock sales, casual labor (agricultural and domestic), firewood sales, petty trade, fish sales, and wild food sales. Poor male-headed households, however, also obtain cash income from livestock product sales and migratory labor. The total annual cash income in absolute terms is lower for poor female-headed households.

Response Strategies

In response to hazards and years with bad production, households attempt to meet their minimum food needs and cash requirements through several strategies. Below are some common strategies employed by households.

Households from all wealth groups try to reduce expenditure on non-essential or more expensive items first, such as cutting down on festival costs or not buying clothes or utensils that year. Households consume mainly cassava, which is the least expensive staple.

Very Poor and Poor Households

Very poor and poor households try to increase cash income through the intensification of daily casual labor activities. However, in bad years, as increasing numbers of people flood the labor market, this option quickly loses its value because wage rates drop, and jobs are harder to find. Poorer households also intensify self-employment activities, such as the sale of firewood and charcoal in bad years. Poorer household increase wild food collection and fishing activities. They purchase more food, especially cassava, to compensate for crop losses.

Middle and Better-Off Households

Middle and better-off households cope with hazards differently compared to very poor and poor households. Middle and better-off households sell additional livestock to cover basic food and non-food expenses in years of poor crop production. They increase self-employment activities, like petty trade, palm oil sales, brewing, sales of vegetables, and fishing. They also purchase more food to compensate for crop losses.

Key Parameters for Monitoring

The key parameters listed in Table 5 are food and income sources that make a substantial contribution to the household economy in the *Southeast Savannah: Maize, Cassava, and River Fishing Livelihood Zone*. These should be monitored to indicate potential losses or gains to local household economies, either through ongoing monitoring systems or through periodic assessments.

Table 5. Key Parameters for Monitoring

Item	Key Parameter – Quantity	Key Parameter – Price
Crop production	• Maize Season A – quantity produced • Maize Season B – quantity produced • Rice Season A – quantity produced • Groundnuts Season A – quantity produced • Groundnuts Season B – quantity produced • Cowpeas – quantity produced • Cassava – quantity produced • Sweet potatoes – quantity produced • Palm oil – quantity produced • Cassava leaves and sweet potato – quantity produced	• Maize Season A – producer price • Maize Season B – producer price • Rice Season A – producer price • Groundnuts Season A – producer price • Groundnuts Season B – producer price • Cassava – producer price • Sweet potatoes – producer price • Palm oil – producer price • Cassava leaves and sweet potato – producer price
Livestock production	• Pigs – herd size • Goats – herd size	• Pigs – producer price • Goats – producer price
Other food and cash income	• Fishing – amount • Wild foods/hunting – amount collected • Payment in-kind (pre-harvest labor; Seasons A and B) – amount received • Payment in-kind (harvest labor; Seasons A and B) – amount received • Cultivation labor – number of days • Construction labor – number of days • Migration labor – number of days • Charcoal/firewood sales – amount sold • Vegetable sales – amount sold • Petty trade/trade – number of days	• Fishing – producer price • Wild foods/hunting – producer price • Cultivation labor – wage rates • Construction labor – wage rates • Migration labor – wage rates • Charcoal/firewood sales – producer price • Vegetable sales – producer price • Petty trade/trade – daily earnings
Expenditure		• Maize – consumer price • Cassava – consumer price

CD04 Livelihood Zone

Reference Year: March 2023–February 2024

Kamalondo Depression Staples Production, Groundnuts, and Fishing Livelihood Zone

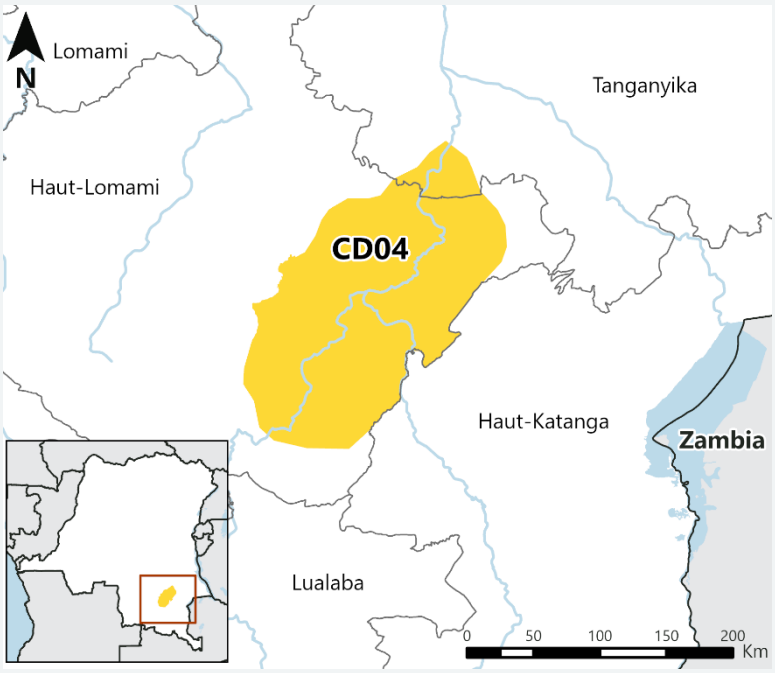


Figure 1. CD04 Livelihood Zone Map

Summary: The *Kamalondo Depression Staples Production, Groundnuts, and Fishing Livelihood Zone* (CD04) is an agricultural zone that covers the territories of Bukama and Malemba Nkulu in Haut-Lomami Province, and the southern part of Manono territory in Tanganyika Province, in the southeastern part of the Democratic Republic of the Congo (DRC). It is a marshy depression composed of some 50 or so lakes formed by the Lualaba River (the Congo River upstream from Kisangani). The two largest lakes are the Upemba and Kisale. The climate in the zone is tropical savannah, with annual rainfall between 1,200 and 1,500 millimeters (mm) per year. The key income-generating activities include selling agricultural produce, livestock rearing, fishing, trading, and producing and selling charcoal. The main sources of food for households are their own crops and market purchases. Very poor and poor households rely on casual labor payments as an additional source of food and cash income. Middle and better-off households secure additional food from livestock products and fishing.

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Zone Description

The *Kamalondo Depression Staples Production, Groundnuts, and Fishing Livelihood Zone*[1] (CD04) is a vast, marshy lowland area that covers the territories of Bukama and Malemba Nkulu in Haut-Lomami Province, and the southern part of Manono territory in Tanganyika Province. This area lies in the southeastern part of the DRC. The zone has a tropical savannah climate, with maximum temperatures ranging between 20°C and 30°C throughout the year. The hottest period tends to occur just before and during the early Rainy Season, typically from September to early November. During this period, temperatures reach the higher end of the range, around 30°C. The cooler period is usually from May to August, when temperatures drop to lower end of the range, between 20°C to 25°C. The relative humidity during the Rainy Season can often range from 70-90%, while during the Dry Season, it typically drops to 50-70%. Rainfall is moderate to high during the Rainy Season, from October to April, and the Dry Season lasts from May to September, with average annual precipitation between 1,200 and 1,500 mm.

The Kamalondo Depression, also known as the Upemba Depression, is formed by the Lualaba River and encompasses around 50 lakes, with Lakes Upemba and Kisale being the most prominent. Situated at an elevation of approximately 575 meters above sea level, this region is rich in biodiversity, hosting numerous plant and animal species. The marshy land and lakes play a vital role in regulating the local climate and sustaining the ecosystem. This zone is not only ecologically significant for its biodiversity but also essential for conserving natural habitats and endemic species. Additionally, it is rich in natural resources, including various swamps, lakes, and rivers as well as agricultural land and mineral deposits, like copper and cobalt, although mining remains underdeveloped. The lakes and rivers are crucial for irrigation and fishing, while the fertile land supports subsistence and modern farming. Vegetation in this zone includes grassy savannah characterized by tall grasses and scattered shrubs, which thrive in wet and dry seasons. Open forests, with widely spaced, drought-resistant trees, allow sunlight to reach the forest floor. Marshy areas around lakes and swamps support dense vegetation, including aquatic and semi-aquatic plants that are essential for local biodiversity. Along rivers and lakes, dense riparian vegetation provides critical ecosystem support, like bank stabilization, water filtration, and erosion control, which are vital for the environment and local communities.

The region is marked by several notable mountains, including Tumba, Senda, Kayumbayi, Malondo, Muango, Kabonga-Matako, Malewo, Kikamazovo, Kakesa, Kamisugwa, Mazele, and Kalewe. It also contains a network of seasonal rivers, like the Lofoyi, Lufira, Lualaba, Kaleme Ngongo, Kafinga, Luvidio, Kiomkodio, Lubumbu, Lunguyi, Umbu-Nguyi, Zubembeyi, Nkole, Kialaba, and Kalanguo Rivers. National Route 1 connects Lubumbashi to Bukama, and National Route 33 extends from

[1] Fieldwork for the current profile was undertaken from August 20 to September 18, 2024. The information presented in this profile refers to the reference year, which was the consumption year that covered the period March 2023 to February 2024. Provided there are no fundamental and rapid shifts in the economy, the information in this profile is expected to remain valid for approximately five to 10 years (i.e., until 2028-2033). All prices referred to in the document are for the reference year.

Bukama to Malemba Nkulu, though this route is in poor condition. A railroad from Lubumbashi to Bukama is also passable, improving access to the area.

The main towns in the region are Luena, Bukama, and Malemba, all located near Upemba National Park, which contributes to preserving the area's rich biodiversity. The population of CD04 is 1,126,519, with an average population density of 43 people per square kilometer.[2]

The livelihoods of rural households in this zone revolve around agriculture, livestock rearing, fishing, trade, charcoal production, gathering wild foods, and working as laborers in agriculture and construction.

CD04 is characterized by moderate agricultural productivity, due to challenges, like nutrient-poor and acidic dominant ferralsols and acrisols, as well as climatic hazards and road accessibility. The zone is recognized as food deficient, experiencing food shortages one in every three years. Key crops include maize, cassava, groundnuts, beans, okra, cabbage, tomatoes, sorrel, rice, and sweet potatoes, all of which are grown during a single season through rainfed cultivation. Amaranth is the only crop grown during multiple seasons. Most of the time, amaranth cultivation depends on rainfed production, but in fields along the rivers, households practice dry-season cultivation using manual watering. Rice, sweet potatoes, and various vegetables are cultivated in single stands, while the other crops are intercropped.

Preparing land is traditionally done by hand, and labor is a crucial component across all farming activities, for all tasks through the harvest. Middle and better-off households employ local laborers, primarily from poorer households, for tasks like preparing land, sowing, weeding, and harvesting, with payments made in cash and, occasionally, food. Both men and women participate in these activities, engaging in similar tasks across the production cycle. Households do not use modern agricultural inputs in the zone, instead using crop residues and organic waste to amend soil. Farmers store their harvests in plastic bags within their homes to protect them from theft and bad weather. There are no farmers' cooperatives in the area, limiting opportunities for farmers to benefit from shared resources or collaborative efforts.

Livestock production is centered around the rearing of goats, sheep, and poultry. Free grazing is practiced on open pastures, although some households also provide supplementary crop residues. Households do not purchase livestock feed as the naturally available resources are enough. Livestock rely on water from the Lualaba River as well as secondary rivers and shallow wells, which provide free water throughout Rainy and Dry seasons. Households sell animals at similar prices across wealth groups. Meat is the primary livestock product sold in the zone, and poor, middle, and better-off households all engage in livestock sales. The purchase of additional animals was not typical in the reference year.

[2] FEWS NET Data Explorer, population data (2023), accessed 2025, https://fdw.fews.net/data-explorer/.

In addition to agriculture and livestock, this rural zone features several other major economic activities. Charcoal production is a significant local enterprise and is typically sold locally in bags, piles, and basins. Another important economic activity is small-scale trade, where goods are purchased from wholesalers and resold in local markets and villages.

The area's economy benefits from an array of natural resources, including a railway network, albeit in poor condition, and navigable sections of the Lualaba River, which support trade and tourism. There are also extensive lake systems and national parks, which contribute to the area's economic and tourist appeal. In addition, fishing plays a vital role in the economy, carried out traditionally with nets and hooks in the Lualaba River and nearby lakes. The rehabilitation of access roads is seen as a potential economic driver that could enhance connectivity and boost local commerce. Construction work in the zone primarily takes place within the villages and local laborers rarely seek construction work outside of their village. This work is typically conducted through mutual agreements and is carried out by men from very poor and poor households.

CD04 experiences several hazards that affect its economy and livelihoods. The main hazards consist of crop pests, livestock diseases, and climatic events, like drought and flooding. The main crop disease is cassava root rot, which is a significant annual issue. The main livestock diseases are avian plagues and diarrhea. These diseases pose a significant risk to households from all wealth groups every two years. Drought affects household livelihoods every two years, while in some years, floods also impact households' livelihoods. Other risks include human disease outbreaks, namely malaria, cholera, diarrhea, and typhoid fever, highlighting the ongoing public health challenges in CD04.

Access to services in this rural zone varies according to wealth group. Households from all wealth groups rely on natural springs, open wells, and boreholes for drinking water while at times, very poor and poor households collect drinking water from rivers as well. Households from all wealth groups source water for other uses from rivers and open wells. Water is generally free of charge. However, in some communities, taps — established through projects coordinated by Regideso (a task force consisting of the International Committee of the Red Cross, Mercy Corps, and UNICEF) — are located on land belonging to better-off households who pay a monthly fee to access the tap water. Sanitation facilities range from open-air and pit latrines for very poor and poor households to direct-hole, brick-built, and open-air toilets for wealthier households. All wealth groups dispose of waste by composting and spreading it in fields or gardens near their homes, and by open-air incineration of plastic and other waste. Health care access is similar across all groups, with dispensaries, health centers, and traditional medicine available. Lighting sources vary slightly, with very poor and poor households using battery-operated flashlights, while middle and better-off households also use solar lamps. Cooking fuel predominantly consists of firewood and occasionally charcoal, with wealthier households using charcoal more regularly. Communication services include voice-only mobile phone usage for very poor and poor households, while wealthier households access voice and internet services. Individuals from very poor and poor households usually attain primary or secondary levels of education, while those from wealthier households may reach university. Neither wealth group commonly accesses credit sources, but savings methods differ.

Very poor and poor households tend to hide savings at home, whereas wealthier households use mobile money for saving.[3]

Markets

In the rural *Kamalondo Depression Staples Production, Groundnuts, and Fishing Livelihood Zone*, market access is heavily impacted by seasonal road conditions. During the rainy season, roads are completely impassable due to poor maintenance, making market access challenging. In the Dry Season, while roads become somewhat navigable, they remain unpaved, with many informal and rocky paths in poor condition. Bridges, although present, suffer from similar maintenance issues, further complicating transportation. Consequently, access to local and distant markets is limited.

Trade routes are essential for the movement of goods. Key agricultural products, like cassava, maize, groundnuts, and rice, are transported along major routes like Route Nationale 1, with peak sales varying across the year. Livestock, including goats, sheep, and poultry, are mainly sold from September to January and June, following routes to towns like Lubumbashi and Kolwezi. Other products, like fish, sweet potatoes, sugarcane, and charcoal, are traded seasonally, with fish sales peaking between October and May. Staples like beans, sugar, salt, and soap are purchased throughout the year, mostly along the main roads connecting to central markets.

The local job market relies heavily on casual labor, with 70% of the workforce engaged in rural areas, 20% in nearby towns, and 10% outside the zone. The small amount of work outside the zone occurs from June to September, when men and women from poorer households seek work in mining and agriculture in provinces like Lualaba, Tanganyika, and Haut-Katanga. There is also migration into the zone for mining and agricultural labor, reflecting the region's economic ties to these sectors.

Timeline and Reference Year

The baseline assessment refers to a very specific period called the “reference year.” In CD04, the reference year covers the consumption period from March 2023 to February 2024. During community leader interviews, data collectors asked informants to score the last five years in terms of seasonal performance with “1” indicating a poor season and “5” indicating an excellent season. Table 1 summarizes the responses of the community leaders.

Over the past five years, only two seasons — Season A of 2018-2019 and Season A of 2019-2020 — were ranked as “2” (below-average) in terms of household food security. The remaining seasons, including the reference period, were ranked as “3” (average). Below-average seasons were primarily due to recurring issues like root rot in cassava and adverse weather conditions.

[3] Money services (like money transfers, credit, savings, and payments for services like water, electricity, and others) are provided by mobile companies including Vodacom, Orange, Africell, and Airtel.

Table 1. Timeline

Production Year/Season	Score	Critical Events
2023/Season B	3	Both seasons experienced good rainfall distribution, however, cassava crops continued to suffer from the proliferation of root rot, negatively impacting overall household food security, which was rated as average in both seasons.
2022-2023/Season A	3	
2022/Season B	3	Both seasons enjoyed adequate rainfall. Despite this, cassava root rot remained a persistent issue, reducing the crop yield potential and necessitating coping strategies, which contributed to average food security for households.
2021-2022/Season A	3	
2021/Season B	3	Season A was marked by poor rainfall, which, coupled with cassava root rot, led to below-average performance of crop production. Households responded by increasing charcoal production, petty trade, and fishing to supplement their livelihoods.
2020-2021/Season A	3	During Season B, the zone experienced flooding. Cassava root rot persisted, alongside the ongoing challenges posed by COVID-19. The community relied on intensified economic activities like charcoal production, petty trade, and fishing. Household food security was average in both seasons.
2020/Season B	3	Season A was marked by flooding, cassava root rot, and the effects of COVID-19, which contributed to the need for coping strategies. Households increased activities in charcoal production, petty trade, and fishing. Irregular rainfall during Season B further impacted cassava crops with continued root rot issues. The pandemic exacerbated the difficulties, and households again turned to charcoal production, petty trade, and fishing for additional income. Season A was considered below average for household food security, while Season B was considered average.
2019-2020/Season A	2	
2019/Season B	3	Disease proliferation affected Seasons A and B, and to mitigate the impacts, households engaged more intensively in charcoal production, petty trade, and fishing. As a result, household food security was below average in Season A, and average in Season B.
2018-2019/Season A	2	

5 = an excellent season for household food security (e.g., due to good rains, good prices, good crop yields)
4 = a good season or above average season for household food security
3 = an average season for household food security
2 = a below average season for household food security
1 = a poor season for household food security (e.g., due to drought, flooding, livestock disease, pest attack)

Note: Production year refers to the farming year, usually beginning with the start of the main rains.

During the production period of the reference year (March 2023 to February 2024), rainfall was well-distributed, but cassava crops were still affected by root rot. This pattern of favorable rainfall mixed

with crop disease has persisted since 2018. The years 2020-2021 and 2019-2020 were particularly challenging, as farmers experienced flood and drought, which were exacerbated by the impacts of COVID-19. To cope with these challenges, households intensified their involvement in charcoal production, petty trade, and fishing. While the reference year saw some agricultural successes, like rice production benefiting from minor flooding, overall output remained average due to persistent cassava root rot. The zone is occasionally affected by localized conflicts, which disrupt access to fields and markets and instill fear among residents. Incidents related to road insecurity and Mai-Mai resistance have led to demonstrations and vandalism of administrative buildings. These factors continue to hinder food security and contribute to economic instability in the region.

Seasonal Calendar for Reference Year

The seasonal calendar (see Figure 2) illustrates the main economic activities and events of the reference year. It traces the rainy months, livestock activities, agricultural activities, other important income activities periods, and stress and high expenditure periods.

In CD04, the Rainy Seasons typically follow a unimodal pattern. The Rainy Season starts in October and usually ends in April. This season marks the beginning of the agricultural Season A. Land preparation for the main crop, cassava, starts in September, followed by the planting of seedlings, primarily of local varieties, in October and early November. Weeding in cassava fields takes place in November, January, and March. The cassava harvesting period extends from April to September of the following year, meaning that the cassava harvest occurs 18 to 24 months after planting. Maize and groundnuts are cultivated in Season A. Land is prepared in September, sowing occurs in October, weeding in November and January, and harvesting in April. Land preparation for beans occurs in September, sowing in October, weeding in November, and harvesting in March.

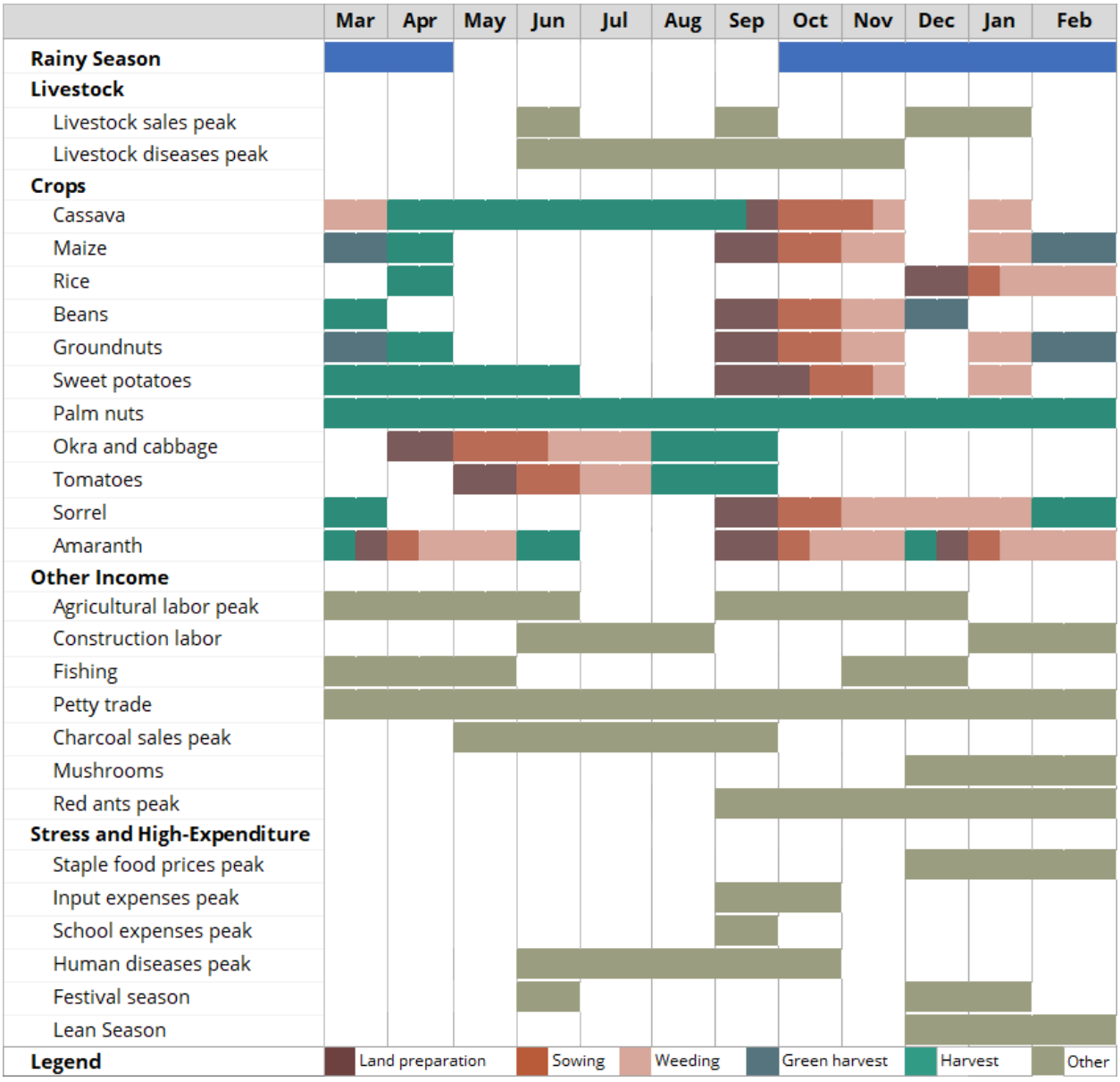
Households in this zone take advantage of the marshy land to cultivate rice. Land preparation for rice cultivation occurs in December, with sowing in January, weeding in January and February, and harvesting in April. Sorrel is another crop cultivated during Season A. Land preparation for sorrel occurs in September, sowing in October, weeding in November to January, and harvesting from February to March. Sweet potato cultivation also occurs in Season A. The season starts with land preparation in September to October, planting in October to November, weeding in November and January, and harvesting from March to June.

Okra and cabbage are cultivated during Season B, starting with land preparation in April, sowing in May and June, weeding from June to July, and harvesting from August to September. Tomatoes are another vegetable cultivated in Season B. Land preparation for tomatoes starts in May, followed by sowing in June, weeding in July, and harvesting starts in August and ends in September.

Palm trees are a perennial crop and palm nuts are collected throughout the year, leading to year-round palm oil production. The consumption and sale of cassava leaves and amaranth leaves are typical for households in this zone and can also occur throughout the year. Amaranth itself is

cultivated three times a year. For the first period, households begin land preparation in September, followed by sowing in October, weeding in October that extends to November, and harvesting in December. For the second period, households begin land preparation in January, sowing in January, weeding from January to February, and harvesting in March. For the third period, they begin land preparation in March, which is followed by sowing in April, weeding in April to May, and harvesting in June.

Figure 2. Seasonal Calendar



The success or failure of livestock keeping largely depends on the outcome of the Rainy Season. During this period, the availability of surface water and pasture for livestock improves, leading to increased reproduction and productivity. Gestation periods are 5-6 months for small ruminants (i.e., goats and sheep). Livestock sales peak during September, December, January, and June, driven by

the school season, farming resumption, year-end festivities, and seasonal illnesses. Animals are available for slaughter throughout the year, with heightened activity in December, January, and June.

Charcoal sales are primarily conducted between May and September. Petty trade is year-round, though it becomes more prevalent during the Dry Season. Fishing is carried out during November, December, March, April, and May. Agricultural labor is most intensive from September to December, and from March to June. Construction activities primarily occur between June and August and from January to February. The peak period for collecting red ants — which are used for consumption and sale — is from September to February, and mushroom picking falls from December to February. Livestock disease outbreaks typically occur from June to November, while human disease outbreaks generally occur from June to October. The Lean Season, the most challenging period in terms of food access, begins in December and extends to February. During this time, food stocks are depleted, particularly for poorer households, and food prices are high.

Table 2 outlines the typical division of labor by gender, distinguishing between shared and non-shared tasks. Shared tasks among men, women, boys, and girls include preparing land, planting, sowing, weeding, harvesting, and threshing; selling crops, livestock, and own meat; petty trade; and producing and selling charcoal. Men are primarily responsible for bird scaring, slaughtering livestock, construction labor, fishing, and selling fish. Women are solely responsible for most household chores, including collecting water, cooking, feeding small children, washing clothes, and collecting firewood. They are also involved in water application for crops, and wild food collection and sales. Men and women are both involved in breeding, raising, and selling all types of livestock. However, men are primarily responsible for fencing, building shelters, and slaughtering animals.

Table 2. Typical Division of Labor

Shared Tasks	Women's Tasks	Men's Tasks
• Land preparation, planting, sowing, weeding, harvesting, and threshing • Crop sales • Livestock sales • Meat sales • Petty trade • Charcoal/firewood production and sale	• Water application • Wild food collection and sales • Household chores	• Bird scaring • Livestock slaughter • Construction labor • Fishing and fish sales

Wealth Breakdown and Productive Assets

Wealth distribution in the zone is determined by several key factors, including the amount of cultivable land, labor availability, the number of livestock, and the possession of other productive assets, like bicycles, motorcycles, and fishing equipment. Overall, middle and better-off households typically own and cultivate more land, have more labor, own greater numbers of livestock, and have

more productive assets compared to poorer households. Only wealthier households typically produce palm oil, which is collected from their own palm tree plantations.

Table 3. Wealth Breakdown

Household Size and Productive Assets	Very Poor	Poor	Middle	Better-Off	Poor Female-Headed
Household size	6-8	6-8	7-9	7-9	4-6
Land (hectares [ha])	0.5-1.5	1-1.6	2.5-3	2-4	0.7-1
Land cultivated (ha)	0.4-1	0.75-1.25	1.5-2.5	2-3	0.4-1
Land cultivated – food crops (ha)	0.3-0.7	0.5-1	1-2	1.5-2.5	0.3-0.7
Land cultivated – cash crops (ha)	0.2-0.3	0.2-0.3	0.4-0.6	0.4-0.6	0.1-0.3
Goats	0	0-3	4-8	5-10	0
Sheep	0	0	0-10	0-10	0
Poultry	10-20	10-20	10-25	15-25	10-20
Bicycles	0	0-1	1	1	0
Motorcycles	0	0	0	1	0
Nets	0	0	0	0-10	0
Solar panels	0	0	0	1	0
Mobile phones	0	0-1	1	1	0

In this livelihood zone, land is freely available, and every household cultivates according to their means and available labor. During the reference year, households from all wealth groups cultivated all the land they owned. It is not common practice to rent land among the different wealth groups. Land is typically controlled by village chiefs, who may allocate it to households, and women have equal rights to land. Wealth groups do not differ significantly in the crops they grow but vary in production methods, with wealthier households often employing members of poorer households as laborers. Crop production faces challenges, like lack of fertilizer, soil degradation, irregular rainfall, and crop pests, while livestock production is constrained by diseases. Women in the zone may buy small animals like poultry but rarely inherit livestock.

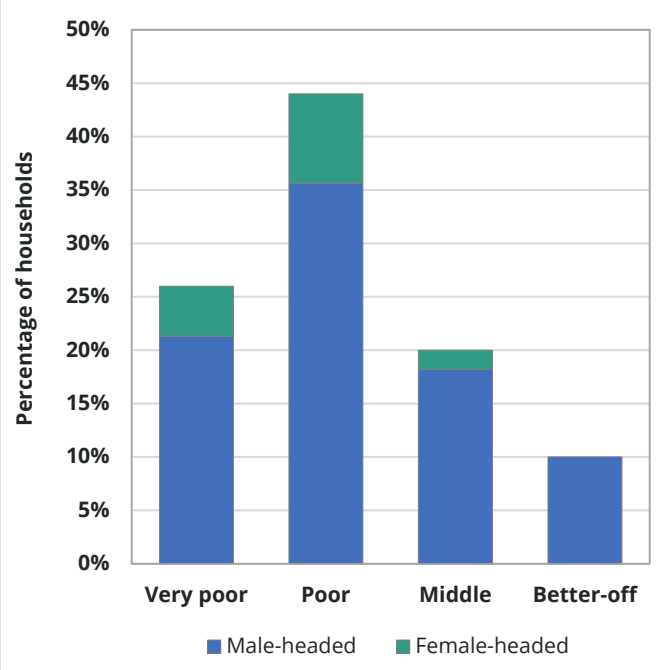
Table 3 summarizes the types and numbers of productive assets that typical households within each wealth group own and/or manage. Asset holdings are shown in a range that reflects the diversity of households' situations within a wealth group. Figure 3 shows the percentage of households within

the zone that falls in each wealth group. Communities from the zone carried out the wealth group categorization of households themselves.

In livelihood zone CD04, very poor households cultivated 0.4-1 ha of land, with 0.3-0.7 ha dedicated to food crops and 0.2-0.3 ha to cash crops. Poor households cultivated 0.75-1.25 ha, with 0.5-1 ha allocated to food crops and 0.2-0.3 ha to cash crops. Middle households cultivated 1.5-2.5 ha, divided into 1-2 ha for food crops and 0.25-0.75 ha for cash crops. Better-off households cultivated 2-3 ha, with 1.5-2.5 ha for food crops and 0.25-0.75 ha for cash crops. Poor female-headed households cultivated 0.4-1 ha, with 0.3-0.7 ha for food crops and 0.1-0.3 ha for cash crops. There is a progressive increase in land area cultivated with increasing wealth. Overall, better-off households cultivated more than three times the land cultivated by very poor households.

Figure 3. Wealth Breakdown

Note: All results are the mid-point of a range



Livestock are a significant source of income in this zone, serving as an important means of investing, saving, and safeguarding against difficult years. The main types of livestock kept include goats, sheep, and poultry. Livestock provide direct access to food through meat, and they are also a crucial source of cash income through the sale of live animals and some meat. Households from all wealth groups in CD04 own some animals, with wealthier households possessing larger herds. Goats and sheep are particularly valuable due to their high economic value and the financial security they provide to households that own them. Middle and better-off households raise all types of livestock and generally have larger herds than poorer households. Very poor households only have poultry (around 10-20), but poor households may own up to 10-20 poultry as well as up to 3 goats. Middle households may own 4-8 goats, up to 10 sheep, and 10-25 poultry. Better-off households typically possess 5-10 goats, up to 10 sheep, and 5-25 poultry.

In terms of other asset ownership, very poor and poor female-headed households lack assets. Poor households own one bicycle and one mobile phone, if any, whereas middle households typically own one bicycle and one mobile phone, and better-off households own one bicycle, one motorcycle, up to 10 fishing nets, one solar panel, and one mobile phone.

Wealthier households have the resources to hire labor from poorer households, particularly for tasks like preparing land, sowing, weeding, and harvesting. By contrast, poorer households possess few productive assets and primarily rely on their own labor.

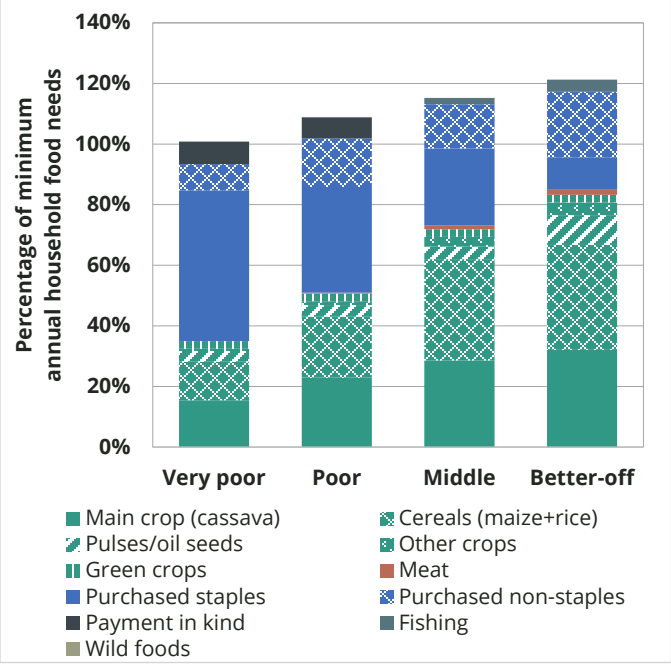
Household size tends to increase with wealth. Very poor and poor households typically have 6-8 household members and poor female-headed households generally have only 4-6 members. Middle and better-off households have about 7-9 members.

The proportion of households in the community were distributed as follows: very poor households made up 20-30%, poor households 35-55%, middle households 15-25%, and better-off households 5-15%. The proportion of female-headed households in the very poor wealth group is 10-25% and 10-30% in the poor wealth group. Among wealthier households, there is typically 5-15% of female-headed households in the middle wealth group. It is important to note that in this livelihood zone, land is not a limiting resource, and women have their own portion of land. While women rarely inherit livestock, they can purchase animals using their own resources.

Sources of Food

Figure 4 presents the sources of food for households in different wealth groups in the livelihood zone for the period from March 2023 to February 2024. March represents the start of the consumption year because it is when the consumption of crops from the main harvest season starts. Food is presented as a percentage of the annual kilocalorie (kcal) needs of the household, based on the internationally accepted 2,100 kcals per person per day.

Figure 4. Sources of Food



There were two main sources of food in this zone: households' own crops and market purchases. Other minor sources of food included meat, payment in-kind, fishing, and wild foods.

When considering total food consumption, there was a clear progressive increase in the amount of food consumed with rising wealth. Overall, very poor households consumed between 100-105% of their minimum annual food needs, poor households consumed 110-113%, the middle wealth group consumed 112-118%, and the better-off wealth group consumed 118-123% of their minimum annual food needs.

Crop production was the most important source of food for poor, middle, and better-off households, and the second main food source for very poor households, with households from all wealth groups relying on crop production for more than 30% of their minimum food needs. For very poor households, crop consumption covered 30-40% of their minimum annual food needs, while for poor households, this figure ranged between 45% and 55%. For the upper wealth groups, crop consumption met 65-75% and 80-85% of their minimum annual food needs for middle and better-off households, respectively.

Cassava was the main crop consumed by households and is used in various forms, including fresh, dried, and as cassava flour —used to prepare dishes like *fufu* and *chikwangue*. Cassava leaves were also commonly consumed, often served alongside *fufu* and *chikwangue*. Very poor households obtained 10-20% of minimum annual food needs from cassava. This proportion increased consistently by wealth group: poor households met 20-25%, middle households 25-30%, and better-off households 30-35% of their minimum annual food needs from cassava.

Households from all wealth groups obtained 2-3% of minimum annual food needs from maize and groundnuts in Season A. Poorer households obtained 10-25% of minimum annual food needs from cereals (e.g., maize and rice), while wealthier households obtained 30-35% of minimum annual food needs from maize and rice. Pulses and oil seeds (e.g., beans and groundnuts) were important sources of vegetable protein and fat. Very poor, poor, and middle households obtained 3-5%, and better-off households obtained about 10%, of minimum annual food needs from these crops. Meat from households' own animals was a source of animal protein. Poor, middle, and better-off households all typically consumed some meat, covering 3-10% of minimum annual food needs. Other crops grown locally and consumed included sweet potatoes and palm oil. Very poor households obtained about 1% of their minimum annual food needs from this category; poor households obtained 1-2%, middle households 1-2%, and better-off households 1-3%.

Purchases were the main source of food for very poor households and the second main source of food for poor, middle, and better-off households. Purchased foods can be divided into staple and non-staple categories. Maize flour, rice, and cassava flour are considered staples. Very poor households obtained about half (45-55%) of their minimum annual food needs from staple food purchases alone. The proportion decreased with wealth, with poor households meeting 30-40% of minimum annual food needs from staple foods, middle households 20-30%, and better-off households 10-12%. The category of non-staple foods included beans, cowpeas, groundnuts, sugar, meat, oil, dried/smoked fish, salted fish, fresh fish, vegetables, and sweet potatoes. For very poor households, 6-12% of minimum annual food needs were met from non-staple food purchases. Poor and middle households met 10-20% of annual food needs from non-staple food purchases, and better-off households obtained 20-25%.

Payments in-kind were an important additional source contributing to calories for poorer households, representing 5-10% of their minimum annual food needs in the reference year. Locally caught fish contributed less than 1% to annual calories of poorer households, about 2% for middle

households, and about 4% for better-off households. Wild foods contributed very little (roughly 0.1%) to the minimum annual food needs of households from all wealth groups.

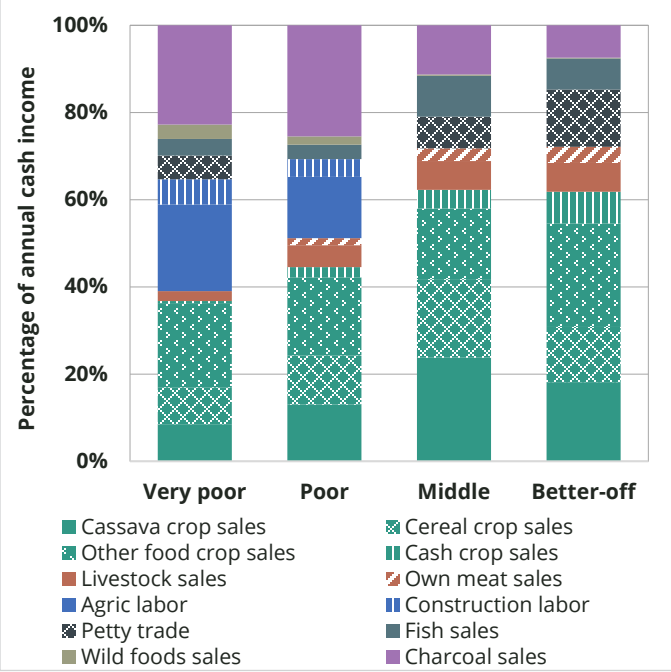
There was no food aid in the livelihood zone in the reference year.

Overall, the reference year was average in terms of food security, with households from all wealth groups meeting their minimum annual food energy needs.

Sources of Cash Income

Crop production, livestock rearing, trading, and self-employment were the main livelihood activities in CD04 (see Figure 5). Crop sales were the main income source for households from all wealth groups. Additionally, households earned income from livestock sales, own meat sales, labor (e.g., agricultural labor, construction labor), charcoal sales, petty trade, and fishing. They also generated income from the sale of wild foods, like mushrooms and red ants.

Figure 5. Sources of Cash Income as a Percentage of Annual Cash Income



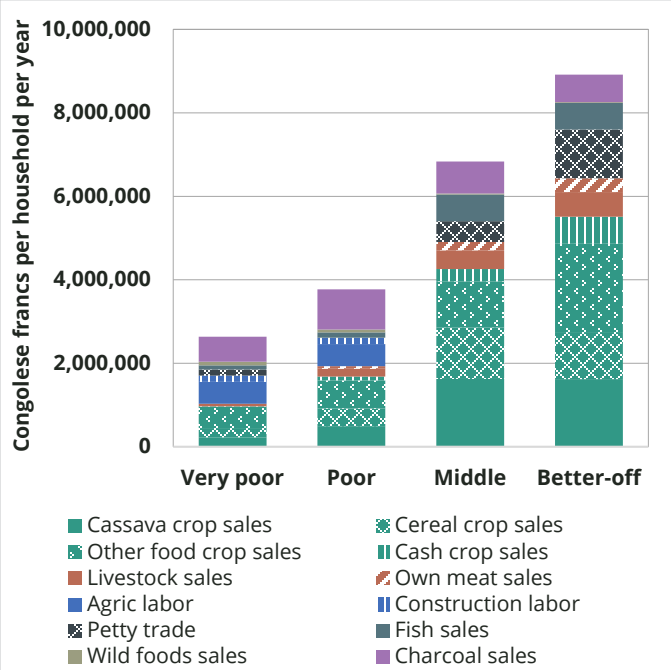
Very poor households primarily obtained their income from crop sales, which accounted for 35-40% of their total income. These sources were followed by charcoal sales, contributing 20-25%, and agricultural labor payments, contributing 15-25%. Construction labor provided an additional 6% of total income, petty trade contributed about 5%, while the remaining 5-15% was earned from a combination of fishing, wild foods sales, and livestock sales.

Poor households generated 40-50% of their cash income from crop sales. They also earned 20-30% of their total annual cash income from charcoal sales and 10-20% from agricultural labor payments.

Livestock sales contributed approximately 5%, while construction labor, fishing, and wild foods sales contributed about 4%, 3%, and 2% to annual cash income, respectively.

Middle households earned 60-65% of their total annual cash income from crop sales. Charcoal sales, fishing, and livestock sales each contributed 5-15%, while petty trade contributed 5-10%. The remaining 2-5% of their income came from own meat sales.

Figure 6. Total Annual Cash Income



Better-off households secured 60-65% of their total annual cash income from crop sales, with petty trade contributing 10-15%. Livestock sales, charcoal sales, and fishing each contributed 5-10% of their income, with own meat sales providing the remaining 3-5%.

Differences between wealth groups in terms of the absolute amount of cash income generated during the reference year were significant. This gap is illustrated in Figure 6 and Table 4. Better-off households earned almost 3.5 times the cash income of very poor households. In terms of per capita cash income, the difference was slightly lower, although better-off households still earned about three times the annual per capita cash income of very poor households.

Table 4. Income Summary Table (Congolese Francs or CDF)

Wealth Group	Very Poor	Poor	Middle	Better-Off
Annual income per household[4]	2,300,000-3,000,000	3,100,000-4,600,000	5,300,000-7,900,000	8,000,000-10,000,000

Expenditure Patterns

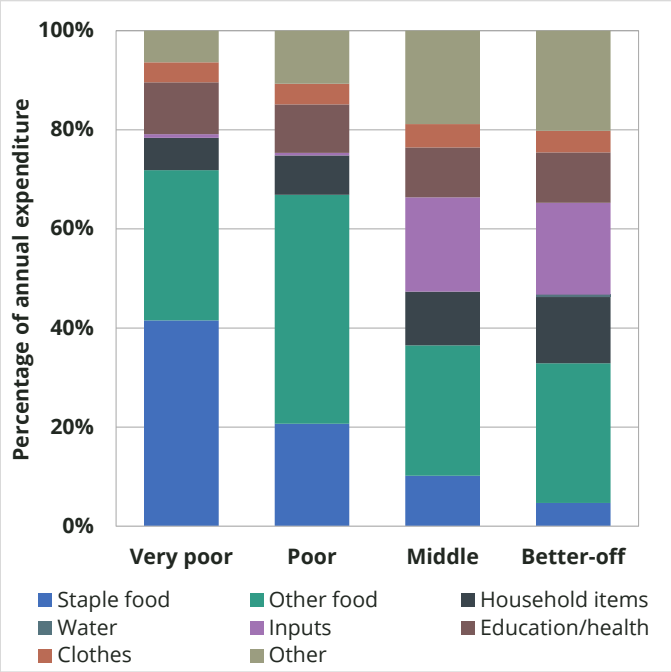
Figure 7 presents expenditure patterns for the reference year from March 2023 to February 2024. While absolute expenditure increases with wealth in line with total cash income, this graph's expenditure breakdown by percentage shows the *relative* amount of income spent on different categories.

Households in the zone need to cover a range of essential expenditures throughout the year. These include staple foods (e.g., maize flour, rice, and cassava flour), non-staple foods (e.g., beans, cowpeas, groundnuts, sugar, meat, oil, dried/smoked fish, salted fish, fresh fish, vegetables, and sweet potatoes), household items/services (e.g., salt, soap, tea, coffee, lighting, milling, etc.), productive inputs, social services (which include health and education), clothing, transport, and

[4] The average exchange rate from March 2023 to February 2024 was 1 USD = 2,423 CDF.

other essential and non-essential items, like phone credits, religious contributions, beer, tobacco, festivals, house repairs, and savings. Only better-off households paid for water.

Figure 7. Total Annual Cash Expenditure by Category



Households from all wealth groups spent a significant proportion of their annual income on staple and non-staple foods reflecting that for households in this zone, 30-60% of their annual food needs were met from food purchases alone. Spending on staple foods accounted for 40-45%, 15-25%, 5-15%, and 5% of annual expenditures of very poor, poor, middle, and better-off households, respectively. Non-staple food spending accounted for an additional 25-35% of annual expenditure for very poor households and 40-50% for poor households. For middle and better-off households, spending on non-staple foods was 20-30% and 25-35%, respectively.

For very poor households, food expenditure in total accounted for about 65-80% of their budget. The remaining amount was divided as follows: 5-10% for household items (including lighting and grinding costs), about 1% for productive inputs, 5-15% for social services (e.g., health and education), 3-5% for clothing/shoes, and 4-8% for "other" items (including transportation, phone credits, festivals, etc.).

Poor households' total expenditure on food was about 65-70% of their budget, leaving 30-40% allocated as follows: household items 5-10%, productive inputs approximately 1%, social services 5-15%, clothing/shoes 3-5%, and "other" 8-15%.

For middle households, 55-75% of their budget was spent on non-food items, of which 5-15% went to household items, 15-25% on productive inputs, 5-15% on social services, 15-25% on "other" items, and about 5% on clothing/shoes.

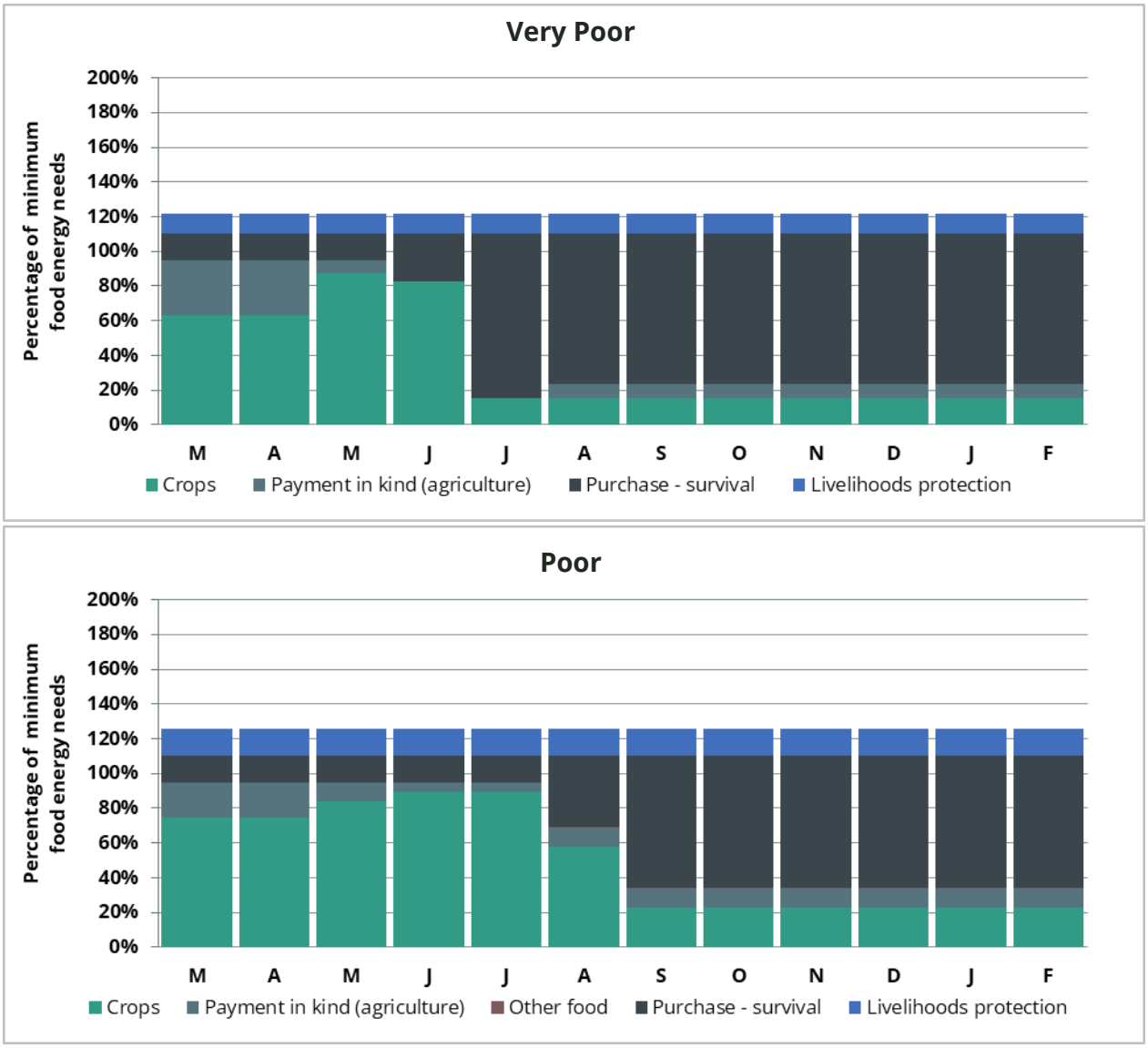
For better-off households, 30-35% of expenditure was on food items and 65-70% was on non-food items. Productive inputs accounted for much of non-food expenditure, as did the "other" category, each comprising 15-25% of annual expenditure. In addition, household items accounted for 10-15% of annual expenditures, social services 5-15%, and clothing/shoes about 4%. Better-off households also spent money on water, which amounted to about 1% of their total annual expenditure.

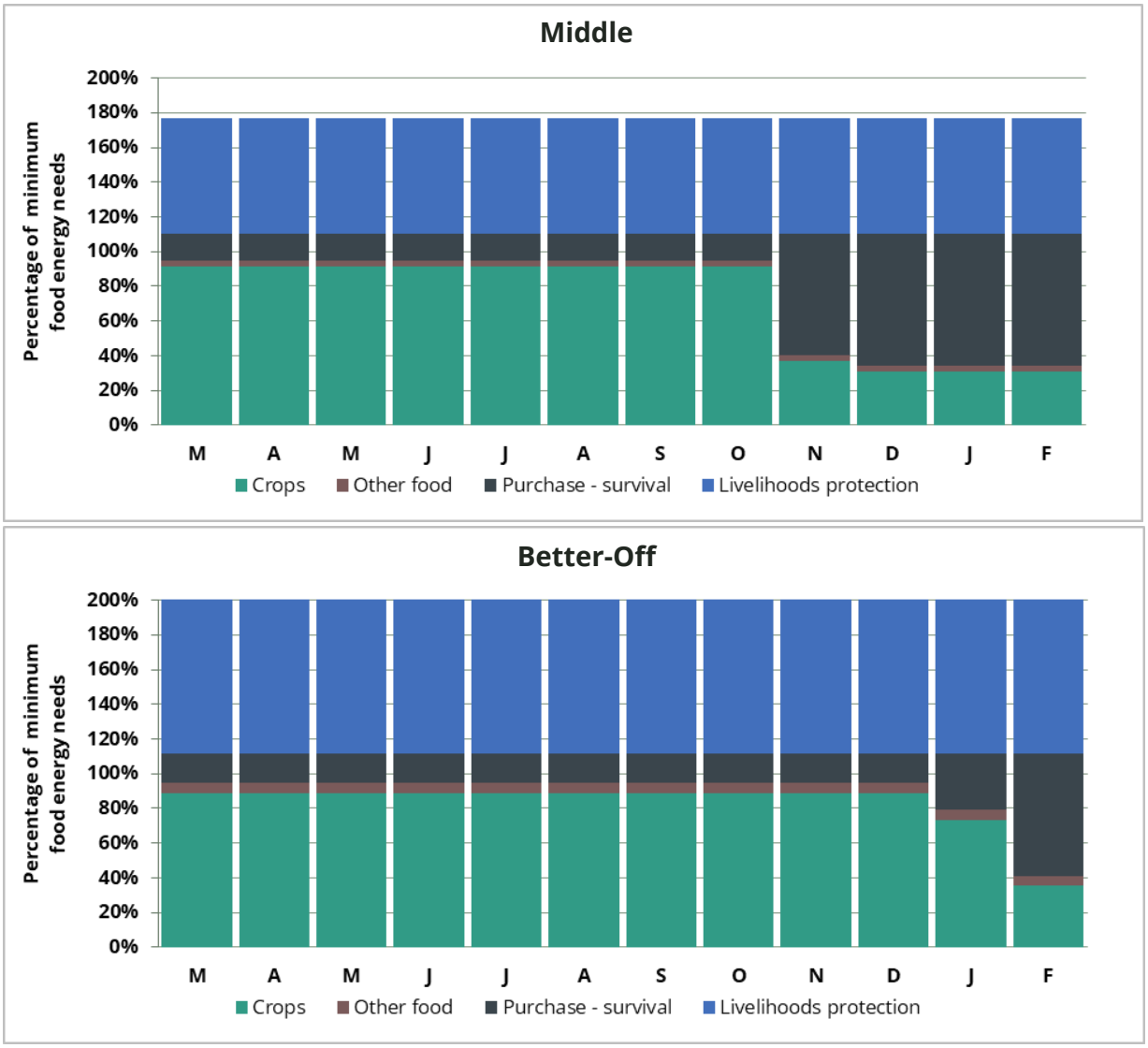
Food Access Calendars

The graphs in Figure 8 present monthly food and cash access calendars for the four wealth groups.

Households in all wealth groups were able to meet their survival and livelihoods protection thresholds year-round in the reference year. The main harvest period in this livelihood zone started in March and households relied on their crop production to meet food needs for a number of months, increasing from about four months for very poor households to over 10 months for better-off households. Very poor and poor households obtained some food as payment in-kind for casual agricultural labor during the harvest period. The dark blue "livelihoods protection" sections of the bars increase as a proportion of total with wealth because wealthier households spend more on productive inputs, health, and education.

Figure 8. Seasonal Food and Cash Access Calendars per Wealth Group





Poor Female-Headed Households

Female-headed households are found in the very poor and poor wealth groups, as shown in the wealth breakdown (Figure 3). During fieldwork, data collectors conducted in-depth interviews with poor female-headed households. In CD04, female-headed households are usually led by widows or single mothers. Poor female-headed households face similar constraints and characteristics as poor male-headed households, but they are further disadvantaged by a lack of adult male labor, which potentially leads to additional constraints on certain types of asset ownership, productive work, or income-generating activities.

Figure 9 shows that poor female-headed households and poor male-headed households share a similar pattern of food access, except for meat from their own livestock and fishing, although even for poor male-headed households, meat and fish met less than 0.5% of minimum food needs. In the

reference year, they met their annual minimum food energy needs from similar food sources, mainly own crops and food purchases. Poor male-headed households cultivated slightly more land than poor female-headed households and thus harvested slightly more and had slightly more calories from crop production than poor female-headed households.

Other constraints faced by poor female-headed households in the reference year were limited access to productive assets, like land, agricultural equipment, and livestock. With respect to livestock, poor female-headed households only owned a few poultry.

Figure 9. Sources of Food: Poor Households vs Poor Female-Headed Households

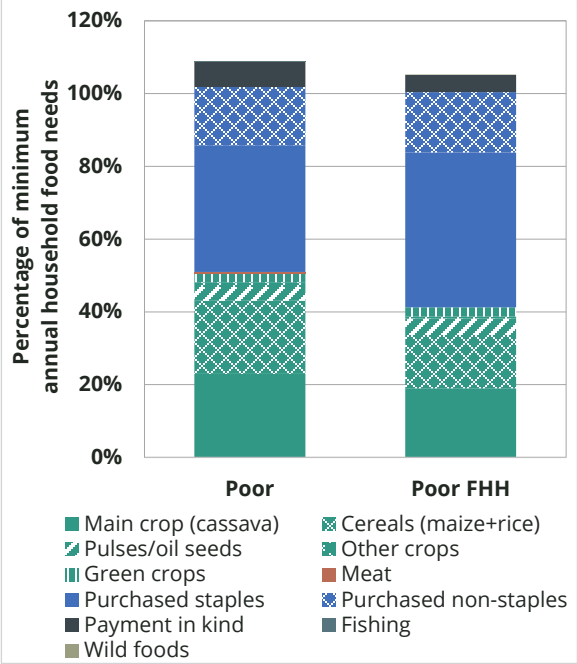
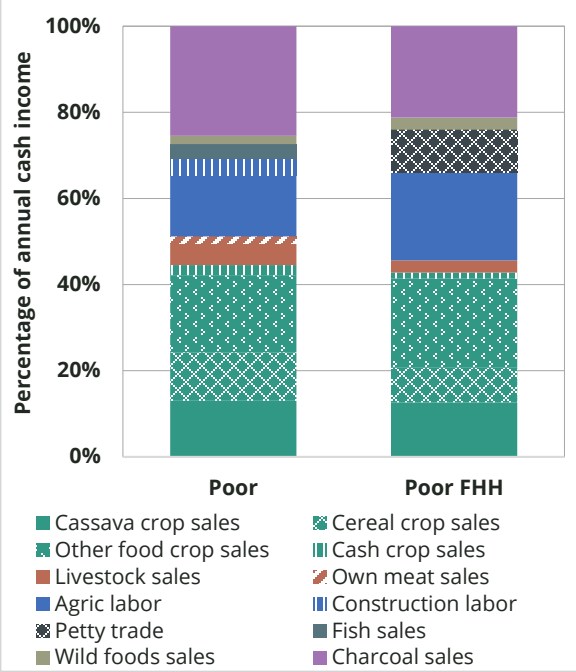


Figure 10. Sources of Cash: Poor Households vs Poor Female-Headed Households



The income picture shown in Figure 10 shows that poor male-headed households and poor female-headed households had similar sources of cash income in the reference year. Some exceptions were own meat sales, construction labor, and fish sales, three types of income sources that generally were earned only by poor male-headed households. Another exception was petty trade which was an income source typically earned only by poor female-headed households. The main sources of cash income for poor female-headed households, in order of importance, were crop sales, charcoal sales, agricultural labor, and minor contributions from petty trade, livestock sales, and wild foods sales (e.g., mushrooms and red ant).

Comparing total cash income, poor female-headed households earned about 80% of poor male-headed household income in the reference year. Poor female-headed households had a smaller household size in the reference year (4-6 household members) compared to male-headed households (6-8). Interestingly, on a per capita basis, cash income was approximately the same for poor male and poor female-headed households.

In all income categories, poor male-headed households generated a significantly higher percentage of annual cash income compared to poor female-headed households. Poor male-headed households obtained 55-65% of their income from crop sales, compared to 15-20% for poor female-headed households. In charcoal sales, poor male-headed households earned 30-40%, whereas poor female-headed households earned 5-15%. For agricultural labor, poor male-headed households earned 15-25%, compared to 5-10% for poor female-headed households. In the livestock sales category, poor male-headed and poor female-headed households earned about 1% of their annual cash income. In the wild foods category, poor male-headed households earned approximately 3%, while poor female-headed households earned about 1%.

Response Strategies

In response to hazards and years with poor production, households attempt to meet their minimum food needs and cash requirements through several strategies. Below are some common approaches employed by households in CD04.

Households from all wealth groups try to reduce expenditures on non-essential or more expensive items first, like either cutting down on festival costs or not buying clothes or utensils that year. Households consume less rice and maize flour in favor of cassava flour, which is the least expensive staple.

Very Poor and Poor Households

Very poor and poor households try to increase cash income by intensifying casual labor activities. However, in lean years, as increasing numbers of people flood the labor market, this option quickly loses its value because wage rates drop and jobs are harder to find, pushing households into other activities like cutting straw for sale, collecting firewood for sale, and increasing charcoal production and sales.

Middle and Better-Off Households

Middle and better-off households cope with hazards differently. Middle and better-off households sell additional livestock to cover basic food and non-food expenses in lean years. They also increase self-employment activities, like charcoal production and sales, and fishing and fish sales.

Key Parameters for Monitoring

The key parameters listed in Table 5 are food and income sources that make a substantial contribution to household economies in the *Kamalondo Depression Staples Production, Groundnuts, and Fishing Livelihood Zone*. These should be monitored to track potential losses or gains to local household economies through ongoing monitoring systems or periodic assessments.

Table 5. Key Parameters for Monitoring

Item	Key Parameter – Quantity	Key Parameter – Price
Crop production	• Maize – quantity produced • Cassava – quantity produced • Rice – quantity produced • Groundnuts – quantity produced • Beans – quantity produced • Sweet potatoes – quantity produced • Vegetables – quantity produced	• Maize – producer price • Cassava – producer price • Rice – producer price • Groundnuts – producer price • Beans – producer price • Sweet potatoes – producer price • Vegetables – producer price
Livestock production	• Goats – herd size	• Goats – producer price
Other food and cash income	• Harvest labor – number of days • Cultivation labor – number of days • Fishing – quantity caught • Construction labor – number of days worked • Charcoal/firewood sales – quantity sold • Petty trade – demand	• Harvest labor – wage rates • Cultivation labor – wage rates • Fishing – price • Construction – wage rates • Charcoal/firewood – sales price • Petty trade – daily earnings
Expenditure		• Maize flour – consumer price • Cassava – consumer price

CD05 Livelihood Zone

Reference Year: February 2023–January 2024

Southern Tanganyika-Mwero Lake Fishing Livelihood Zone

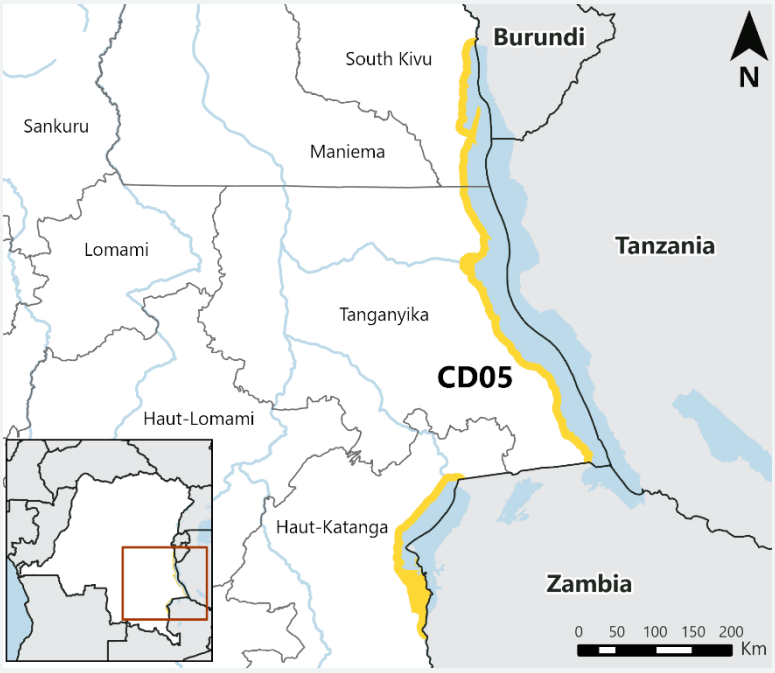


Figure 1. CD05 Livelihood Zone Map

Summary: The *Southern Tanganyika-Mwero Lake Fishing Livelihood Zone* (CD05) is a narrow strip running along the western shores of Lake Tanganyika and Lake Mweru. The zone is renowned for fishing, which is the driving force behind the local economy. Most households engage in artisanal fishing. Households who do not own boats work for others and share part of the daily catch as payment, for consumption and sale. Fishing and fishing labor are available almost year-round. Crop production is important as a source of food, but less so than in neighboring livelihood zones that rely on farming. Households produce cassava, maize, groundnuts, palm oil, and vegetables, but even wealthier households do not cover more than half of their annual food needs from their own production. The mountainous terrain and the sandy lakeside soil types do not favor agriculture. Besides fishing and agriculture, local households also engage in various types of labor, self-employment activities, and trade to make ends meet. Livestock are present in the zone, especially goats and pigs, but they are only sold when needed, and they are not an important source of food or cash income for local households.

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Zone Description

The *Southern Tanganyika-Mwero Lake Fishing Livelihood Zone*[1] (CD05) is a located along the western shores of Lake Tanganyika and Lake Mweru. Local livelihoods depend on fishing, supplemented by rainfed crop production. The zone begins in the south of South Kivu Province, in the territory of Fizi, and continues along the shoreline to the tip of Lake Tanganyika, interrupted temporarily to restart along the shores of lake Mweru. The zone covers the lakeshore areas in Kalemie and Moba territories in Tanganyika Province, the territory of Pweto in Haut-Katanga Province, as well as the lakeshore area in Fizi territory. The width of the zone varies between 10 kilometers (km) and a maximum of 20 km inland from the lakeshore depending on the exact locations of the fishing communities. CD05 shares many similarities with the *Lake Tanganyika-Rukwa Fishing, Maize and Sunflower Livelihood Zone* (TZ58) in Tanzania and the *Mweru Bangweulu Tanganyika Fisheries Livelihood Zone* (ZM21) in Zambia.

Lake Tanganyika is the second largest lake in the world, one of the oldest, and also the longest (at 676 km). Two main rivers flow into the lake, the Ruzizi from Lake Kivu further north, and the Malagarasi in Tanzania, as well as numerous smaller rivers and streams that are bound by the steep mountains around the lake. The one major outflow is the Lukuga River, tributary of the larger Lualaba River, which empties into the Congo River system, ultimately linking the lake with the Atlantic Ocean. Lake Mwero is located 150 km west of Lake Tanganyika on the border with Zambia. It is a much smaller lake but drains into the same river system as Lake Tanganyika. It is mainly fed from the south by the Luapula River and from the east by the Kalungwishi River.

Inland from the flat, sandy shoreline and coastal plains, the zone's topography is mountainous. The chain of lakes is located at the bottom of the Western Great Rift Valley, and the western coast of the zone has steep mountains reaching over 2,000 meters. The Mitumba mountain range begins in South Kivu and extends into the livelihood zone, though with lower elevations and gentler slopes than in the Kivus. CD05 has a tropical climate and receives an average of 1,200 mm of rain per year from October to April/May.[2] The southern half of the zone receives slightly less rain, with a slightly delayed start to the Rainy Season. Temperatures are higher close to the lake and cooler in the hills and mountains, but only rarely do they exceed 32°C during the Rainy Season and only occasionally drop below 16°C in the hills during the Dry Season. The area has sandy-clay soils supporting savannahs and gallery forests that are a source of different types of timber (e.g., *mufula*, eucalyptus, cypress, and *kabamba*) used to make charcoal. The zone has mineral deposits, particularly gold and coltan.

[1] Fieldwork for the current profile was undertaken from March 25 to April 18, 2024. The information presented in this profile refers to the reference year, which was the consumption year that covered the period from February 2023 to January 2024. Provided there are no fundamental and rapid shifts in the economy, the information in this profile is expected to remain valid for approximately five to 10 years (i.e., until 2029-2034). All prices referred to in the document are for the reference year.
[2] EWX Next Generation Viewer, https://earlywarning.usgs.gov/fews/ewx/index.html.

The population of CD05 is 498,571. Population density is high in the north of Lake Tanganyika, in the Kivus, but lower in the rest of the livelihood zone, with an average of 32 people per square km.[3] To a certain extent, this density explains the relatively larger average size of landholdings in the zone, compared with those located in the northern Tanganyika area.

Fishing has a high potential, yet for most of the population, it remains an artisanal activity, using small, non-motorized boats, fishing lines, small parallel nets, or mesh nets (typically mosquito nets). Semi-industrial fishing activities using motorboats, flood lights, raised nets, and other more sophisticated equipment are also present in this livelihood zone. The fishing sector provides labor opportunities for those who do not own boats and for small boat owners who rent out their boats. With the lack of mechanization and the numerous artisanal fishing opportunities in this area, these small-scale fishing activities and the demand for fishing labor are generally more important sources of income than farming activities, particularly for households living less than two kilometers from the lakes or rivers.

There are two main seasons within the Tanganyika region. The wet season from October to May is characterized by high humidity, considerable precipitation, and frequent thunderstorms, but weak winds over the lake. The dry season from May to the end of August is characterized by stronger but regular southerly winds.

There are alternating fishing seasons for the two main types of fish found in this area (perch and minnows), leading to year-round artisanal fishing activities. Generally, the main catch between December and April are sleek lates (*Lucio lates stappersii*), a type of perch for which the local name is *migebuka* or *mukeke*. Minnows (*Stio strasio tanganyikaye*) are the main catch during the Dry Season between June and August, despite rough waters during the Dry Season, especially at the southern end of Lake Tanganyika. The fishing season for minnows is closed between October and April to allow stocks to replenish.

The main driver of wealth in CD05 is access to small fishing boats and a means of transporting fish to the market, with access to land being second in importance. Poorer households without access to these types of assets earn wage income as laborers in fishing, farming, and, less commonly, mining activities. Self-employment (primarily the production and sale of charcoal, bricks, and palm oil) and petty trade are also important sources of income for poorer households.

The main crops grown in the zone are the ubiquitous cassava (for its tubers and leaves), maize, groundnuts, sweet potatoes, vegetables (e.g., amaranth, gourds, tomatoes) and palm oil. While the local climate allows for two cropping seasons, most households focus on Season A, which runs from November to April, with the peak harvest taking place in February/March. Crop production is marginal, and it is unable to cover the needs of the population who are obliged to rely on the market and on food imports from Tanzania or other parts of the country.

[3] FEWS NET Data Explorer, population data (2023), accessed 2025, https://fdw.fews.net/data-explorer/.

Households in all wealth groups have a few small ruminants (typically goats), pigs, and/or poultry according to their means, which are sold only when necessary. The risk of trypanosomiasis and the lack of large open pastures precludes the raising of large animals. Animals roam freely and feed on crop residues, browse, and purchased feed. They find water in the lakes, rivers, and small ponds. Overall, income from livestock is small.

The *Southern Tanganyika-Mwero Lake Fishing Livelihood Zone* (CD05) is vulnerable to several common hazards that affect the local economy and households' livelihoods. The main hazards are those that impact fishing activities, the number of fish caught, and the demand for labor from poorer households. One problem is excess sedimentation and pollution threatening to block the outlet of the Congo River. In fact, the waters have barely ebbed away since 2020.[4] Other hazards include flooding (a yearly hazard), very strong winds and thunderstorms that affect access to the lake for fishing for longer than usual (once every three years), and crop pests and diseases as well as livestock diseases (once every two to three years). The most common crop diseases are cassava rot and the yellowing/wilting of maize stalks and maize and groundnut leaves. Conflict/insecurity is not a common hazard in the area at present.

In terms of service provision, households in all wealth groups obtain water for drinking and other uses for free from manually drilled wells and from the lake. In terms of sanitation, most households use hand-dug traditional latrines. Primary healthcare is accessed through community health centers (*Centres de Santé Communautaire*). Households also use traditional medicine and self-medication from pharmacies. Wealthier households have the means to access referral health centers (*Centres de Santé de Référence*), but expenditure on health is generally low. For lighting, most poorer households use battery-operated flashlights, while wealthier households also use solar panels and solar flashlights. Mobile phone service and use is widespread and includes access to the internet, although some poorer households do not own phones. Primary schools (grades 1-8) are found at the village level; secondary schools (grades 9-12) operate in larger towns. Poorer households usually send their children through primary school; better-off households can send their children through college, but many stop at secondary education. Financial services are scarce but may be accessed by a variety of means, mostly from informal loans (from friends, family, or neighbors). Access to formal credit is very difficult due to the absence of formal lending institutions. Informal loans are granted between households for short periods of time. These interest-free loans are mainly used to pay for food during the Lean Season and are generally repaid in cash. Wealthier households can borrow from village savings and loans groups (*Associations Villageoises d'Épargne et Crédit* [AVEC]).

[4] Le Monde with AFP, "'Lake Tanganyika Is Vomiting': In Burundi, the Water Dramatically Rose and Displaced the Local Population," Le Monde, April 21, 2022, https://www.lemonde.fr/en/le-monde-afrique/article/2022/04/21/lake-tanganyika-is-vomiting-in-burundi-the-water-dramatically-rose-and-displaced-the-local-population_5981165_12.html#.

Markets

Market access in this zone is good, and trading activities are mostly based around the lakes. While local rural roads are difficult to traverse due to the mountainous terrain, access to markets along the lakes by land and/or by boat is good year-round, even with the poor condition of the main lakeshore road. Additionally, the zone has relatively convenient access to markets in Zambia and the Kivus by motorboat, mainly for the sale of dried fish, which is also shipped overland from Kalemie to the Kasai region via Kongolo and to Lubumbashi from Pweto.

The main markets supplying the zone from north to south are Bukavu and Uvira (located north of CD05), Kalemie, and Lubumbashi (to the southwest of the zone), all four located along the RN5. Uvira and Kalundu (located near the town of Kalemie, the capital of Tanganyika Province) are two lake ports. They are managed by the National Railway Company of the Congo. There are also numerous informal landing sites, such as Kibirizi near Kigoma or Ngwenya market in Mpulungu, and Moba (near the town of Kirungu), which is the most important. Different types of boats and vessels operate on Lake Tanganyika: wooden boats (which are the most numerous), bulk carriers, barges and oil tankers, and combined passenger/cargo ships. Wooden boats have limited range and vary in capacity. They transport passengers and cargo, including many types of goods and products, from fish and food products to construction materials.

The Port of Kalundu is close to the border with Burundi and to Bujumbura and competes with the Port of Bujumbura for traffic destined for South and North Kivu, and beyond. Phase 1 of the Lake Tanganyika Transport Corridor Development Project started in August of 2023, with the renovation of the Port of Bujumbura, financed by the African Development Fund, the World Bank, and European Union.[5]

Kalundu port and Kalemie town are connected by railway to Lubumbashi, although the condition of the railway is poor and connections are prone to long delays. Kalemie is also connected to Bukavu in the north and Lubumbashi in the south (via Pweto, at the land border to Zambia) by reasonably well-maintained roads.

Crop production is mostly sold locally, with some crops transported to the markets in Uvira, Bukavu, and Lubumbashi. Cassava is sold year-round; maize and groundnuts are sold in February, although a minority of households may have a second maize harvest in June/July. Palm oil sales take place between February and April. Income from crop sales is not the major source of income for local households. However, the local sale of leaves and vegetables is an important source of income for women. These can be sold year-round and include cassava, amaranth, and squash leaves.

Households rely on purchasing staple foods throughout the year. The main food items purchased include maize, cassava flour, some rice, and non-staples (e.g., pulses, oil, sugar, meat, and fish). Maize and cassava flour are the main staples. Staple food purchases increase progressively between

[5] Gavin Pearson, "Port of Bujumbura Renovation Begins," *Infrastructure Global*, August 31, 2023, https://infra.global/port-of-bujumbura-renovation-begins/.

September and December. Cassava is supplied locally from surplus areas in Tanganyika and Haut-Katanga provinces. Maize is generally imported from Tanzania.

Livestock sales peak between August and September with the start of the new school year and also in December in the run-up to Christmas and New Year celebrations. Animal sales are local within the communities or in the local towns. There is no milking of animals, but slaughtering of male animals is common and some of the meat is sold locally after slaughter.

Labor sales are mostly carried out within the livelihood zone. Approximately 70% of the casual labor done is undertaken within the local rural area, either in the households' own communities or nearby villages. Poorer households work for wealthier households in fishing and agriculture. Labor opportunities are available year-round. The remaining 30% of casual labor is conducted in towns within or close to the zone. Male household members migrate to nearby towns for a few weeks at a time to search for opportunities, especially in November and December to generate additional cash for the celebrations.

Timeline and Reference Year

The baseline assessment refers to a very specific period called the "reference year." In the *Southern Tanganyika-Mwero Lake Fishing Livelihood Zone,* the reference year covers the consumption period from February 2023 to January 2024. February sees the start of the main harvest, that of agricultural Season A (spanning September to February/March). Fishing is available year-round, and the availability of crops was considered a better indicator of the end of the Lean Season and, therefore, the start of the new consumption year.

During community leader interviews, informants were asked to score the last five years in terms of seasonal performance with "1" indicating a poor season and "5" indicating an excellent season. Table 1 summarizes the response of the community leaders.

Table 1. Timeline

Production Year/ Season	Score	Critical Events
2023/Season B	3	Average food security outcomes. Localized cassava losses (rotting).
2022-2023/Season A	3	Average food security outcomes thanks to average crop production, plentiful fish stocks, and average output from fishing. Some localized flooding and crop pests (fall armyworm affecting maize).
2022/Season B	3-4	Average to good food security outcomes.
2021-2022/Season A	3-4	Average to good food security outcomes thanks to good crop production. Plentiful fish stocks and average output from fishing. Some localized flooding.

2021	3-4	Average to good food security outcomes.
2020-2021/Season A	3-4	Average to good food security outcomes thanks to good crop production. Some localized flooding. Average fish stocks and average output from fishing.
2020/Season B	3-4	Average to good food security outcomes.
2019-2020/Season A	3-4	Average to good food security outcomes thanks to good crop production, fishing production, and other livelihood activities.
2019/Season B	3-4	Average to good food security outcomes.
2018-2019/Season A	3-4	Average to good food security outcomes thanks to good crop production, fishing production, and other livelihood activities.

5 = Excellent season for household food security (e.g., due to good rains, good prices, good crop yields)
4 = Good season or above average season for household food security
3 = Average season for household food security
2 = Below-average season for household food security
1 = Poor season for household food security (e.g., due to drought, flooding, livestock disease, pest attack)

The reference year was considered an average year in terms of food security outcomes. It was characterized by average production levels with regards to fishing and crop production. Food prices were relatively stable compared with the average for the last five years, and there were no reports of community conflict in the zone.

Overall, the last five years have been average to above average, meaning that local livelihoods have not suffered severe shocks. Nevertheless, seasonal food insecurity is a structural characteristic of the zone and it is not related to intermittent production or market related hazards.

Seasonal Calendar for Reference Year

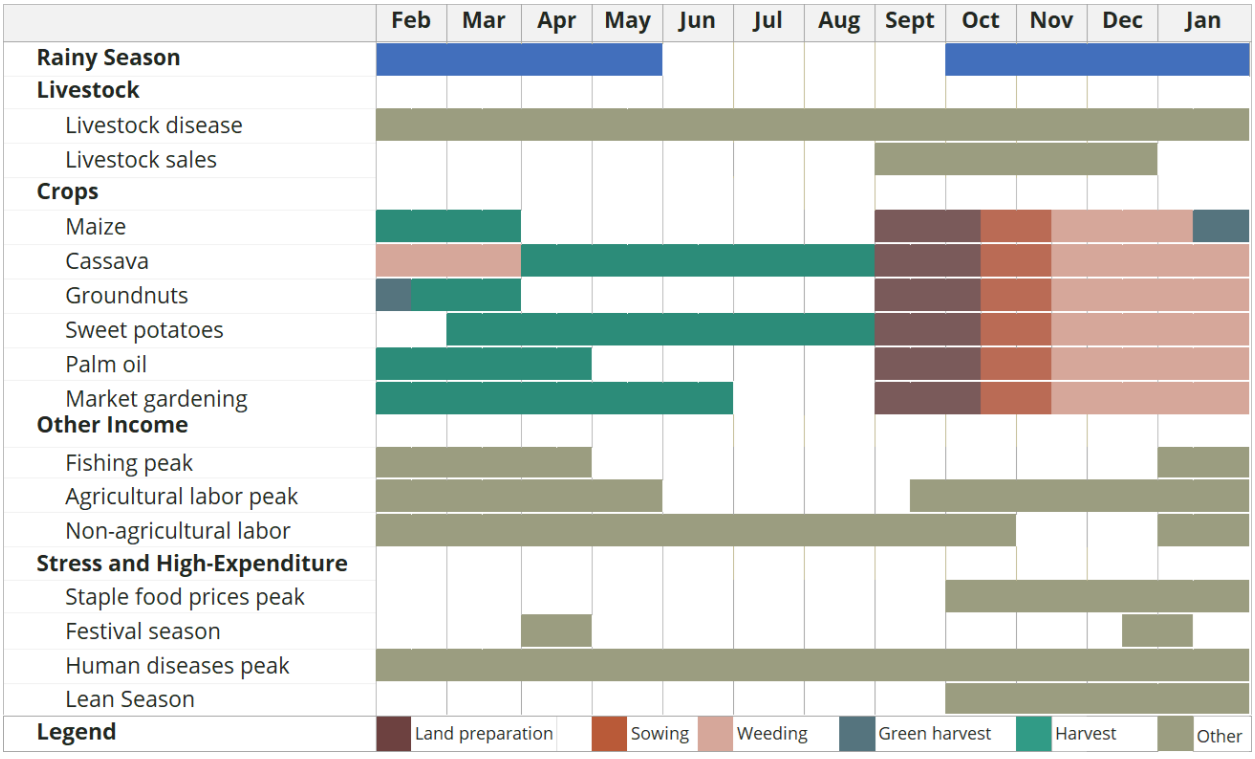
The seasonal calendar (see Figure 2) illustrates the main economic activities and events of the reference year. It traces the rainy months, productive activities, food purchasing periods, etc.

There are two main seasons within CD05. The Rainy Season generally starts during the month of October and continues through to the end of May. This season is characterized by weak winds over the lake, high humidity, considerable precipitation, and frequent thunderstorms. The Dry Season, from June to October, is the season of strong winds and rough waters. Nevertheless, the weather conditions are generally favorable, and fishing can continue year-round. Fishing activity decreases in intensity when fish stocks are low before the peak of the reproduction periods for each species. During these times, fishermen may not go fishing every day but on alternate days.

Although the seven month-long Rainy Season allows for two cropping seasons, most households prefer to concentrate their labor efforts on the agricultural season that starts toward the end of the calendar year, to be harvested between February and March (Season A). As a result, households are

busy preparing their fields for the start of the season in September/October, with sowing starting with the first rains toward the end of October or beginning of November (the rains tend to start later in the south of the zone than in the north). The main crops grown in the zone are maize, groundnuts, sweet potatoes, cassava, and vegetables. Rice, beans (*haricots*), Bambara nuts (*voandzou*), and taro are also present in the zone, but they are not cultivated by households in all wealth groups. Most households have access to oil palms either on their own plots, family plots, or in the bush. After sowing, weeding continues through December and January; in February and March, the harvest peaks for all crops except for tubers (cassava and sweet potatoes), which are generally left in the ground for another month at least and are consumed as needed for the rest of the year. Oil palms also have a long harvest, from February to April. Maize and groundnuts are often consumed fresh at the start of the harvest (referred to as green harvest in Figure 2), although the bulk of the harvest is dried for more optimum storage. Cassava tubers are also consumed fresh and dried and processed (either manually or mechanically) into cassava flour. Vegetables are harvested from January to the end of the Rainy Season and are an important source of income generated by women in the household.

Figure 2. Seasonal Calendar



As well as tending their own fields, poorer households work for other households. They are generally paid in cash, but part of the harvesting and post-harvest activities are paid in-kind, making labor an important direct source of food at that time of the year. Fishing labor is also paid in-kind, with a proportion of the daily cash shared among the laborers, to be consumed by the household and sold to generate cash for food purchases and other needs.

From April/May, the demand for local agricultural labor and family labor in the fields decreases, and households turn to other activities, such as construction labor in rural and urban areas in the zone (including migratory labor to nearby towns), firewood collection and sales, brickmaking, wild foods sales, and petty trade, while at the same time continuing with fishing activities.

Livestock ownership is concentrated in the upper wealth groups, but most households own poultry. Animals are sold throughout the year as needs arise, with peak sales occurring during the run up to the start of the school year in September and end of year celebrations, when household expenditure increases. Livestock diseases can occur at any time of the year. Human diseases, like livestock diseases, do not have a particularly marked seasonality.

The Lean Season — the most difficult period in terms of access to food due to depletion of food stocks and high food prices — heightens progressively between October and January. Poorer households may be confronted with difficulties in food access sooner; this depends on the outcome of the cropping season, the exact timing of the annual spike in food prices, and especially the outcome of different fishing activities, including fishing labor.

Table 2 shows the typical division of labor, listing the activities shared and not shared by men and women. Men and boys are largely responsible for fishing, livestock production, off-farm labor, labor migration, and trade/small business. Women are mostly involved in domestic work, paid domestic labor (including cooking, childcare, firewood collection), fish processing, and chicken sales.

Table 2. Typical Division of Labor

Shared Tasks	Women's Tasks	Men's Tasks
• Agricultural labor – pre-harvest • Agricultural labor – harvest • Animal care • Petty trade • Charcoal/firewood production and sale • Wild foods collection and sale	• Household chores • Fish processing (drying/smoking) • Domestic labor • Chicken sales	• Fishing • Fishing labor • Migration labor • Construction labor • Animal slaughter

Wealth Breakdown and Productive Assets

Table 3 summarizes the types and numbers of productive assets that typical households within each wealth group own and/or manage. Asset holdings are shown in a range that reflects the diversity of households' situations within each wealth group. Figure 3 shows the percentage of households within the zone that falls in each wealth group. The socioeconomic categorization of households in the zone was carried out by the communities themselves.

Table 3. Wealth Breakdown

Household Size and Productive Assets	Very Poor	Poor	Middle	Better-Off	Poor Female-Headed
Household size	5-6	7-8	8-10	9-14	5-7
Land (hectares [ha])	0.1-0.4	0.25-0.5	0.5-1	0.75-1.25	0.1-0.5
Land cultivated (ha)	0.1-0.4	0.25-0.5	0.5-1	0.75-1.25	0.1-0.5
Pigs	0	0	0	0-6	0
Goats	0	0	3-7	5-10	0
Poultry	2-4	4-6	6-16	6-20	3-5
Bicycles	0	0	0	0-1	0
Motorcycles	0	0	0	0-1	0
Mosquito nets (used for fishing)	1-2	1-2	0	0	1-2
Fishing nets	0	0-1	1-2	1-5	0
Fishing boats	0	0-1	1	2-4	0

Availability of household labor is one of the most important determinants of wealth in the zone. Household size increases with wealth. Very poor households have a household size of approximately 5-6, poor 7-8, middle 8-10, and better-off 9-14. The middle and better-off wealth groups have larger household sizes than the very poor and poor wealth groups, and therefore more labor to engage in different types of economic activities. Additionally, wealthier households hire additional laborers from poorer households for agricultural and fishing labor. This work limits the amount of labor that poorer households can devote to their own production, but given their limited access to productive assets (i.e., land and fishing equipment), working for others is a fundamental characteristic of their livelihoods.

The ownership of fishing equipment (primarily fishing boats and fishing nets) is an equally important determinant of wealth in the zone. Households that do not own boats are limited in the type of fishing they can carry out from the shoreline and are obliged to work for others as fishing labor, at least for part of the year. This arrangement is most typical for very poor and poor households and, to some extent, for poor female-headed households.

However, poor female-headed households are limited in their ability to engage in fishing due to their household composition, as it is most typically men who carry out the fishing. Women help with fish preparation activities that take place back on land (e.g., cleaning, drying, and smoking) but do

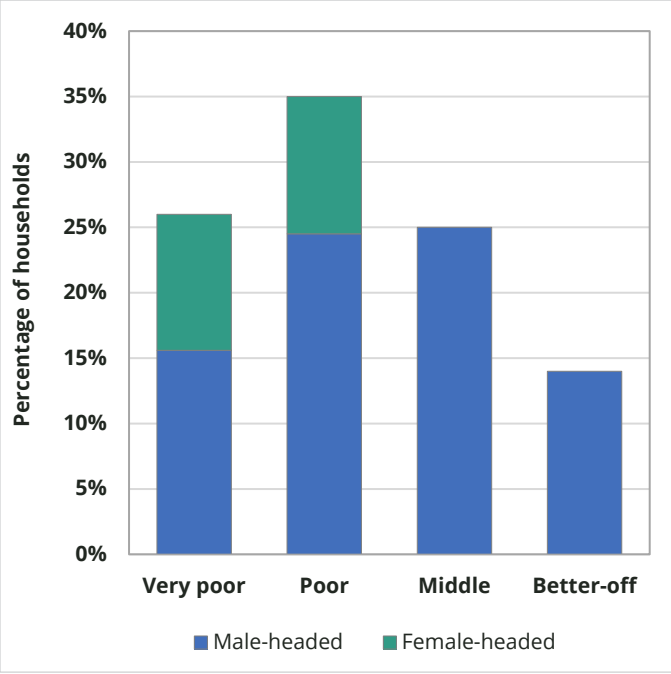
not fish themselves. Poorer households who cannot afford to buy fishing nets use mosquito nets to fish, also included in Table 3 above.

Although farming is generally less important than fishing, access to land continues to be a key indicator of wealth. The local terrain does not allow for extensive agriculture, and plots are small. Cultivation is practiced by all wealth groups. There is a progressive increase in areas cultivated with increasing wealth, from less than 0.4 ha to 1.25 ha. Overall, better-off households cultivate three to four times the area cultivated by very poor households. There is no renting of land within the livelihood zone. No wealth group produces a surplus of crops for sale. Middle and better-off households grow enough food to cover about half of their minimum annual consumption needs but sell crops post-harvest and purchase more later in the year. Very poor and poor households produce less staple food than they need and must purchase food during the year, especially in the pre-harvest Lean Season. Households in all wealth groups also cultivate cash crops, most significantly, garden vegetables.

Livestock ownership is another source of wealth in the zone, but it is much less important than fishing equipment and agricultural land. The most common types of livestock are poultry, goats, and pigs. Households in all wealth groups own poultry, while middle and better-off households also own goats. Pigs are typically only owned by better-off households. Sheep and cattle are not suited to the CD05 livelihood zone. Households from all wealth groups sell animals every year, including goats and pigs, to cover household needs.

Figure 3. Wealth Breakdown

Note: All results are the mid-point of a range



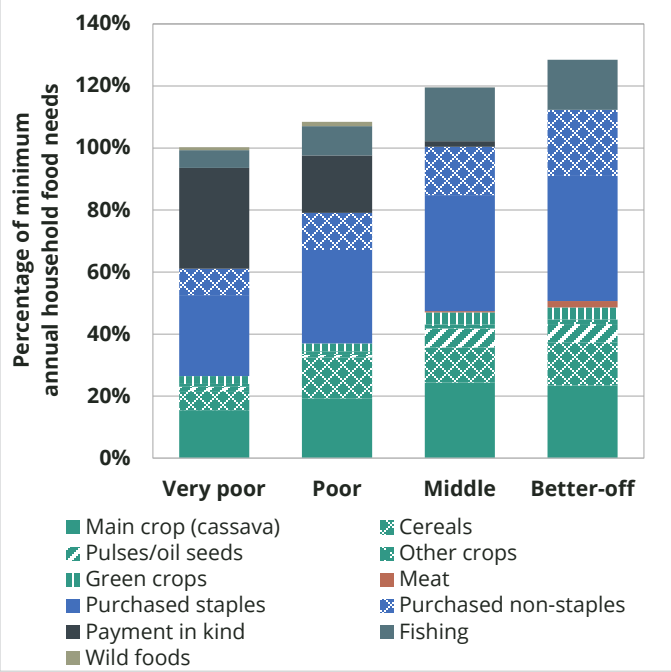
The proportion of households in each wealth group is as follows: very poor households roughly 20-30%, poor households 30-40%, middle households 20-30%, and better-off households 10-18%. Female-headed households make up a portion of the very poor and poor wealth groups, with the highest percentage found among very poor households (40% of households in the very poor wealth group compared to an average of 30% in the poor wealth group). In terms of land, poor female-headed households have an asset profile that is in between very poor households and poor; they cultivate an average of 0.1 to 0.4 ha, compared to an average of 0.25 to 0.4 ha for poor households. Poor female-headed households have a similar livestock asset profile to poor

households more generally — neither group owns pigs or goats. As indicated above, female-headed households do not generally participate in fishing activities unless there is an adult male in the household. Female-headed households are usually widows or divorced or separated women.

Sources of Food

Figure 4 presents the sources of food for households in different wealth groups in CD05 for the period from February 2023 to January 2024. February represents the start of the consumption year because it is when the main harvest begins, thereby marking the end of the Lean Season. Food is presented as a percentage of 2,100 kilocalories (kcal) per person per day for the 12-month period.

Figure 4. Sources of Food



Beginning with total food consumption, there is a progressive increase in the amount of food consumed with increasing wealth. Overall, very poor households consumed enough to just meet 100% of minimum annual food needs, compared to 125-130% for better-off households. This highlights the higher degree of insecurity among very poor households even during an average year and thus the structural nature of food insecurity in this wealth group. Households categorized in the poor wealth group surpassed the minimum benchmark by only 5-10% in the year under analysis.

During the reference year, there were four main sources of food in this zone and two minor sources. The main sources were purchased food, crops, fishing, and payment in-kind. The two minor sources were own meat and wild foods (excluding fish). The relative importance of the four main sources of food varied with wealth. While purchases were a dominant source of food for households across wealth groups, payments in-kind (i.e., received in exchange for agricultural or fishing labor) were the most important source of food for very poor households. As a result, very poor and poor households are vulnerable to changes in labor demand (for labor paid in-kind but also in cash), which, along with increased food prices, impacts very poor households' access to food.

Turning first to food purchases, the products included in this category are divided into staples and non-staples. All wealth groups purchased staple foods, the most important being maize flour, cassava flour, and rice. Very poor households purchased 20-25% of their minimum annual food needs from these staple foods, and better-off households purchased roughly 40%. All wealth groups

purchased non-staple foods, the most important being palm oil, fresh fish, sweet potatoes, beans, dried fish, meat, milk, and vegetables. Very poor households purchased roughly 10% of their minimum annual food needs from non-staple foods, and better-off households roughly 20%.

All wealth groups consumed their own crops. Crop production was the second most important source of food in the livelihood zone for all but very poor households. Unlike many neighboring farming zones, no wealth group in CD05 grew enough crops to cover their minimum consumption needs. Overall, very poor households produced roughly 25% of minimum annual food needs, and better-off households roughly 50%. The most important crops grown for households' own consumption were cassava flour, maize, and palm oil.

Fish were the third most important source of food in the livelihood zone. Households in all wealth groups consumed part of their catch. Very poor households consumed around 5% of minimum annual food needs from fish, and better-off households 15-20%. Although local households consume large amounts of fish, their contribution in terms of annual food needs is small because fish are relatively low in kcals.

As mentioned above, payment in-kind was very important for very poor households. Overall, they received 30-35% of minimum annual food needs from payment in-kind, which includes food consumed by migrant laborers while working away from the household. Except among the better-off wealth group, at least one member from each household, either an adult male or young adult male, spent an average of two months away from the community in search for labor in nearby towns. "Migrant labor" refers to the proportion of annual food needs derived from in-kind payments by the middle wealth group. There was no food aid in CD05 in the reference year.

Sources of Cash Income

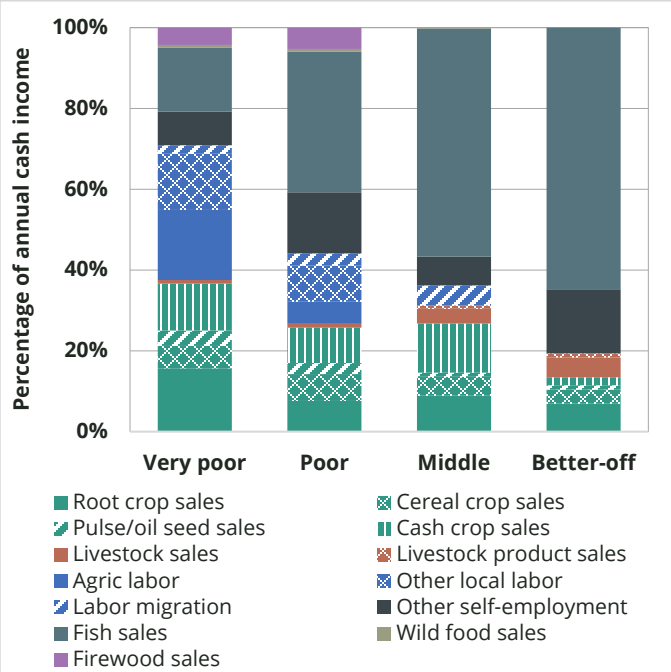
Crop production and fishing are the main livelihood activities in the *Southern Tanganyika-Mwero Lake Fishing Livelihood Zone.* However, the primary means of obtaining cash income in this zone varies by wealth group (see Figure 5). During the reference year, fish sales were the main income source for poor, middle, and better-off households, supplemented by crop sales and small-scale commercial activities (labeled "self-employment" in Figure 5). Poor and middle households also earned some cash from labor, including migration labor. In contrast, very poor households earned their cash income from local labor (agricultural, construction, and domestic labor), migratory labor, crop sales, and fish sales.

Other income sources for households include livestock sales (and livestock product sales for the middle and better-off households who sell some of the meat after slaughter), petty trade, self-employment (including small and larger-scale trade, charcoal/firewood sales, palm oil sales, and the production and sale of bricks), and wild foods sales (especially mushrooms and yams).

Figure 5 presents the relative importance of the household sources of income. During the reference year, fish sales were the main income source for all but very poor households, representing 25-35%

of annual income for poor households, 50-60% for middle households, and 55-65% for better-off households. The income generated from fish in absolute terms is much higher for middle and better-off households (see Figure 6). It is only households from the wealthier groups who own boats and profit the most from fishing.

Figure 5. Sources of Cash Income as a Percentage of Annual Cash Income

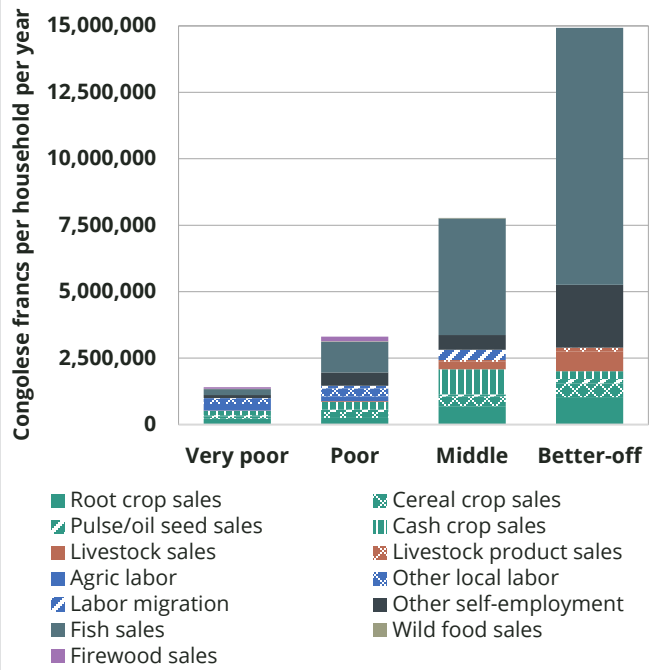


Crop sales were an income source for households from all wealth groups. They generated 35-40% of total cash income for very poor households, about 25-30% for poor and middle households, and roughly 15% for better-off households. The main food crops sold were cassava (often ground into cassava flour), maize, groundnuts, and sweet potatoes. The main cash crops sold were vegetables, which households can produce and sell in small quantities over a longer period.

Wage-labor was an income source for the very poor, poor, and middle wealth groups. It generated roughly 30% of total cash income for very poor households, 15-20% for poor households, and around 5% for middle households. The main types of labor were agricultural labor (at all stages of the crop production calendar), migration labor, and construction labor (i.e., low-skilled construction labor, including transporting building materials). Women from poorer households were also engaged in domestic labor (e.g., collecting firewood for other households). Fishing labor is generally paid in-kind with a proportion of the day's catch, which is shared out between the owner of the boat and the crew (i.e., some of this fish is consumed by the crew and some is sold). Typically only very poor and poor households engage in fishing labor. The blue bars in Figures 5 and 6, which represent income derived from fishing, include income from the sale of fish caught directly by the fishermen using nets as well as the sale of fish received as payment working for others.

Self-employment was an income source for households in all wealth groups, but it was the second most important source of cash for better-off households, after fishing. Wealthier households with larger amounts of surplus cash and capital can engage more easily and more frequently in petty trade and/or have large-scale trading activities. Better-off households generated roughly 15-20% of total cash income from self-employment and trade, compared with 10-20% for the other three wealth groups. Poor households, in particular, generated a considerable amount of income from self-employment and trade, specifically the production and sale of bricks.

Figure 6. Total Annual Cash Income



Wild foods sales contribute to the income profiles of very poor and poor households, although it was not an important source of income. Wild foods sales typically relates to gathering and selling mushrooms and, to a lesser extent, yams.

Differences between wealth groups in the absolute amount of cash income generated during the reference year were large. Overall, better-off households earned close to 10 times the cash income of very poor households. This gap is illustrated in Figure 6 and Table 4. Differences between wealth groups in per capita cash income were large, but smaller than for total income. Overall, better-off households earned close to four times the annual per capita cash income of very poor households.

Table 4. Income Summary Table (Congolese Francs or CDF)

Wealth Group	Very Poor	Poor	Middle	Better-Off
Annual income per household[6]	1,200,000–1,600,000	2,000,000–5,000,000	5,000,000–10,000,000	10,000,000–20,000,000

Expenditure Patterns

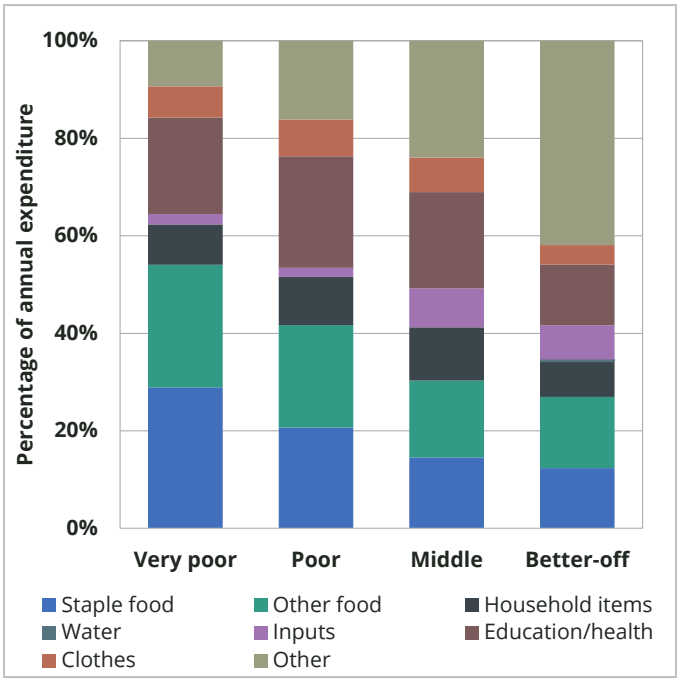
Figure 7 presents expenditure patterns for the reference year, from February 2023 to January 2024. While absolute expenditure increases with wealth in line with total cash income, this graph's expenditure breakdown by percentage shows the *relative* amount of income spent on different categories. Households in this zone need to cover a range of essential expenditures over the year, including staple foods, non-staple foods, household items/services (like salt, soap, lighting, etc.), productive inputs, social services (which include health and education), and clothing, as well as other essential and non-essential items.

Food purchases accounted for the largest share of total expenditure from all wealth groups, from 40-50% of annual expenditure among very poor and poor households to closer to 30% for middle and better-off households. Food purchases are divided into staple foods (e.g., maize, cassava flour, and rice) and non-staple foods (e.g., pulses, oil, sugar, meat, fish, sweet potatoes, vegetables, and,

[6] The average exchange rate from February 2023 to January 2024 was 1 USD = 2364 CDF.

for better-off households only, milk). Annual expenditure on purchased staple and non-staple foods was similar for each wealth group, yet the relative weight of each category varied from month-to month in line with the timing of each crop harvest and the payments in-kind received for labor.

Figure 7. Total Annual Cash Expenditure by Category



Health and education combined were the second largest expenditure category for the poorer wealth groups but the third largest expenditure for wealthier households (after "other"). Health and education-related expenses accounted for roughly 20% of total expenditure for the very poor, poor, and middle wealth groups and closer to 15% for better-off households. In absolute values, however, there is a progressive increase in annual expenditure on these social services, with poor households spending twice as much as very poor households and better-off households spending twice the amount of poor households. More was spent on education than on health during the reference year by all four wealth groups. Expenditures on health are low because health service provision is limited in CD05, and most households cannot afford to access more expensive services in the cities.

Inputs were not among the top three expenditure categories for any of the wealth groups. Inputs accounted for less than 5% of total expenditure for very poor and poor households and less than 10% for middle and better-off households. Fishing equipment is expensive, and it is rarely replaced if it is repairable. Therefore, investment in productive inputs was mainly related to farming, including hired labor, farm tools, seeds, and supplementary feed for livestock — the latter for middle and better-off households only. Fishing labor is typically paid in-kind with a portion of the daily catch; therefore, this expenditure is not reflected under "inputs."

The remaining smaller expenditure categories include household items, including tea/coffee, salt, soap, lighting, milling costs, cooking utensils, and charcoal/firewood. Soap was the largest expense in this category for poorer households, while purchasing firewood (instead of using household labor to collect it) was the largest expenditure for wealthier households, closely followed by soap. Grinding mill costs (for maize and cassava) were also a non-negligible item in this category for all four wealth groups.

Households in all wealth groups spent some money on clothes and other non-essential items, including transportation, communication, celebrations, community and religious contributions, and miscellaneous expenses. The proportion of annual income available for non-essential items was

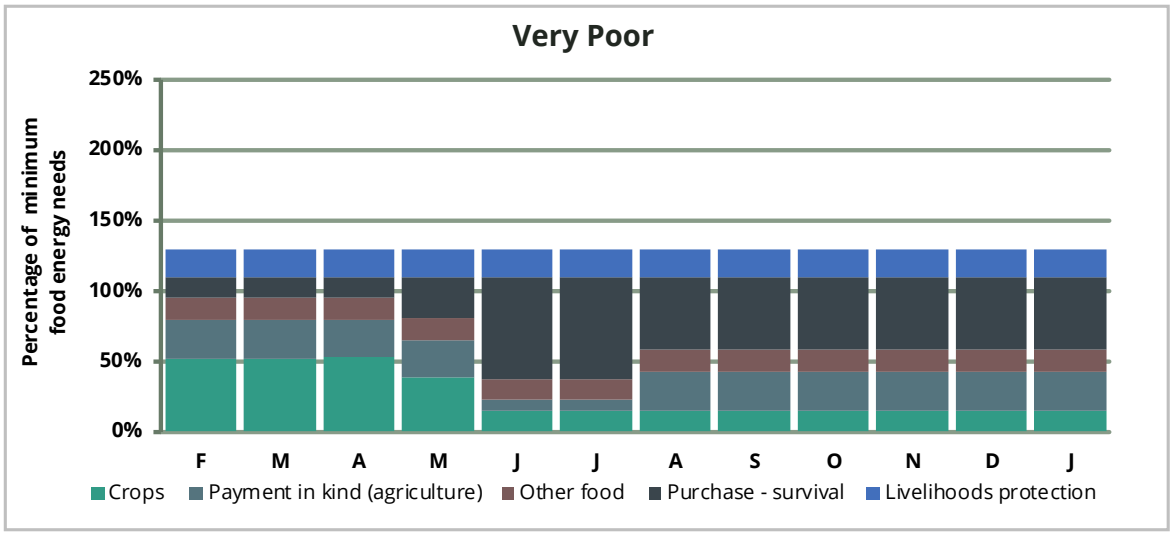
considerably larger for better-off households (over one-third of their annual expenditure) and for middle households (one-quarter of their annual expenditure). Very poor and poor households, on the other hand, only spent around 15% of their income on non-essential items. Compared to wealthier households, they have a much smaller financial buffer with which to cover unexpected costs and increases in prices.

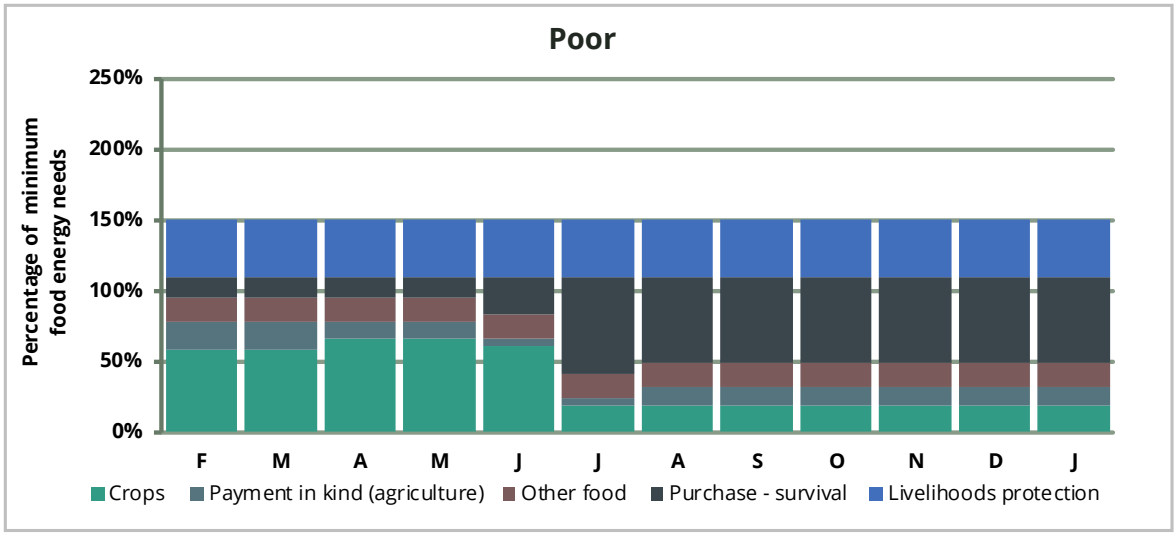
Food Access Calendars

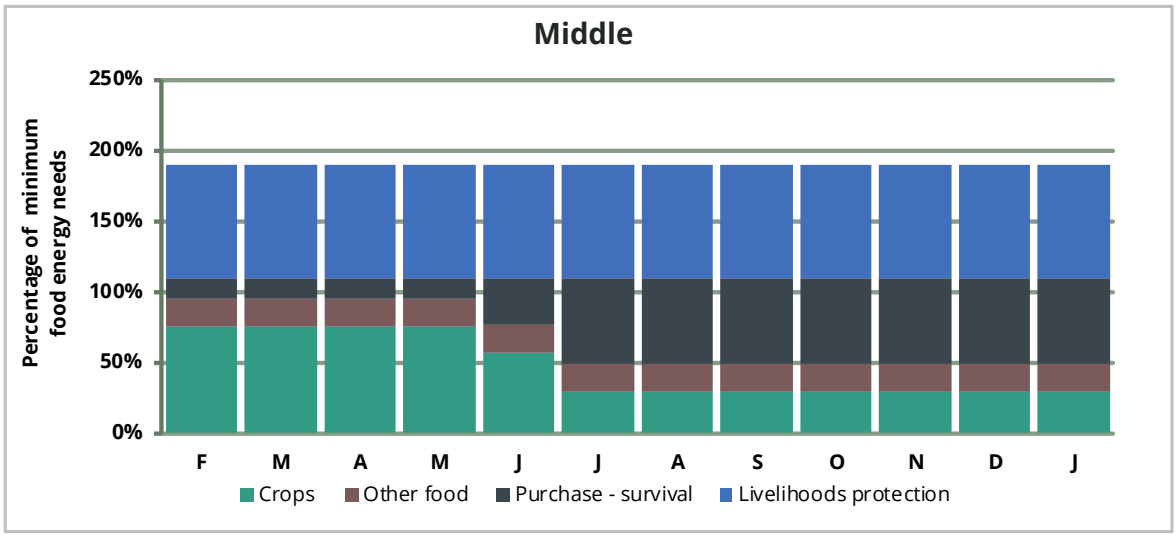
The graphs in Figure 8 present monthly food and cash access calendars for the four wealth groups.

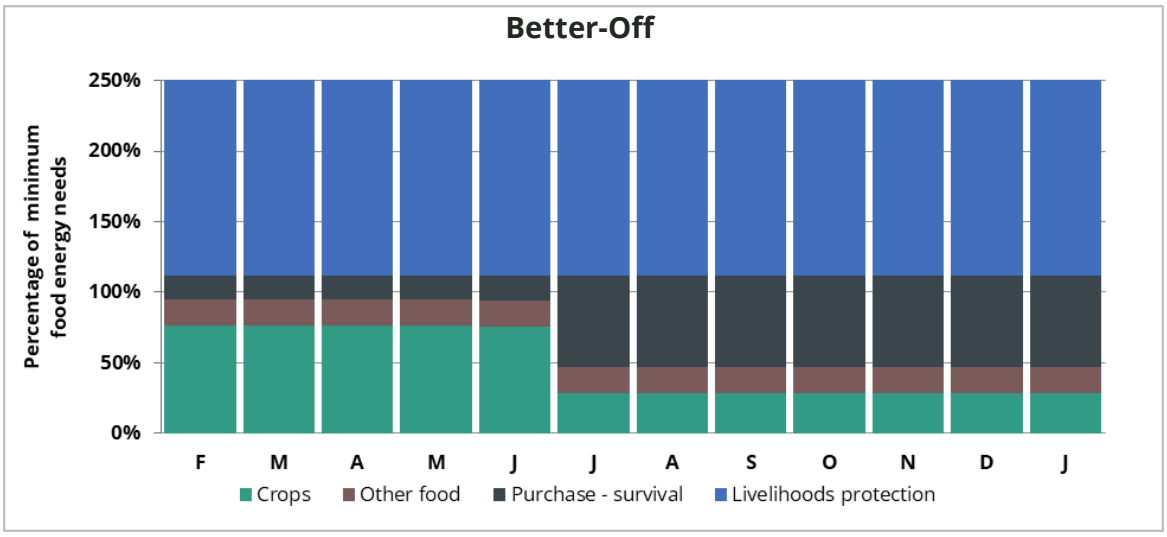
Households in all wealth groups were able to meet their survival and livelihoods protection thresholds year-round in the reference year. The main harvest period in this livelihood zone started in February, although cassava was available throughout the year. Very poor and poor households obtained some food from payment in-kind for casual agricultural labor (in teal) during the harvest period. Fishing (in orange) is an important source of food in this zone for households from all wealth groups. Middle and better-off households spent a large proportion of their total income on productive inputs, health, and education ("livelihoods protection" in the graphs).

Figure 8. Seasonal Food and Cash Access Calendars per Wealth Group




Poor
Percentage of minimum food energy needs
250%
200%
150%
100%
50%
0%
F M A M J J A S O N D J
Crops
Payment in kind (agriculture)
Other food
Purchase - survival
Livelihoods protection


Middle
Percentage of minimum food energy needs
250%
200%
150%
100%
50%
0%
F M A M J J A S O N D J
Crops
Other food
Purchase - survival
Livelihoods protection


Better-Off
Percentage of minimum food energy needs
250%
200%
150%
100%
50%
0%
F M A M J J A S O N D J
Crops
Other food
Purchase - survival
Livelihoods protection

Poor Female-Headed Households

Female-headed households are found primarily in the very poor and poor wealth groups, as shown in the wealth breakdown table (Table 3). During fieldwork, data collectors conducted in-depth interviews were with poor female-headed households. This is a group that faces similar constraints and characteristics as poor male-headed households, but they are further disadvantaged by a lack of adult male labor, which leads to additional constraints on certain types of asset ownership, productive work, and income-generating activities, most notably access to the fishing sector.

Figure 9 shows that poor female-headed households and poor male-headed households share similar patterns of food access, with some key differences. In the reference year, poor female-headed households' total food consumption was less, barely reaching the international benchmark of 2,100 kcal per person per day, emphasizing their heightened food insecurity. Poor female-headed households cultivate smaller plots and therefore the quantity of food produced from their own land was smaller (especially regarding maize production) and they relied more heavily on in-kind payments during the agricultural season. Because of more limited access to income-generating activities, they also had less cash income to spend on food purchases. Their restricted access to fishing activities — an activity dominated by men — is also reflected in Figure 9, where the proportion of annual food in the form of fish is negligible.

Figure 9. Sources of Food: Poor Households vs Poor Female-Headed Households

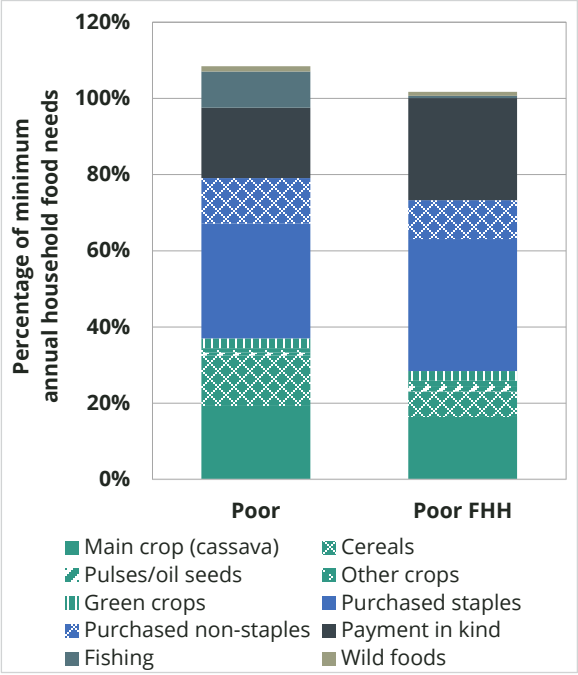


Figure 10. Sources of Cash: Poor Households vs Poor Female-Headed Households

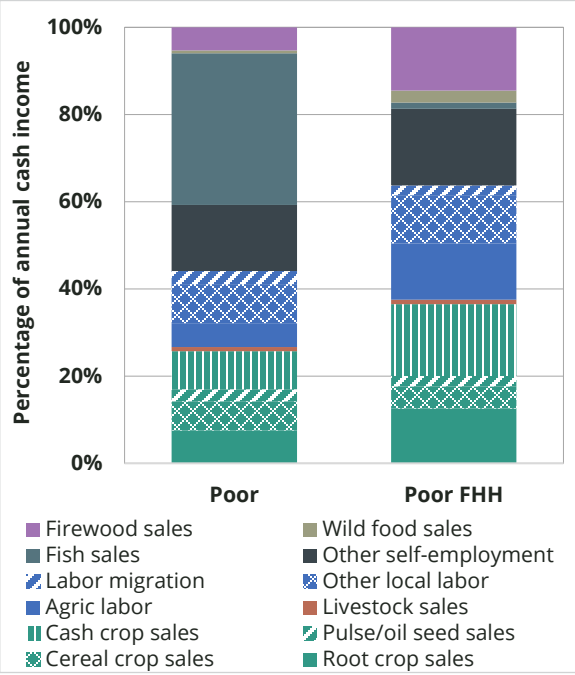


Figure 10 shows that poor female-headed households earned much less than poor male-headed households — roughly 50% less — and closer to the annual income earned by very poor

households. However, poor female-headed households were smaller than male-headed households, and per capita cash income was roughly 40% less. Having fewer active household members limits access to income-generating activities, and the absence of a male adult severely limits access to fishing activities — one of the major differences between the two income profiles. Poor female-headed households made up for the shortfall in fishing income with more vegetable sales, agricultural labor sales, and self-employment (especially petty trade, which is the very small-scale trade of everyday items).

Response Strategies

In response to hazards and years with lean production, households attempt to meet their minimum food needs and cash requirements through several strategies. Responses implemented vary across wealth groups, but some strategies are common to all. Below are typical strategies employed by households.

Households in all wealth groups try to reduce expenditure on non-essential or more expensive items first, such as cutting down on festival costs or not buying clothes or utensils that year. Households consume less rice in favor of cassava flour, which is the least expensive staple, and reduce their consumption of more expensive non-staple foods.

Very Poor and Poor Households

Very poor and poor households try to increase cash income through the intensification of casual labor activities to earn more cash (on- and off-farm labor, both locally and outside the zone). However, in bad years, as increasing numbers of people flood the labor market, this option quickly loses its value because wage rates drop and jobs are harder to find. Poorer households also intensify self-employment activities, such as the sale of firewood and charcoal, in lean years, and produce more vegetables for sale. In lean years, poorer households may also seek social support from family and/or wealthier households.

Middle and Better-Off Households

Middle and better-off households cope with hazards differently than poorer households. Middle and better-off households sell additional animals to cover basic food and non-food expenses in lean years. They also increase the production and sale of vegetables and palm oil and engage in other self-employment activities, such as trade. They have additional household members migrating in bad years to look for work and/or increase the duration of stay for those migrating.

Key Parameters for Monitoring

The key parameters listed in Table 5 are food and income sources that contribute substantially to household economy in the *Southern Tanganyika-Mwero Lake Fishing Livelihood Zone*. These should be

monitored to track potential losses or gains to local household economies through ongoing monitoring systems or periodic assessments.

Table 5. Key Parameters for Monitoring

Item	Key Parameter – Quantity	Key Parameter – Price
Crop production	• Maize – quantity produced • Cassava – quantity produced • Groundnuts – quantity produced • Vegetables – quantity produced	• Maize – producer price • Cassava – producer price • Vegetables – producer price
Livestock production	• Goats – herd size • Pigs – herd size	• Goats – producer price • Pigs – producer price
Other food and cash income	• Fishing – quantity caught • Cultivation labor – number of days worked • Construction labor – number of days worked • Domestic labor – number of days worked • Migration labor – number of days worked • Charcoal/firewood sales – quantity sold • Petty trade – demand • Self-employment – demand	• Fish – producer price • Cultivation labor – labor rates • Construction labor – labor rates • Domestic labor – labor rates • Migration labor – labor rates • Charcoal/firewood sales – producer price • Petty trade – daily earnings • Self-employment – prices
Expenditure		• Cassava – consumer price • Maize – consumer price • Rice – consumer price

CD06 Livelihood Zone

Reference Year: January 2023–December 2023

Maniema Savannah Agriculture Livelihood Zone

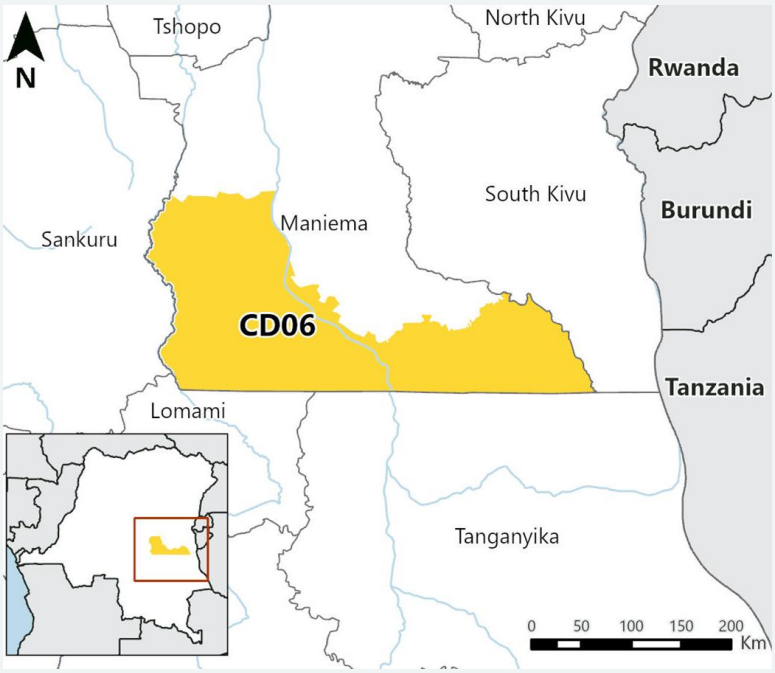


Figure 1. CD06 Livelihood Zone Map

Summary: The *Maniema Savannah Agriculture Livelihood Zone* (CD06) is an agricultural zone located in eastern Democratic Republic of the Congo (DRC), within Maniema Province. It covers the Samba Health Zone in Kasongo Territory, the Tunda and Kibombo Health Zones in Kibombo Territory, and extends to the Lusangi and Kabambare Health Zones in Kabambare Territory. The climate in the zone is tropical humid, with annual rainfall between 1,500 and 2,000 millimeters (mm). The zone is characterized by high agricultural productivity, supported by very fertile sandy-clay soils, and is known for its surplus food production. The key economic activities include selling agricultural produce, livestock rearing, and trading goods. The main sources of food for households are their own crops and market purchases. The main crops are cassava, palm oil, groundnuts, rice, and maize. Very poor and poor households rely on casual labor payments in-kind as an additional source of food. Households in this zone also generated income from fish farming and from trade.

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Zone Description

The *Maniema Savannah Agriculture Livelihood Zone* (CD06)[1] is an agricultural zone located in the eastern part of the DRC, within Maniema Province. It covers the Samba Health Zone in Kasongo Territory, the Tunda and Kibombo Health Zones in Kibombo Territory, and extends to the Lusangi and Kabambare Health Zones in Kabambare Territory. The climate in the zone is generally warm throughout the year, with average annual temperatures ranging from 20°C to 30°C. Seasonal variations are observed, with slightly cooler temperatures during the Rainy Season and warmer conditions during the Dry Season. Humidity levels are relatively high, particularly during the Rainy Season, reaching 80-90%. The area receives annual rainfall ranging from 1,500 mm to 2,000 mm.

The topography of CD06 is predominantly characterized by plateaus and valleys, with elevation generally ranging from 300 to 800 meters, and some areas in the southeast reaching up to 1,300 meters. This varied relief influences the vegetation cover. The zone is mainly covered by wooded and grassy savannahs, featuring tall grasses and scattered trees that are well-adapted to the local climate. Additionally, there are areas of dense tropical forest, particularly along rivers and in valleys, that are rich in biodiversity and provide habitats for numerous plant and animal species. Wetlands formed by rivers and marshes are essential for local agriculture, further supporting the livelihoods of the inhabitants.

The hydrography of the zone is marked by several important rivers, including the Lualaba, Elila, and Ulindi, all of which have permanent flows. The Lualaba River, one of the main tributaries of the Congo River, crosses a large part of Maniema, while the Elila and Ulindi are crucial to local agricultural activities. Infrastructure in the CD06 zone includes major roads such as Route Nationale 31 (RN31) and RN2. Provincial roads also serve rural areas and the territories of Kasongo, Kibombo, and Kabambare, improving access to health services and local markets. Key towns in the zone include Kibombo, Samba, and Kabambare, each playing significant roles in local trade and connectivity. The population of CD06 is 796,863, with a population density of 17 people per square kilometer.[2] The main livelihoods for households in this zone include crop production, livestock rearing, fish farming, labor in agriculture and construction, petty trade, and livestock trade.

CD06 is characterized by high agricultural productivity, supported by very fertile sandy-clay soils. The zone is known for its surplus food production, with staple crops such as cassava, maize, and rice, and other crops like cowpeas, groundnuts, soybeans, and sweet potatoes, which are rainfed. The zone has two cropping seasons, Season A and Season B, with Season A being the most important. Groundnuts, cowpeas, cassava, and maize are typically grown together in a mixed cropping system that enhances soil fertility and reduces pest infestation. In contrast, rice is cultivated individually,

[1] Fieldwork for the current profile was undertaken from July 16 to August 11, 2024. The information presented in this profile refers to the reference year, which was the consumption year that covered the period January 2023 to December 2023. Provided there are no fundamental and rapid shifts in the economy, the information in this profile is expected to remain valid for approximately five to 10 years (i.e., until 2028-2033). All prices referred to in the document are for the reference year.
[2] FEWS NET Data Explorer, population data (2023), accessed 2025, https://fdw.fews.net/data-explorer/.

due to its specific water requirements and the distinct farming methods needed for its growth. Households in this zone also grow perennial plants, such as plantains, bananas, and palm trees.

The agricultural activities in this zone involve traditional methods of soil preparation, with hand digging being the most common across all wealth groups. Key labor-intensive activities include preparing soil, weeding, and harvesting, with women typically engaged in weeding, harvesting, and sowing, while men focus on preparing land. Casual labor employment is common, especially among wealthier households who often hire local labor for farming activities. Despite the high level of agricultural activity, the use of modern inputs is not prevalent in the zone, and most farm households store their crops at home without adequate protection. There are no farmers' cooperatives in the zone, which limits the advantages and support that farmers could have. The absence of cooperatives and modern storage facilities presents challenges in maximizing the agricultural potential of the zone.

The main types of livestock raised in this zone include goats, sheep, pigs, and poultry. Households in CD06 do not purchase livestock feed, relying instead on natural grazing. Water for livestock is sourced from natural water bodies, with animals drinking any available water they come across while on the move. This practice is consistent throughout both the Rainy and Dry Seasons, with no payment required for water access. Livestock sales are particularly common among middle and better-off households, who have larger herds of livestock. In terms of labor division, both men and women are involved in breeding, selling, and slaughtering of animals.

Labor in agriculture and construction provides income for poorer households. Fish farming is practiced by households from all wealth groups, offering additional income to these households. Trade represents another vital economic activity and involves acquiring merchandise through money earned from other activities and then reselling the merchandise at a higher price to generate profit. The zone is also rich in natural resources, game, and wild foods; however, these resources are not typical sources of food or income for households in the zone.

CD06 experiences several hazards that affect its economy and livelihoods. The main hazards are crop and livestock diseases and attacks by wild animals. The main crop diseases are groundnut rosette and herbaceous dwarfing of rice, which are significant annual issues. The main livestock diseases are swine fever in pigs and bird flu, which each pose a significant risk to the livelihoods of households from all wealth groups every year. Wild animals are also a problem in this livelihood zone. Monkeys consume the maize crop, while wild boars consume young groundnuts. Pythons pose a problem for small ruminants. Other risks include human disease outbreaks, especially malaria, typhoid fever, diarrhea, anemia, and measles.

Households face diverse challenges in accessing basic services, with variations across different wealth groups. Households from all wealth groups obtain water for drinking and other household needs from open wells and rivers. Water is free throughout the zone, with no payment required for its use. However, sanitation facilities are underdeveloped, as open-hole latrines are the standard across households from all wealth groups. Waste disposal practices are similar, with waste typically

thrown into a nearby pit. While households from all wealth groups depend on local health centers, very poor and poor households also rely on traditional health posts, and middle and better-off households also have access to more formal health posts. Lighting across the zone is primarily provided by battery-powered flashlights and solar power, with no significant differences between wealth groups. Firewood remains the dominant cooking fuel for households from all wealth groups. Communication infrastructure displays some wealth disparities, with very poor and poor households primarily using voice communication on cell phones, while middle and better-off households have access to both voice and data services.

Education levels further reflect socioeconomic divides, with individuals from poorer households achieving secondary education at most, and some individuals from wealthier households attaining university education. Financial services, such as credit sources and savings plans, are generally uncommon for households in this zone.

Markets

In CD06, market access is a challenge for households due to the poor condition of infrastructure in the zone. The available roads are primarily made of dirt and are supplemented by river crossings and, in some cases, railroad access, though the latter is not available in Kabambare. While bridges exist in the zone, they are often non-functional, further complicating transportation. During the dry season, the roads become somewhat accessible, though they remain in poor condition. Road access is especially difficult during the Rainy Season, affecting even agricultural feeder roads. Overall, market access in this zone is generally unfavorable, with only slight improvements during the Dry Season when roads are less obstructed by rainwater. Samba town is a central area for the entire livelihood zone. From Samba, one can travel to Kindu, Kimbombo, Kongolo, Kalemie, Bukavu, Mbujimayi, and Kasongo. Samba is more accessible in terms of security and road traffic than other parts of the livelihood zone.

The main crops sold in this zone include cassava, rice, palm oil, maize, groundnuts, and plantains. Cassava flour is sold in local markets, where it is purchased by traders who then resell it in urban areas. Rice is transported from Samba to Kongolo, with peak sales occurring between April and June. Palm oil, which is traded year-round, is routed through various paths, including Samba-Kongolo, Samba-Kasongo, and Samba-Kindu. Maize is another significant crop, with trade routes running from Samba to Kongolo and Samba to Kindu, and its peak sales period extends from January to June. Groundnuts, another key crop, are sold along routes such as Samba-Kongolo-Kalemie-Bukavu, Samba-Kasongo-Bukavu, and Samba-Kindu, also peaking between January and June. Plantains are primarily sold locally within Samba, and households can harvest and sell this crop at any time. In addition to crops, livestock plays a role in the local economy. Goats and sheep are sold locally within Samba, while pigs are traded along the Kasongo-Pangi route.

Fish are sold to traders, including those from outside the area, because there is no cold storage or freezers available for preservation. As soon as a pond is opened, buyers come from various locations, including the neighboring *High Food Production and Trade Livelihood Zone* (CD07).

In terms of the labor market available to households of the *Maniema Savannah Agriculture Livelihood Zone* (CD06), overall, jobs are predominantly centered around local rural areas, where almost all casual work is performed.

Timeline and Reference Year

The baseline assessment refers to a very specific period called the "reference year." In CD06, the reference year covers the consumption period from January 2023 to December 2023. During community leader interviews, data collectors asked informants to score the last five years in terms of seasonal performance with "1" indicating a poor season and "5" indicating an excellent season. Table 1 summarizes the response of the community leaders.

Key informants ranked Seasons A and B from 2020 to 2023 as "3" (average) in terms of household food security, with 2019-2020 being the only period rated "2" (below average). Households encountered various challenges during these years, including irregular rainfall, livestock diseases, and crop infestations like fall armyworm. Despite these difficulties, crop production generally remained strong, which helped sustain food security at an average level. Households employed coping strategies such as charcoal sales and petty trade to manage these challenges. However, livestock production was often below normal, particularly due to diseases affecting small ruminants. The reference year was particularly marked by issues, including an outbreak of PPR, increased livestock mortality, and irregular rainfall.

Table 1. Timeline

Production Year/ Season	Score	Critical Events
2023/Season B	3	The zone experienced several challenges, including an outbreak of the *peste des petits ruminants* (PPR), increased livestock mortality, irregular rainfall, and the presence of fall armyworm on maize in certain localities. Despite these issues, crop production across the zone remained average. Households primarily relied on charcoal trade and petty trade as coping strategies, which contributed to maintaining an average level of food security.
2022-2023/Season A	3	
2022/Season B	3	The zone experienced favorable conditions with a low rate of livestock disease, accompanied by very good crop production. However, challenges arose due to crop diseases, particularly affecting cassava in some communities. In response, households turned to petty trade as a coping strategy, which helped maintain an average level of food security during this period.
2021-2022/Season A	3	

2021/Season B 2020-2021/Season A	3 3	Irregular rainfall and crop diseases were experienced, resulting in average crop production. Despite these challenges, no specific coping strategies were employed by households. Nevertheless, household food security remained at an average level.
2020/Season B 2019-2020/Season A	3 3	Irregular rainfall, swine fever, and the onset of cassava mosaic and groundnut rosette diseases impacted production, leading to average agricultural yields. Petty trade and charcoal sales were the main coping strategies. As a result, this was an average year for household food security.
2019/Season B 2018-2019/Season A	2 2	The year was marked by animal plundering and wartime abandonment of fields. Household food security was below average.

5 = an excellent season for household food security (e.g., due to good rains, good prices, good crop yields)
4 = a good season or above average season for household food security
3 = an average season for household food security
2 = a below average season for household food security
1 = a poor season for household food security (e.g., due to drought, flooding, livestock disease, pest attack)

Note: Production year refers to the farming year, usually beginning with the start of the main rains.

Seasonal Calendar for Reference Year

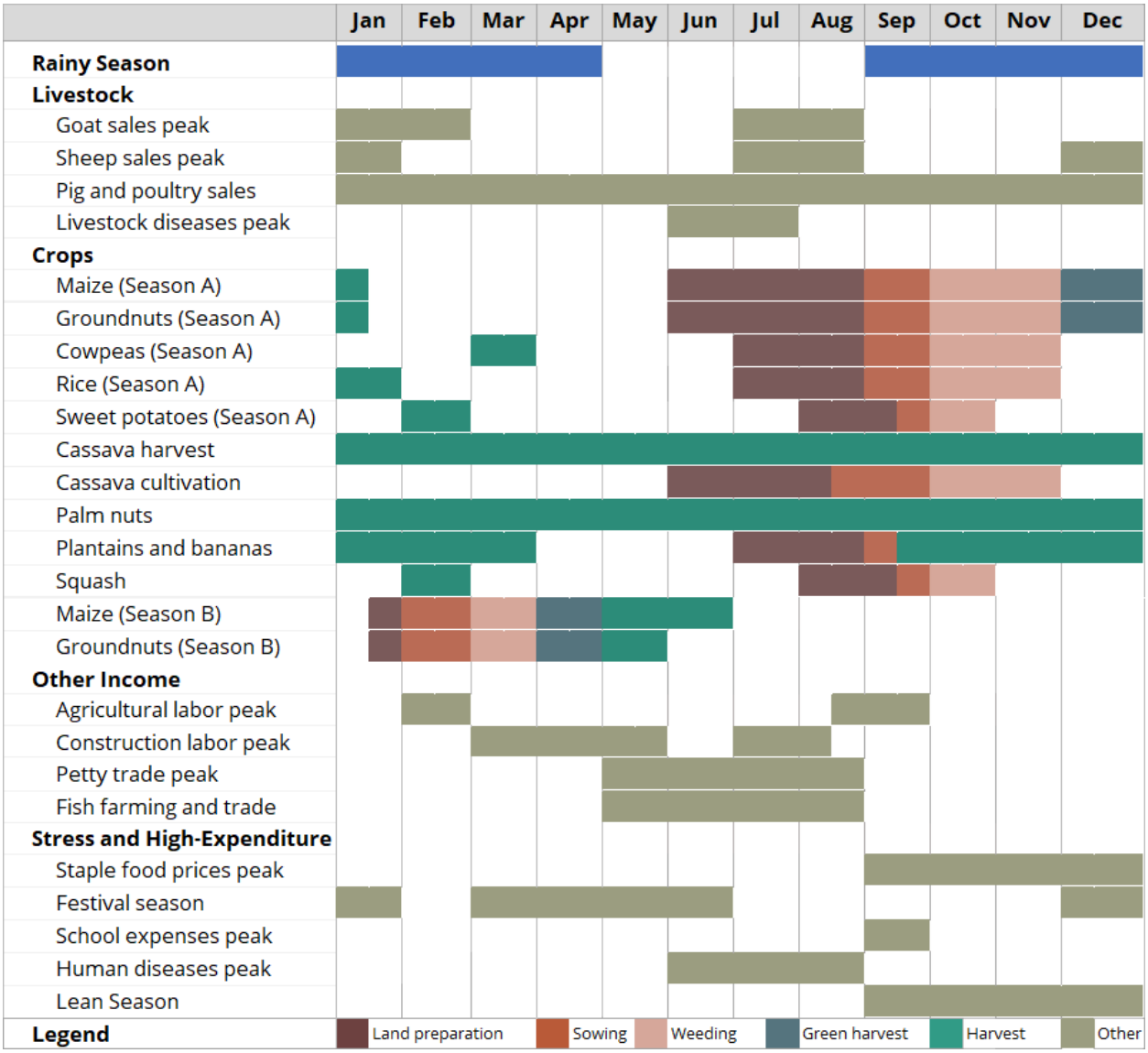
The seasonal calendar (see Figure 2) illustrates the main economic activities and events of the reference year. It traces the rainy months, livestock activities, agricultural activities, other important income activities, and periods of stress and high expenditure.

In CD06, the rainy season is crucial for rainfed agriculture and for livestock. The rainy season in the zone follows a unimodal pattern, lasting from September to April and bringing abundant rainfall, which is vital for agricultural activities. During this period, particularly from October to April, lower temperatures are often recorded. In contrast, the Dry Season, from June to August, is characterized by scarce rainfall and higher temperatures.

Preparing land to plant cassava occurs in June to mid-August, and weeding takes place in October/November. Cassava harvests can occur year-round. Maize is cultivated in two seasons, mainly in Season A, when land is prepared in June/August. Maize is sown in September, weeded in October/November, and harvested in January. Season B for maize starts with preparing land in January, sowing in February, weeding in March, and harvesting in May/June. Groundnuts are also cultivated in two seasons. The main season is Season A, with land preparation taking place from July to August, sowing in September, weeding in October/November, and harvesting in January. For Season B, preparing land occurs in January, sowing in February, weeding in March, and harvesting in May. Season A green consumption for groundnuts and maize occurs in December, and Season B green consumption for the same crops happens in April. For cowpeas, preparing land starts in July

and extends into August, followed by sowing in September; weeding is carried out in October and November, with the main harvest occurring in March.

Figure 2. Seasonal Calendar



Sweet potatoes and squash are also cultivated during Season A, with preparing land occurring from August to September, followed by the planting of sweet potato seedlings and the sowing of squash in September. Weeding is completed in October, and the harvest takes place in February. Squash is primarily cultivated for the sale of its seeds.

Households in this zone use the natural lowland terrain to cultivate rice. Households prepare land for rice in July and August, followed by sowing in September. Weeding is conducted in October and November, and harvesting occurs in January, with threshing extending into February.

Banana and palm trees are perennial crops. For new crops of banana, households prepare land in July and August and plant in September with the first rains. The harvest period for bananas extends all year. Palm tree production continues throughout the year, with households collecting palm nuts in the wild and producing palm oil throughout the year. Agricultural labor typically peaks during February, August, and September and involves both men and women, as well as boys and girls.

The success or failure of livestock keeping largely depends on the outcome of the Rainy Season. During this period, the availability of surface water and pasture improves, leading to increased reproduction and productivity. Gestation periods are 5-6 months for small ruminants (i.e., goats and sheep) and nearly 4 months for pigs. Small ruminants are typically sold during the periods from December to February and from July to August, while pigs and poultry are sold throughout the year according to household needs. Animal slaughter peaks in March and June (for Eid festivals among Muslims), December and April (for Christmas and Easter among Christians), and in July when school results are announced. Livestock disease outbreaks typically occur in June and July, while human disease outbreaks generally occur between June and August.

The Lean Season, the most challenging period in terms of food access, is from September to December, when food prices peak. During this time, food from new harvests is not ready, and poorer households exhaust food reserves from the previous harvest to meet their needs.

Fish farming and fish trade in CD06 are mostly practiced during the Dry Season, which typically runs from May to August. During this period, water levels are lower, making it easier to manage fish farms and harvest fish. The Dry Season also facilitates transportation and access to markets. Fish ponds open once a year, but not all at the same time; the opening date is related to the sowing date.

Petty trade is carried out locally by 1-2 members of a household, with men and women participating. Men typically engage in the sale of cigarettes, while women sell vegetables and straw, with these activities being particularly prominent from May through August. Men also typically undertake the specific petty trade task of selling fish.

Table 2. Typical Division of Labor

Shared Tasks	Women's Tasks	Men's Tasks
• Sowing, weeding, harvesting, and threshing crops • Livestock-related tasks • Petty trade	• Planting crops • Crop sales • Bird scaring • Household chores	• Land preparation • Construction and brickmaking labor • Fish trade • Livestock trade

Table 2 outlines the typical division of labor, distinguishing between shared and non-shared tasks. Shared tasks among men, women, boys, and girls include sowing, weeding, harvesting, threshing, livestock-related tasks, and petty trade. Men are primarily responsible for land preparation, construction, and brickmaking labor; fish trade; and livestock trade. Women are mainly responsible

for planting and selling crops (including processing and selling palm oil), scaring birds away from crops, and most household chores, including collecting water and firewood, cooking, feeding small children, and laundering clothes.

Wealth Breakdown and Productive Assets

Table 3 summarizes the types and numbers of productive assets that typical households within each wealth group own and/or manage. Asset holdings are shown in a range that reflects the diversity of households' situations within a wealth group. Figure 3 shows the percentage of households within the zone that falls in each wealth group. The communities in the zone carried out the socioeconomic categorization of households themselves.

Table 3. Wealth Breakdown

Household Size and Productive Assets	Very Poor	Poor	Middle	Better-Off	Poor Female-Headed
Household size	5-7	7-9	10-15	14-20	5-7
Land (hectares [ha])	0.5-1.5	1-2	2-4	3-7	0.5-1.5
Land cultivated (ha)	0.5-1.5	1-2	2-4	3-7	0.5-1.5
Land cultivated – food crops (ha)	0.25-0.75	0.5-1	1-2	1-3	0.25-0.75
Land cultivated – cash crops (ha)	0.25-0.75	0.5-1	1-2	2-4	0.25-0.75
Pigs	0	0-2	0-6	0-10	0
Goats	0-2	2-6	5-12	10-20	0-4
Sheep	0	0-4	3-7	5-15	0
Poultry	3-5	4-12	10-20	15-30	3-9
Bicycles	0	0-1	0-1	0-2	0
Motorcycles	0	0	0	0-1	0

Wealth in CD06 is primarily determined by the size of cultivated land, labor availability, the number and types of livestock owned, and the possession of other productive assets, such as bicycles and motorcycles for transportation. Access to land varies significantly among wealth groups. Middle and better-off households typically own and cultivate more land and have more labor, greater numbers of livestock, and more productive assets compared to poorer households. In this livelihood zone, renting land is not a common practice among the different wealth groups. Regarding inheritance,

women generally do not inherit land or livestock. Instead, they typically acquire land or livestock through donations from the local or group chief, by a relative or neighbor, or by purchase.

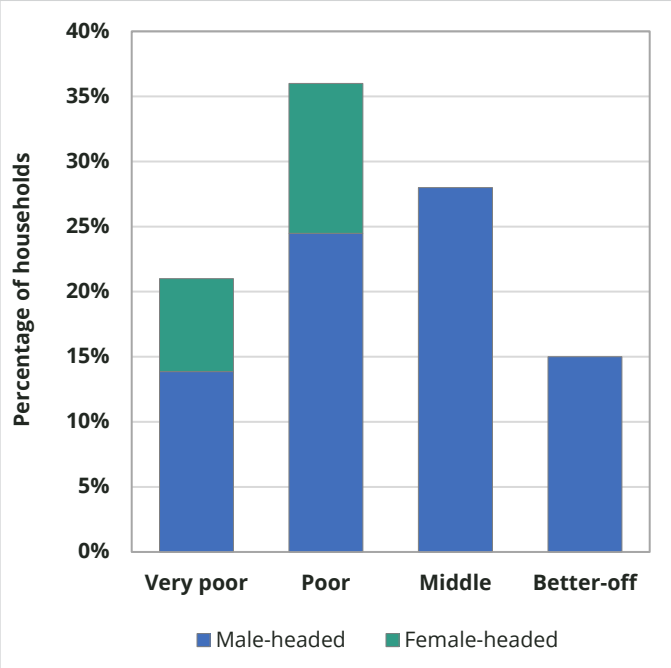
In CD06, land is freely available, and every household cultivates their land according to their means and available labor. Differences in crop production are mainly in quantity, which depends on the cultivated space available to each wealth group.

Middle and better-off households use more advanced sowing techniques and hire labor, while very poor and poor households cultivate smaller fields.

Very poor households cultivated 0.5-1.5 ha of land, with 0.25-0.75 ha dedicated to food crops and 0.25-0.75 ha to cash crops. Poor households cultivated 1-2 ha, with 0.5-1 ha allocated to food crops and 0.5-1 ha to cash crops. Middle households cultivated 2-4 ha, dividing 1-2 ha for food crops and 1-2 ha for cash crops. Better-off households cultivated 3-7 ha, with 1-3 ha for food crops and 2-4 ha for cash crops. Poor female-headed households cultivated 0.5-1.5 ha, with the land divided equally between food crops and cash crops. Better-off households cultivated five times the amount of land cultivated by very poor households.

Figure 3. Wealth Breakdown

Note: All results are the mid-point of a range



Livestock are a significant source of income in this zone, serving as a means of investing, saving, and safeguarding against difficult years. The main types of livestock kept included goats, sheep, pigs, and poultry. Livestock provide direct access to food through meat, and they are also a source of cash income through the sale of live animals and meat. Pigs, goats, and sheep have high economic value and provide financial security to the households that own them. Middle and better-off households raise all four types of livestock and generally have larger herds than poorer households. The herd sizes for very poor households typically include a maximum of 2 goats, and 3-5 poultry. Poor households may own up to 2 pigs, 2-6 goats, up to 4 sheep, and 4-12 poultry. In contrast, poor female-headed households are usually limited to owning 3-9 poultry, and some own up to 4 goats.

In terms of "other" asset ownership, very poor and poor female-headed households do not own bicycles, some poor and middle households own a maximum of one bicycle, whereas better-off households own up to two bicycles and up to one motorcycle.

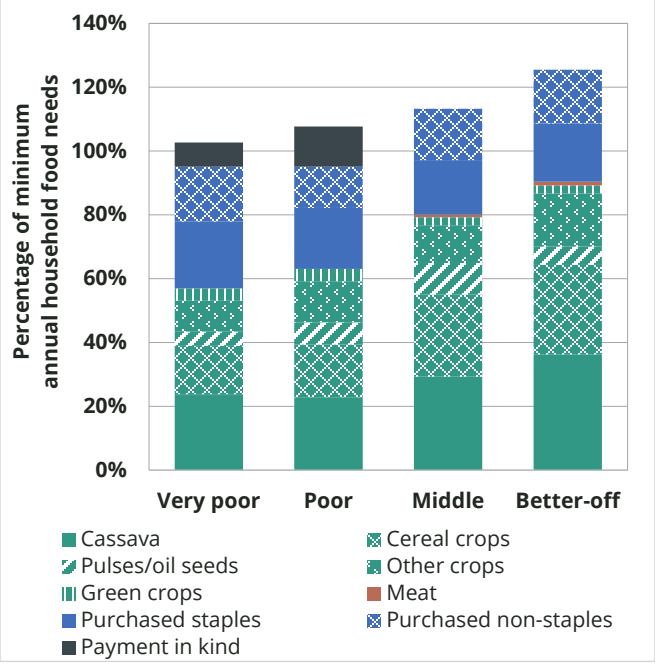
Wealthier households have the resources to hire labor from poorer households, particularly for tasks like preparing land, planting, sowing, weeding, and harvesting. In contrast, poorer households possess few productive assets and primarily rely on their own labor. Household size tends to increase with wealth. Very poor and poor female-headed households typically have a 5-7 members, poor households have 7-9 members, middle households 10-15 members, and better-off households 14-20 members.

The proportion of households by wealth group in the community is distributed as follows: very poor households make up 15-25%, poor households 25-45%, middle households 25-30%, and better-off households 10-15%. The proportion of female-headed households decreases as wealth increases. In the very poor wealth group, 25-45% of households are female-headed, while in the poor wealth group, 25-40% are female-headed. Among the wealthier households, female-headed households are not common.

Sources of Food

Figure 4 presents the sources of food for households in different wealth groups in CD06 for the period from January 2023 to December 2023. January represents the start of the consumption year because the consumption of what households produce during the main harvest season begins in January. Food is presented as a percentage of the annual kilocalorie (kcal) needs of the household, based on the internationally accepted 2,100 kcal per person per day.

Figure 4. Sources of Food



There were two main sources of food in this zone in the reference year for households from all wealth groups: their own crops and market purchases. Other minor sources of food included livestock products and payments in-kind.

Total food consumption increased progressively across wealth groups. Overall, very poor households consumed between 100-105% of their minimum annual food needs, poor households 105-110%, middle households group 110-115%, and better-off households 120-130%.

Crop production was the most important source of food in the livelihood zone, with households from all wealth groups relying on it for more than 50% of their minimum food needs. Crop consumption covered 50-65% of the minimum annual food needs of very poor households, 55-

70% for poor households, 70-90% for middle households, and 85-95% for better-off households. Cassava was the main crop consumed by households, mainly as cassava flour, which they used primarily to prepare *fufu*. Poorer households obtained 15-30% of minimum annual food needs from cassava, middle households obtained 25-35%, and better-off households obtained 30-45%.

Households from all wealth groups obtained 2-5% of their minimum annual food needs from consumption of green crops, primarily from groundnuts and maize cultivated during Seasons A and B. Poorer households obtained 10-20% of their minimum annual food needs from cereals (e.g., maize and rice), while wealthier households met 20-35% of their needs in this category. Pulses and oil seeds (e.g., cowpeas, groundnuts, and soybeans) were important sources of vegetable protein and fat. Households consumed squash seeds, but not in large quantities; they typically dried the seeds to sell and discarded the flesh of the squash.

Meat from households' own animals was a source of animal protein. Only middle and better-off households consumed this source of food, which covered less than 2% of minimum annual food needs. Other own crops included palm nuts (to produce palm oil), plantains, bananas, and sweet potatoes. Very poor households obtained 5-10% of minimum annual food needs from this category, poor and middle households obtained 10-15%, and better-off households obtained 15-20%.

Purchases were the second most important source of food in this livelihood zone. Purchased foods included staple and non-staple foods. Households from all wealth groups purchased staple foods, such as maize, rice, and cassava flour. Very poor and poor households obtained 15-25% of minimum annual food needs from this category, while middle and better-off households obtained 15-20%. The category of non-staple foods included cowpeas, sugar, meat, palm oil, dried fish, fresh fish, and groundnuts. Households from all wealth groups obtained 10-20% of minimum annual food needs from this category.

Payment in-kind was an important additional source of calories for poorer households. It was common for households to receive payments in-kind for agricultural pre-harvesting (i.e., preparing land, sowing, and weeding) and harvesting activities. Very poor households obtained 5-10% of their minimum annual food needs from payments in-kind, while poor households obtained 10-15%. There was no food aid in the livelihood zone in the reference year.

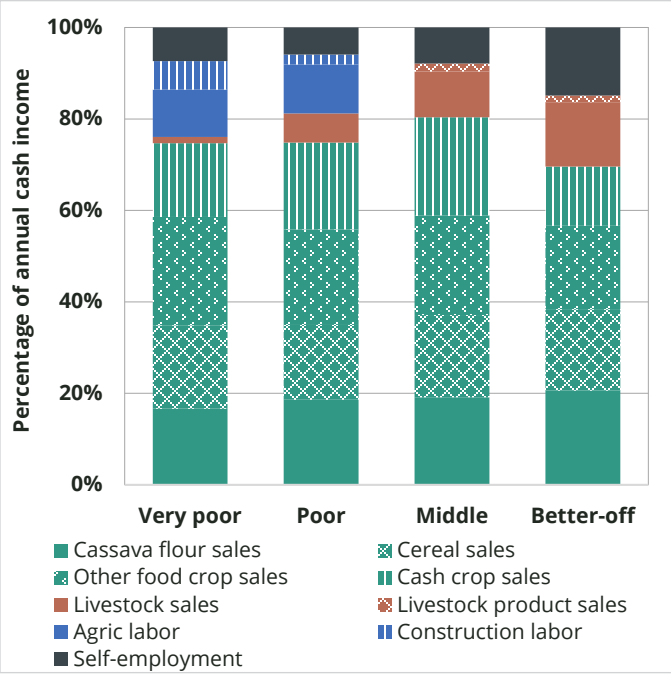
Overall, the reference year was average in terms of food security, with households from all wealth groups meeting their minimum annual food energy needs.

Sources of Cash Income

Crop sales, livestock sales, and trade were the main income-generating activities in the *Maniema Savannah Agriculture Livelihood Zone* in the reference year (see Figure 5). Crop sales were the main income source for households from all wealth groups. This category is composed of cassava sales, cereal sales (e.g., maize and rice), other food crop sales (e.g., groundnuts, cowpeas, bananas, plantains, sweet potatoes, and squash seeds), and cash crop sales (e.g., palm oil and soybeans).

Households from all wealth groups obtained most of their total income from this category. Additionally, households earned income from livestock sales, livestock product sales, labor (e.g., agricultural labor, construction, and brickmaking), and self-employment activities (e.g., fish sales, petty trade, and livestock trade).

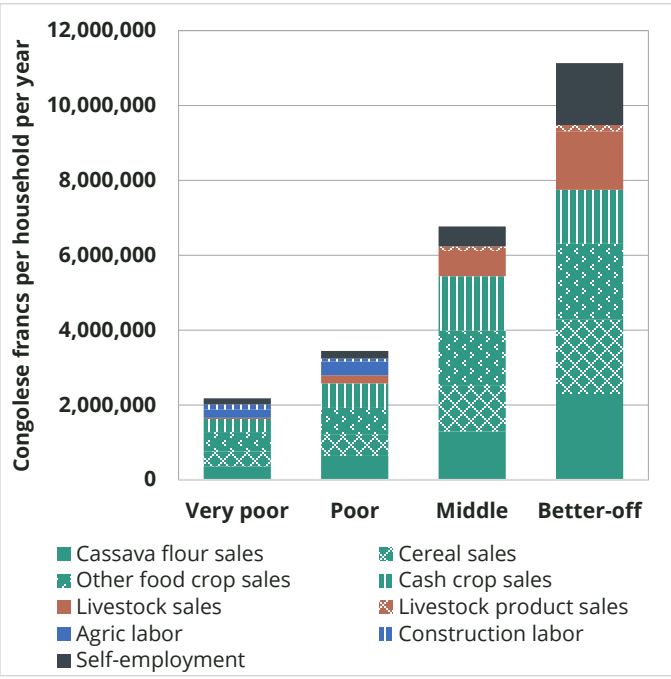
Figure 5. Sources of Cash Income as a Percentage of Annual Cash Income



Very poor households primarily earned income from crop sales, which accounted for 70-80% of total income. Labor payments contributed 12-20%, self-employment 5-10%, and livestock sales up to 2%.

Poor households also generated 70-80% of their cash income from crop sales. They earned 10-15% of their total annual cash income from labor, 4-10% from self-employment, and up to 2% from livestock product sales. Middle households earned 70-90% of their total annual cash income from crop sales, 5-15% from livestock sales, 5-10% from self-employment, and approximately 2% from livestock product sales during the reference year.

Figure 6. Total Annual Cash Income



Better-off households secured 60-80% of their total annual cash income from crop sales, 10-20% from livestock sales, 5-10% from self-employment, and around 1% from livestock product sales.

Differences between wealth groups in the absolute amount of cash income generated during the reference year were large. This gap is illustrated in Figure 6 and Table 4. Better-off households earned more than five times the income of very poor households. The differences between wealth groups in per capita cash income was smaller than for total income. Better-off households earned less than two times the annual per capita cash income of very poor households. There was a progressive increase in annual per capita cash income with increasing wealth.

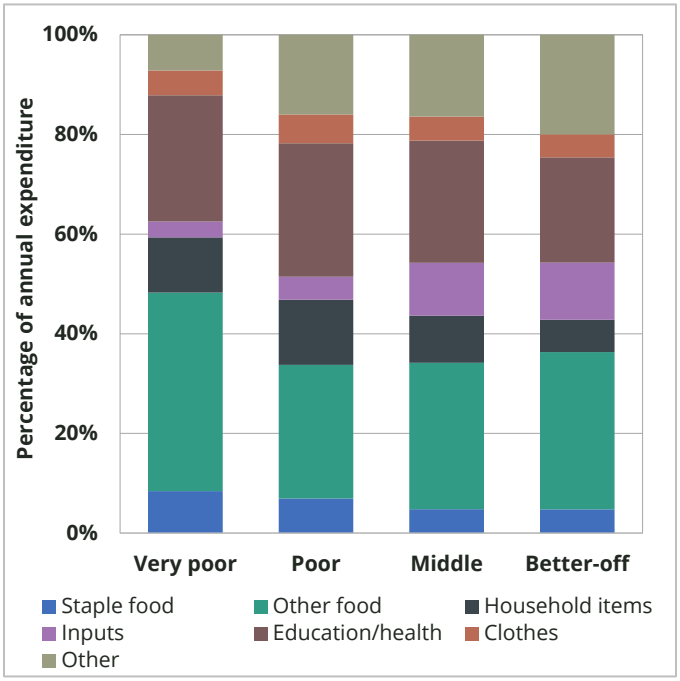
Table 4. Income Summary Table (Congolese Francs or CDF)

Wealth Group	Very Poor	Poor	Middle	Better-Off
Annual income per household[3]	1,600,000-2,800,000	3,000,000-4,000,000	5,500,000-8,000,000	9,000-000-13,000,000

Expenditure Patterns

Figure 7 presents expenditure patterns for the reference year January 2023 to December 2023. While absolute expenditure increases with wealth in line with total cash income, this graph's expenditure breakdown by percentage shows the *relative* amount of income spent on different categories. Households from all wealth groups in the zone need to cover a range of essential expenditures over the year. These include staple foods, non-staple foods, household items/services (including salt, soap, tea, coffee, lighting, milling, etc.), productive inputs, social services (which include expenditure on health and education), clothing, transportation, as well as other essential and non-essential items.

Figure 7. Total Annual Cash Expenditure by Category



Households from all wealth groups spent significant proportions of their annual incomes on staple and non-staple foods. As noted in the Sources of Food section, households secured 30-45% of their annual food energy needs from food purchases. Households did not purchase water.

Very poor households' expenditure on staple foods accounted for 5-15% of their annual expenditure in the reference year. Non-staple foods expenditure was 35-45% of total expenditure, household items (including lighting and grinding costs) 5-15%, productive inputs less than 5%, social services 20-30%, clothing and shoes about 5%, and "other" items (including transportation, phone credit, festivals, etc.) were 5-10%.

Poor households similarly spent 5-15% of their annual expenditure on staple foods, 20-35% on non-staple foods, 10-15% on household items, 2-7% on productive inputs, 20-35% on social services, approximately 6% on clothing and shoes, and 10-20% on "other" items.

[3] The average exchange rate from January 2023 to December 2023 was 1 USD = 2,312 CDF.

Middle households allocated about 5% of their total annual expenditure to staple foods, 25-35% to non-staple foods, 5-15% to household items, another 5-15% to productive inputs, 20-30% to social services, around 5% to clothing and shoes, and 10-20% to “other” items.

Better-off households spent approximately 5% of their annual expenditure on staple foods, 30-35% on non-staple foods, 3-10% on household items, 5-15% on productive inputs, 15-25% on social services, around 5% on clothing and shoes, and 3-10% on “other” items.

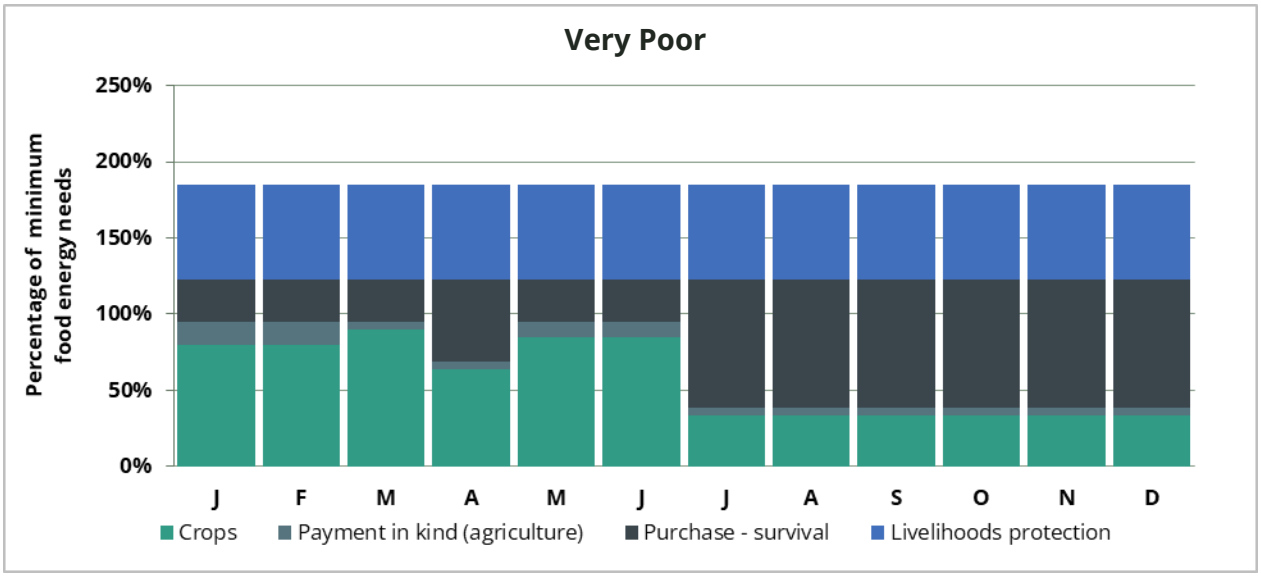
Expenditure on non-staple foods and on social services (i.e., health and education) are the categories that contribute most heavily to total spending for all wealth groups in the reference year, representing 60-70% of total expenditures for very poor households and 50-60% for poor, middle, and better-off households.

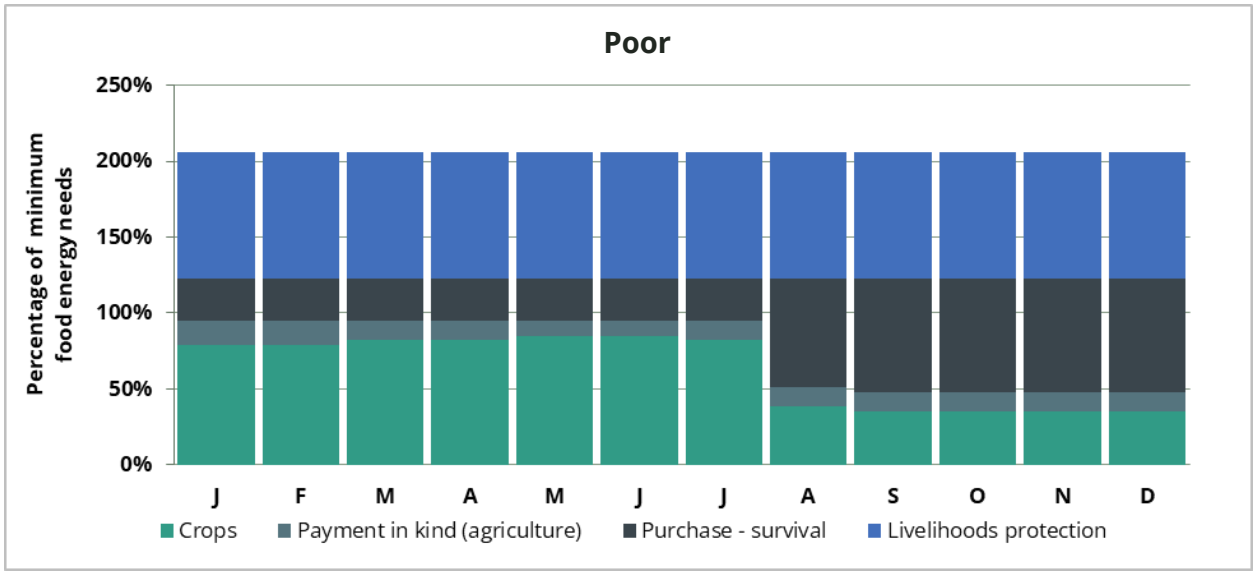
Food Access Calendars

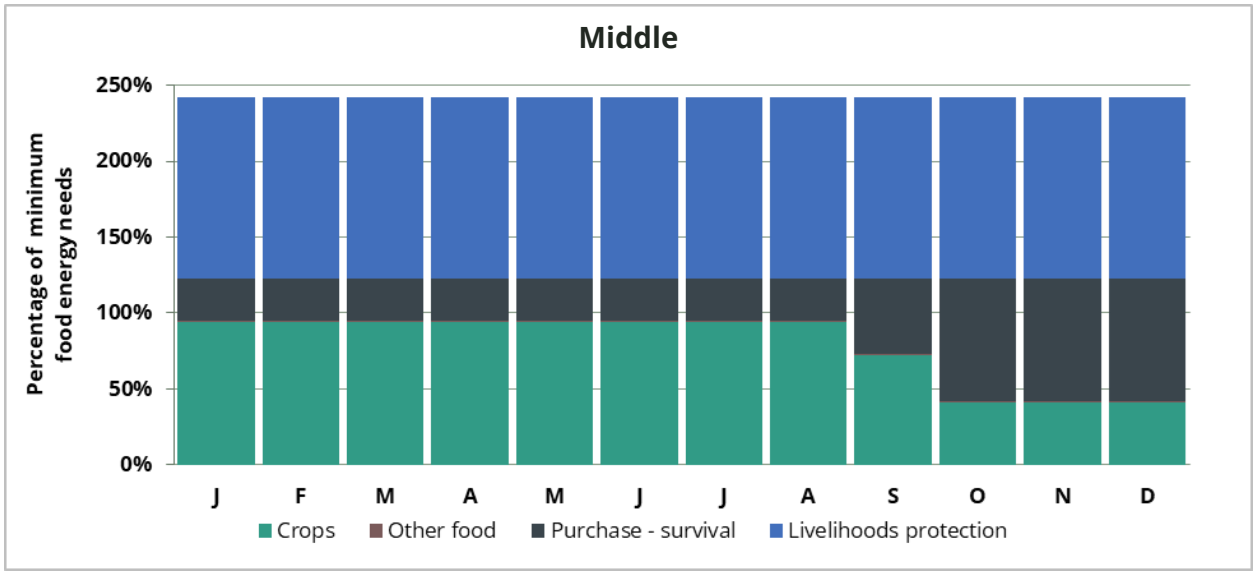
The graphs in Figure 8 present monthly food and cash access calendars for the four wealth groups.

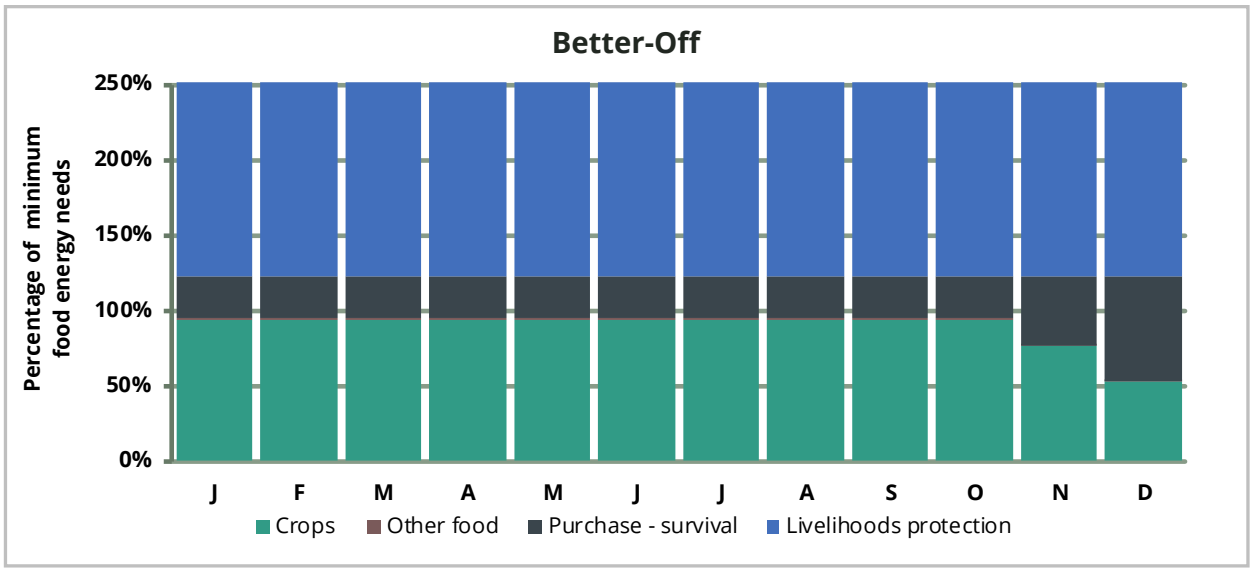
Households in all wealth groups were able to meet their minimum needs year-round in the reference year, with a peak reliance on food purchases from July to December, particularly for very poor and poor households. The Season A harvest started in January and the Season B harvest started in May, although cassava was available throughout the year. Very poor and poor households obtained some food from payment in-kind for casual agricultural labor (in teal) during the harvest period. The dark blue “livelihoods protection” sections of the bars increase as a proportion of the total because wealthier households can afford to spend more on productive inputs, health, and education.

Figure 8. Seasonal Food and Cash Access Calendars per Wealth Group




Poor
Percentage of minimum food energy needs
250%
200%
150%
100%
50%
0%
J F M A M J J A S O N D
Crops
Payment in kind (agriculture)
Purchase - survival
Livelihoods protection


Middle
Percentage of minimum food energy needs
250%
200%
150%
100%
50%
0%
J F M A M J J A S O N D
Crops
Other food
Purchase - survival
Livelihoods protection


Better-Off
Percentage of minimum food energy needs
250%
200%
150%
100%
50%
0%
J F M A M J J A S O N D
Crops
Other food
Purchase - survival
Livelihoods protection

Poor Female-Headed Households

Female-headed households are found in the very poor and poor wealth groups, as shown in the Wealth Breakdown table (Table 3). During fieldwork, data collectors conducted in-depth interviews with female-headed households from the poor wealth group. In CD06, female-headed households are typically led by older women, widows, or women who were abandoned by their husbands. This is a group that faces similar constraints and characteristics as male-headed households in the same wealth groups, but they are further disadvantaged by a lack of enough adult male labor, which potentially leads to additional constraints on certain types of asset ownership, productive work, or income-generating activities.

Figure 9 shows that poor female-headed households and poor male-headed households share a similar pattern of food access. In the reference year, they both met their annual minimum food energy needs from similar food sources, mainly own crops and food purchases. Poor male-headed households cultivated slightly more land than poor female-headed households and thus harvested slightly more and obtained slightly more food from their own crop production than the poor female-headed households.

Figure 9. Sources of Food: Poor Households vs Poor Female-Headed Households

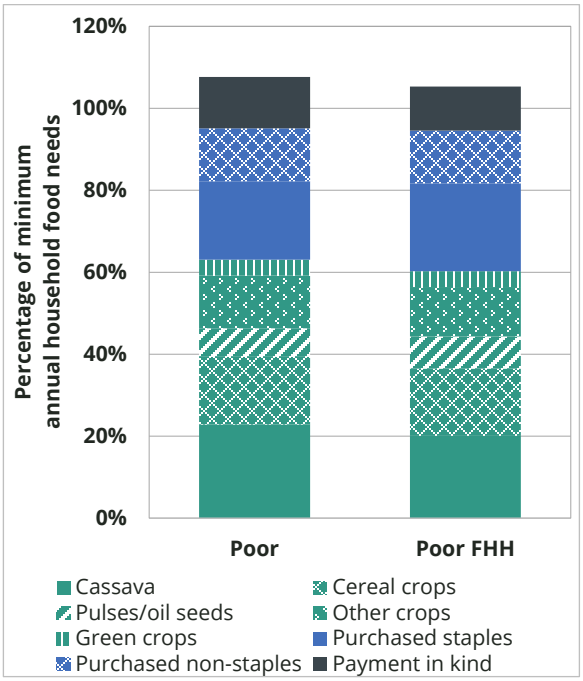
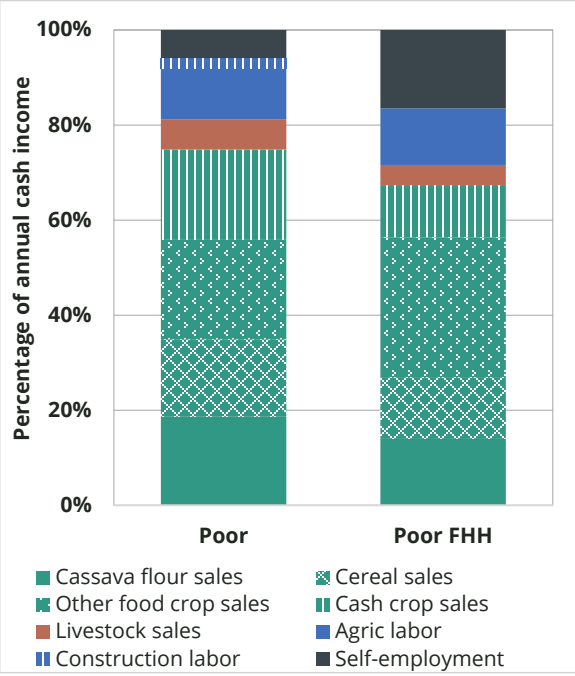


Figure 10. Sources of Cash: Poor Households vs Poor Female-Headed Households



The income picture shown in Figure 10 shows that both poor male-headed households and poor female-headed households had similar sources of cash income in the reference year, except for construction labor, which only involved poor male-headed households. The main sources of cash income for poor female-headed households were crop sales, followed by self-employment and agricultural labor, and minor contributions from livestock (i.e., poultry) sales.

Comparing total cash income, poor female-headed households earned almost 40% less than the poor male-headed households in the reference year. However, poor female-headed households had a smaller number of members in the reference year (5-7) than poor male-headed households (7-9), so per capita cash income was approximately 20-25% less for poor female-headed households.Crop sales and livestock sales made up a higher percentage of annual cash income for poor male-headed households compared to poor female-headed households. Self-employment made up a higher percentage of annual cash income for poor female-headed households compared to poor male-headed households. In the category of agricultural labor, female- and male-headed households obtained a similar proportion of income.

Response Strategies

In response to hazards and years with lean production, households attempt to meet their minimum food needs and cash requirements through several strategies. Below are some common strategies employed by households.

Households from all wealth groups try to reduce expenditure on non-essential or more expensive items first, like cutting down on festival costs or not buying clothes or utensils that year. Households consume less rice and maize in favor of cassava flour, which is the least expensive staple.

Very Poor and Poor Households

Very poor and poor households try to increase cash income by intensifying casual labor activities to earn more cash. However, in lean years, as increasing numbers of people flood the labor market, this option quickly loses its value because wage rates drop and jobs are harder to find.

Middle and Better-Off Households

Middle and better-off households cope with hazards differently than their poorer counterparts. Middle and better-off households sell additional livestock to cover basic food and non-food expenses in lean years. They also increase self-employment activities, like palm oil sales and petty trade.

Key Parameters for Monitoring

The key parameters listed in Table 5 are food and income sources that make a substantial contribution to the household economy in the *Maniema Savannah Agriculture Livelihood Zone*. These should be monitored to track potential losses or gains to local household economies through ongoing monitoring systems or periodic assessments.

Table 5. Key Parameters for Monitoring

Item	Key Parameter – Quantity	Key Parameter – Price
Crop production	• Maize Season A – quantity produced • Maize Season B – quantity produced • Rice – quantity produced • Cassava – quantity produced • Groundnuts Season A – quantity produced • Groundnuts Season B – quantity produced • Cowpeas – quantity produced • Palm oil sales – quantity • Plantains – quantity produced • Soybeans – quantity produced	• Maize Season A – producer price • Maize Season B – producer price • Rice – quantity produced • Cassava – producer price • Groundnuts Season A – producer price • Groundnuts Season B – producer price • Cowpeas – producer price • Palm oil – producer price • Plantains – producer price • Soybeans – producer price
Livestock production	• Pigs – herd size • Goats – herd size • Sheep – herd size • Poultry – flock size	• Pigs – producer price • Goats – producer price • Sheep – producer price • Poultry – producer price
Other food and cash income	• Cultivation labor – number of days • Harvest labor – number of days • Construction labor – number of days worked • Petty trade – demand • Fishing – quantity caught	• Cultivation labor – wage rates (food or cash) • Harvest labor – wage rates (food or cash) • Construction labor – wage rates • Petty trade – daily earnings • Fish sales – producer price
Expenditure		• Maize – consumer price • Cassava – consumer price • Rice – consumer price

CD07 Livelihood Zone

Reference Year: January–December 2023

High Food Production and Trade Livelihood Zone

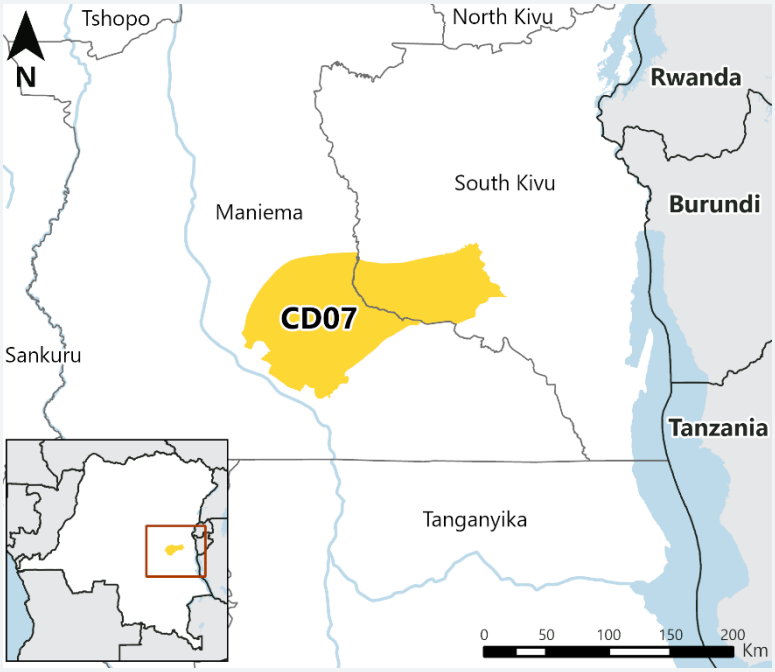


Figure 1. CD07 Livelihood Zone Map

Summary: The *High Food Production and Trade Livelihood Zone* (CD07) is a cropping zone spread over parts of two provinces, Maniema and South Kivu, located in the central-eastern and eastern part of the Democratic Republic of the Congo (DRC). Annual rainfall levels typically range between 800 and 1,200 millimeters (mm), characteristic of the equatorial climate. Selling surplus agricultural produce and livestock in local markets is the key economic activity in CD07. The main sources of food are households' own crops and market purchases. Very poor and poor households also have labor payments in the form of food as an important source of food. Other minor sources of food include livestock products and fish.

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Zone Description

The *High Food Production and Trade Livelihood Zone* (CD07)[1] is a farming zone spread over parts of two provinces, Maniema and South Kivu, located in the central-eastern and eastern parts of the DRC, respectively. In Maniema Province, the livelihood zone covers the health zones of Kasongo and Kunda in Kasongo Territory, the Kampene health zone in Pangi Territory, and the health zone of Salamabila in Kabambare Territory. In South Kivu Province, the livelihood zone covers the Kalole health zone in southernmost territory of Shabunda.

The livelihood zone experiences an equatorial climate with a bimodal Rainy Season, with Season A from September to December and Season B from February to May. CD07 has relatively consistent temperatures throughout the year, from 20°C to 30°C. Humidity is high due to the dense vegetation and consistent rainfall. Annual rainfall levels typically range between 800 to 1,200 mm. The rain is evenly distributed throughout the year, with a slight peak during the Rainy Season.

Much of the livelihood zone consists of lowland rainforests with gentle, undulating terrain. In areas like Pangi and Kasongo Territories, the terrain becomes more varied with hills and plateaus. These areas have a mix of dense forests and savannah woodlands. The livelihood zone is traversed by several rivers, including the Lualaba River, which forms part of the upper Congo River system. These rivers create fertile valleys that are vital for agriculture and settlement. Low-lying regions, particularly near major rivers and their tributaries, are often swampy and prone to seasonal flooding. The region is predominantly covered by dense rainforests, which are part of the Congo Basin. These forests are among the most biodiverse in the world. Common tree species include mahogany (*Khaya spp*.), African teak (*Pericopsis elata*), iroko (*Milicia excelsa*), and sapele (*Entandrophragma cylindricum*). Other notable species include the moabi (*Baillonella toxisperma*) and kapok (*Ceiba pentandra*). The forest floor is rich with understory plants such as ferns, shrubs, and small trees. Species like *Maranta spp*. and *Calathea spp*. are common. These forests support a wide range of wildlife, including primates, birds, insects, and many endemic species. Areas cleared for agriculture or affected by logging often feature secondary forests, which are characterized by fast-growing pioneer species. Species in these areas include umbrella trees (*Musanga cecropioides*), albizia (*Albizia spp*.), and various leguminous trees that help in soil regeneration. Along rivers and in low-lying areas, swamp forests and riparian vegetation are common. These areas are dominated by water-tolerant species, like papyrus (*Cyperus papyrus*), reeds (*Phragmites spp*.), and various species of ferns and grasses.

The main cities and towns include Kindu, Kasongo, and Pangi (in Maniema Province) and Shabunda (in South Kivu Province). Kindu, the capital city of Maniema Province, is a significant administrative and commercial center. It is located on the Lualaba River and serves as a major regional hub for

[1] Fieldwork for the current profile was undertaken from June 16 to July 14, 2024. The information presented in this profile refers to the reference year, which was the consumption year that covered the period from January 2023 to December 2023. Provided there are no fundamental and rapid shifts in the economy, the information in this profile is expected to remain valid for approximately five to 10 years (i.e., until 2028-2033). All prices referred to in the document are for the reference year.

transportation and trade. Located in Kasongo Territory, the town of Kasongo is an important local trade center. It has historical significance and serves as a key point for agricultural activities in the area. Situated in Pangi territory, Pangi town serves as an administrative and trade hub for the surrounding rural areas. It is known for its crop production and local markets. Located in the southernmost part of Shabunda Territory, Shabunda town is an important center for trade and administration. It is surrounded by dense forests and has significant mineral resources, particularly gold. The population of CD07 is 846,377, with an average population density of 60 people per square kilometer.[2] The main roads are Kasongo-Samba, Kasongo-Kunda, Kasongo-Salamabila (Kabambare)-Kalole, Kongolo-Kasongo-Kampene, and Kasongo-Salamabila-Kampene.

Agriculture is the dominant economic sector. It involves almost all households and is practiced manually on small family farms, under rainfed conditions, using local varieties of seeds. The main crops are cassava (a staple food crop grown widely across the region); maize (another staple crop that is important for both consumption and sale); rice (grown in wetter areas, particularly along river valleys); pulses, mainly cowpeas (cultivated as a protein source and for soil improvement); groundnuts (a valuable cash crop); bananas and plantains (important for food security and cash income); and palm oil (produced from palm oil trees, used locally and for sale). Although most farming is subsistence-based, the CD07 livelihood zone is known as a food surplus zone. Intercropping is a common practice to maximize land use and improve soil fertility (e.g., maize with beans, cassava with groundnuts). Slash-and-burn is the method used by most households to clear land. Land preparation, weeding, and harvesting are the activities that require the most labor. Middle and better-off households hire poorer households in exchange for money or food to help them with these activities.

Households from all wealth groups often keep livestock like goats, sheep, pigs, and poultry for meat, eggs, and as a form of financial security. Fishing in rivers for poorer households and fish farming for wealthier households are important activities that provide food and additional income.

Wage labor consists of casual work on larger farms or plantations, especially during peak agricultural seasons, and on construction projects. Self-employment activities include petty trade, tailoring, carpentry, and repair work. Production of handicrafts, like woven baskets, mats, and pottery, is common and often supplements household income for the poor wealth group. These activities reflect a diversified economic strategy, with households often engaging in multiple activities to sustain their livelihoods and manage the risks associated with crop production.

Constraints to crop production in this zone include a lack of awareness of improved farming techniques, difficulty in selling agricultural produce, lack of farming tools, need for agricultural mechanization, lack of farm access roads, and lack of crop diversification. Constraints to livestock production include livestock diseases, lack of pasture, and lack of veterinarians in the area. No formal arrangements or systems are in place to deal with constraints like equipment rental or work exchange. Challenges affecting fishing include overexploitation of fish stocks due to lack of regulation and management practices that threaten the sustainability of fishing activities; pollution

[2] FEWS NET Data Explorer, population data (2023), accessed 2025, https://fdw.fews.net/data-explorer/.

from mining activities and agricultural runoff negatively impacting water quality and fish populations; and fishermen lacking access to modern fishing gear and techniques, reducing their efficiency and productivity.

Social and political challenges, like the ongoing conflict and insecurity in parts of the region, can disrupt socioeconomic activities, displace populations, and create an unsafe environment for farming and trade. Unclear or insecure land tenure can lead to disputes and limit farmers' willingness to invest in long-term improvements.

CD07 experiences several hazards that affect its economy and livelihoods. The main hazards are crop pests and diseases and livestock diseases. The main crop diseases are cassava mosaic and groundnut rosette, and the main pest is the fall armyworm on maize, all of which cause significant issues every year. The main livestock diseases, particularly swine fever, pose a significant risk to households from all wealth groups in the livelihood zone every year. Additionally, there are challenges related to lack of improved farming techniques, seed varieties, and agricultural infrastructure. Other risks include human disease outbreaks, especially measles, mpox, and cholera. These diseases, combined with the ongoing challenges of accessing healthcare and vaccination, create a significant public health burden.

Households from all wealth groups rely on surface water sources like rivers, as well as groundwater from wells and boreholes, for their water supply. However, these sources are often unreliable, especially during the Dry Season. Water quality is often poor, with contamination from human activities, agricultural runoff, and mining operations. This leads to a high incidence of waterborne diseases. Water infrastructure is also underdeveloped. Many communities lack proper systems for water treatment and distribution, leading to dependence on untreated and unsafe water sources, and lack access to improved sanitation facilities. The use of unimproved pit latrines is common, posing significant health risks by contributing to the spread of diseases like cholera, dysentery, and typhoid fever. The lack of sanitation facilities in schools and public places exacerbates these health risks. Inadequate waste management systems lead to improper disposal of human waste, further contaminating water sources and the environment. There is often a lack of awareness and education on proper hygiene practices, contributing to the prevalence of preventable diseases. The livelihood zone faces numerous public health challenges, including high rates of infectious diseases (e.g., malaria, tuberculosis, HIV/AIDS), maternal and child mortality, and malnutrition. Health facilities are often inadequate and poorly equipped. Most households access primary healthcare through community health centers and by traditional medicine.

For lighting, households in all wealth groups use battery-operated flashlights, solar panels, and solar flashlights. For cooking, poorer households use firewood, while wealthier households can also use charcoal for cooking. Radio remains a critical source of information for many households. Battery-operated radios are common, and community radio stations play an important role in disseminating news, health information, and educational content. Mobile phone network coverage is limited in many communities. Mobile phones are used mainly for voice services as the cost of mobile phones

and the ongoing expense of airtime and data plans are prohibitive for many households. Access to financial services is not typical for households from all wealth groups in this livelihood zone.

School enrollment rates are low. Economic barriers, long distances to schools, and cultural factors like early marriage and child labor contribute to low attendance. The quality of education is generally low due to a shortage of trained teachers, inadequate teaching materials, and overcrowded classrooms. Girls face significant barriers to education, including cultural attitudes, household responsibilities, and safety concerns while traveling to and from school. Individuals from poorer households achieve a maximum of secondary level of education, while some members of middle and better-off households attend university.

Markets

Market access in the *High Food Production and Trade Livelihood Zone* is generally low. Most roads are dirt, often in poor condition, and lack regular maintenance. Agricultural feeder roads are almost non-existent, which hampers the efficient transport of goods. While there are some bridges, they are mostly in disrepair and not functional, further complicating transportation. Many localities are highly isolated, making it difficult to access urban centers where markets are typically located.

The Rainy Season, which extends from September to December and from February to May, significantly worsens market access. Heavy rains cause flooding, landslides, and erosion, making many dirt roads and tracks impassable. This damage to the roads results in severe transportation delays and increases the cost of transporting goods. Increased water levels in rivers during the Rainy Season make river crossings dangerous and unreliable, further limiting movement.

The difficulties in accessing markets during the Rainy Season cause a drop in the supply of goods, which in turn leads to local price hikes; essential commodities become more expensive and less available. Isolated communities face significant challenges in selling their produce or purchasing necessary goods, exacerbating food insecurity and economic hardships.

The trade routes followed by various goods during the reference year were: rice from Kasongo to markets in Kindu, or from Kasongo to markets in Salamabila and then to markets in Misisi, in South Kivu; groundnuts from Kasongo to markets in Salamabila and then to markets in Bukavu; cowpeas and plantains were sold locally in Kasongo markets; palm oil from Kasongo to markets in Kindu and then to markets in Lubumbashi, or from Kasongo to markets in Samba and from there to markets in Kongolo; goats and sheep from Kasongo to markets in Pangi and then to markets in Kindu and from there to final market in Salamabila; and pigs from Kasongo to markets in Pangi.

Paid cultivation labor, performed mainly by very poor and poor households, is mostly carried out within the rural area of the livelihood zone, with all casual work being conducted within these areas. Employment opportunities outside the immediate rural communities, for example in local towns and cities, are extremely limited, and there is no significant labor migration from this livelihood zone to other livelihood zones for work.

Timeline and Reference Year

The baseline assessment refers to a very specific period called the “reference year.” In CD07, the reference year covers the consumption period from January to December 2023. During community leader interviews, informants were asked to score the last five years in terms of seasonal performance with “1” indicating a poor season and “5” indicating an excellent season. Table 1 summarizes the response of the community leaders.

Table 1. Timeline

Production Year	Score	Critical Events
2022-2023	3	Flooding, irregular rainfall (irregular weather patterns), a swine fever outbreak, and the army conflict (the Mayi-Mayi war in some localities lasted for several weeks, causing disruptions) significantly impacted household food security. Crop production was good overall. Households engaged in small businesses, fishing, charcoal sales, wood polishing, and trade to mitigate the impact of negative events.
2021-2022	3	Irregular rainfall and crop rot affected agricultural productivity. Small businesses were the primary means of coping adopted by households.
2020-2021	3	Irregular rainfall, crop diseases, and bush fires caused substantial damage. Households relied on imports of commercial products to supplement their needs.
2019-2020	4	Irregular rainfall challenged the region. Small businesses played a crucial role in sustaining household livelihoods.
2018-2019	4	Crop diseases were a significant issue. Households turned to small businesses and charcoal sales for economic support.

5 = Excellent season for household food security (e.g., due to good rains, good prices, good crop yields)
4 = Good season or above average season for household food security
3 = Average season for household food security
2 = Below-average season for household food security
1 = Poor season for household food security (e.g., due to drought, flooding, livestock disease, pest attack)

Note: Production year refers to the outcome of the livestock reproduction cycle that peaked during that year's rainy season and events that impacted livelihoods until the end of the lean season the following year.

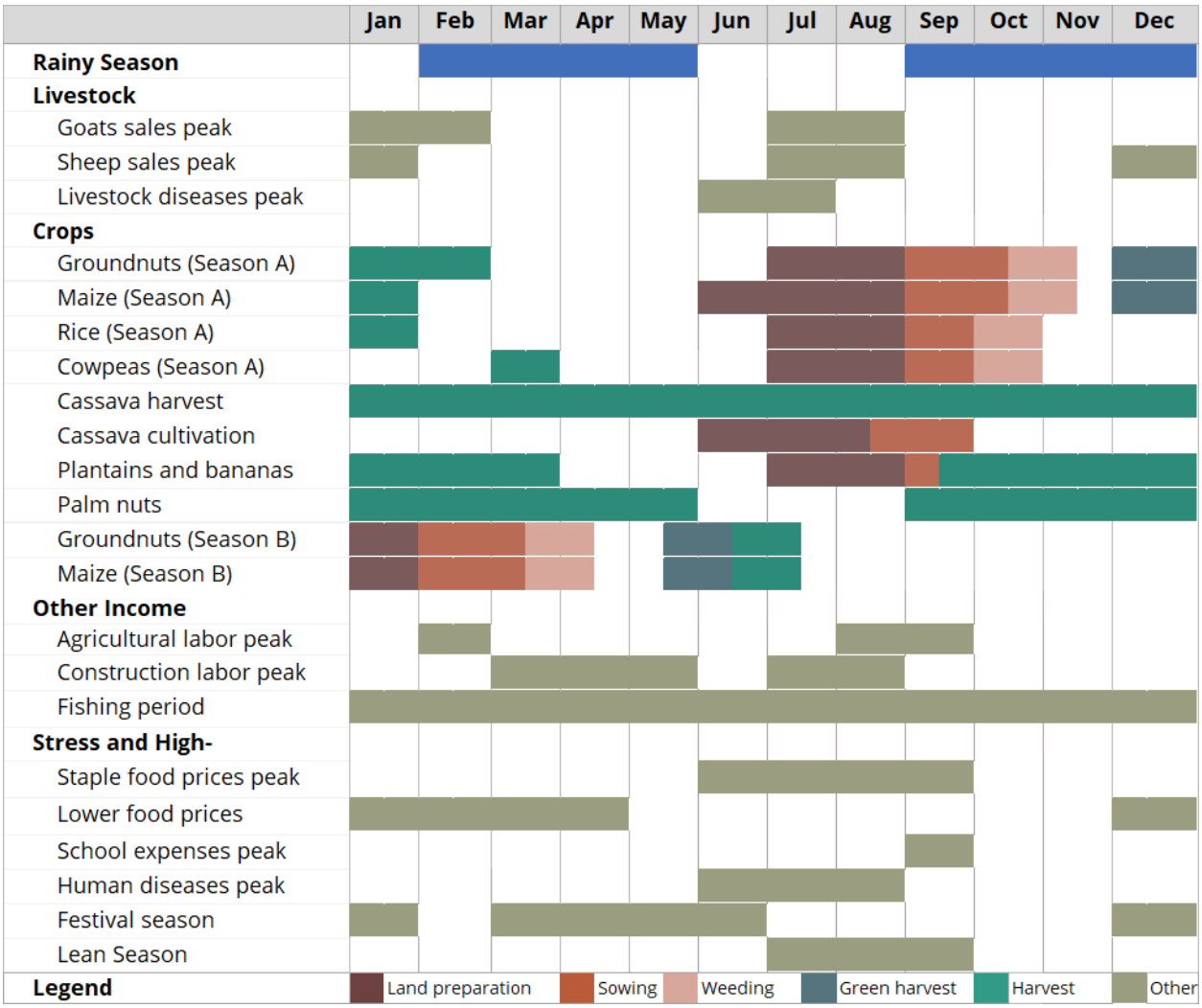
Key informants ranked the seasons between 2021 and 2023, including the reference period, as “3” (average) in terms of household food security. Seasons 2019 to 2020 were ranked as “4” (good/above average) in terms of household food security, meaning that despite the irregular rainfall, crop diseases, and bush fires, which caused damage to household livelihoods, these were overcome by the different coping strategies used by households in the zone. The reference year was marked by significant negative events, including conflict and swine fever, but households’ coping strategies helped mitigate the impact on food security, and 2023 was considered relatively normal

compared to other years. Coping strategies used by households consisted in increased fishing, charcoal sales, wood polishing, and petty trade.

Seasonal Calendar for Reference Year

The seasonal calendar (see Figure 2) illustrates the main economic activities and events in the reference year. It traces the rainy months, crop and livestock activities, other important income activity periods, and periods of stress and high expenditure.

Figure 2. Seasonal Calendar



In CD07, the rains typically follow a bimodal pattern, which is crucial for the rainfed crop production. The first Rainy Season starts in September and ends in December. This season marks the beginning of the agricultural calendar, providing essential moisture for the initial planting season for Season A. The rains are usually consistent and heavy, supporting the growth of various crops. The second rainy Reason starts in February and ends in May, and this Rainy Season supports the second

planting in Season B. These two Rainy Seasons are vital for maintaining the agricultural productivity of the livelihood zone and allow for two main planting and harvesting periods each year.

Land preparation for the zone's main crop, cassava, starts in June and ends in August, followed by the plantation of seedlings from August to September. Cassava harvesting is done throughout the year. Maize is cultivated in two seasons, but the main is Season A, with land preparation in June to August, sowing in September to October, weeding in October to November, and harvesting in January. For Season B, land preparation occurs in January, sowing in February to March, weeding in March to April, and harvesting in June to July. Groundnuts are cultivated in two seasons as well. The main is Season A, with sowing in September to October and harvesting in January to February. For Season B, sowing occurs in February to March and harvesting in June to July. Season A green consumption for maize and groundnuts is in December, and season B green consumption for the same crops is in May to June. The main harvest for cowpeas is March, and for rice in January. Plantains and bananas are harvested from mid-September to March and palm nuts from September to May. After the dry harvest, all cereals are threshed and grains are stored in homes for consumption and sale.

The success or failure of livestock keeping in a given year depends largely on the outcome of the Rainy Season. During the Rainy Season, surface water and pasture availability for livestock production improves, thereby increasing reproduction and productivity. Gestation periods are 5-6 months for small ruminants (goats/sheep). Goats and sheep are sold throughout the year with peak periods in the Dry Season in July to August, and for festivals in December to February. Livestock diseases can occur at any time of the year; however, the peak period is in June to July.

Human diseases, like livestock diseases, can occur at any time of the year; however, diseases peak from June to August.

The Lean Season — the most difficult period in terms of access to food due to depletion of food stocks, especially for poorer households, and high food prices — mainly occurs in July to September.

Table 2 shows the typical division of labor, listing the tasks shared and not shared by men and women.

Table 2. Typical Division of Labor

Shared Tasks	Women's Tasks	Men's Tasks
• Weeding, planting, harvesting, threshing and selling crops • Paid agricultural labor • Livestock related tasks • Charcoal/firewood production and sale • Petty trade	• Water application on crops • Bird scaring • Handicrafts production and sale • Household chores • Fish processing	• Land preparation • Construction labor • Fishing and fish sales • Livestock sales

Men and boys are largely responsible for land preparation, construction labor, and fishing. Women are mostly involved in watering crops, crops sales in the market, bird scaring, firewood collection and sale, handicrafts production and sale, and all the domestic work, including water collection, firewood collection, meal preparation, feeding small children, and laundry. Fishing is predominantly done by men. This is largely due to the physical demands and traditional gender roles associated with fishing activities; however, women often play crucial roles in processing the fish once caught.

Wealth Breakdown and Productive Assets

Table 3 summarizes the types and numbers of productive assets that typical households within each wealth group own and/or manage. Asset holdings are shown in a range that reflects the diversity of households' situations within a wealth group. Figure 3 shows the percentage of households within the zone that falls in each wealth group. The socioeconomic categorization of households in the zone was carried out by the communities themselves.

Table 3. Wealth Breakdown

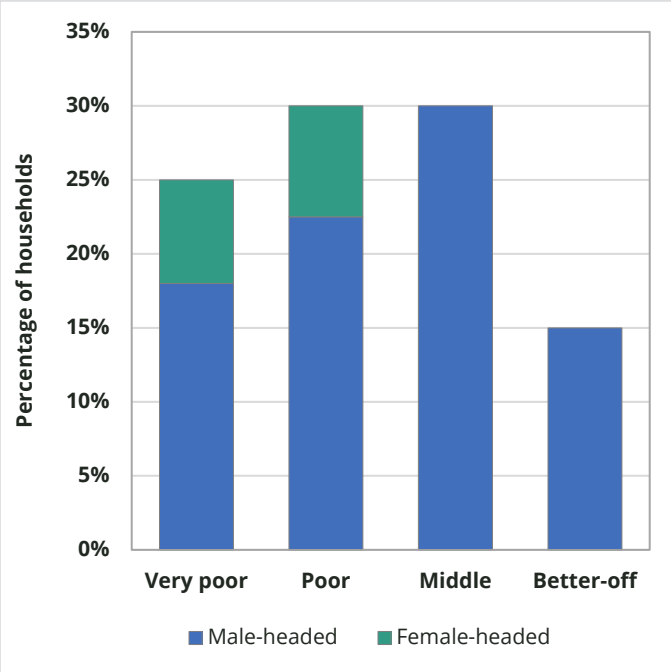
Household Size and Productive Assets	Very Poor	Poor	Middle	Better-Off	Poor Female-Headed
Household size	4-6	8-10	13-15	17-25	5-7
Land owned (hectares [ha])	0.15-0.3	0.3-0.7	1-2	1.5-3	0.15-0.5
Land cultivated (ha)	0.15-0.3	0.3-0.7	1-2	1.5-3	0.15-0.5
Pigs	0	0	0-6	0-8	0
Goats	0	2-4	4-10	10-20	0
Sheep	0	0	2-10	4-20	0
Poultry	1-5	4-10	4-20	10-30	1-7
Motorcycles	0	0-1	0-2	0-3	0

Wealth in CD07 is primarily determined by the size of cultivated land. Other wealth determinants include livestock ownership, the ability to engage in commerce, and ownership of productive assets, like motorcycles.

In livelihood zone CD07, land is plentiful and freely available, and households cultivate according to their means and available labor. Differences in crop production were mainly in quantity. Middle and better-off households used advanced sowing techniques and hired labor. Very poor and poor households primarily cultivated for consumption, with a smaller areas of farmed land.

Figure 3. Wealth Breakdown

Note: All results are the mid-point of a range



Very poor households cultivated 0.15-0.3 ha, poor households 0.3-0.7 ha, middle households 1-2 ha, and better-off households 1.5-3 ha. The amount of land area cultivated increased progressively with increasing wealth. Better-off households typically cultivate 10 times the land area cultivated by very poor households. Livestock are a significant source of income — and an important way of investing, saving, and safeguarding against less productive years. The main types of livestock kept in this zone are goats, sheep, pigs, and poultry. Livestock provide direct access to food in the form of meat and eggs and are also an important means of obtaining cash income through live animal sales and some meat sales. All households in the *High Food Production and Trade Livelihood Zone* own livestock, with wealthier households having larger livestock herds. Goats and sheep are the most significant and valuable livestock in this zone. Middle and better-off households keep all types of livestock and have relatively large holdings. The herd sizes of poor households mostly comprise 2-4 goats and 4-10 poultry. Very poor households own 1-5 poultry.

Wealthier (i.e., middle and better-off) households own up to 3 motorcycles, while some poorer households own, at most, one motorcycle. Wealthier households also have enough resources to hire labor from poorer households, especially for land preparation, weeding, and harvesting. Poorer households, on the other hand, have few productive assets, except for some goats, poultry, and their own labor.

Household size increases with wealth. Very poor households have a household size of 4-6 members, poor 8-10, middle 13-15, and better-off 17-25. The wealthier the household, the larger it is, with more land, livestock, and productive assets.

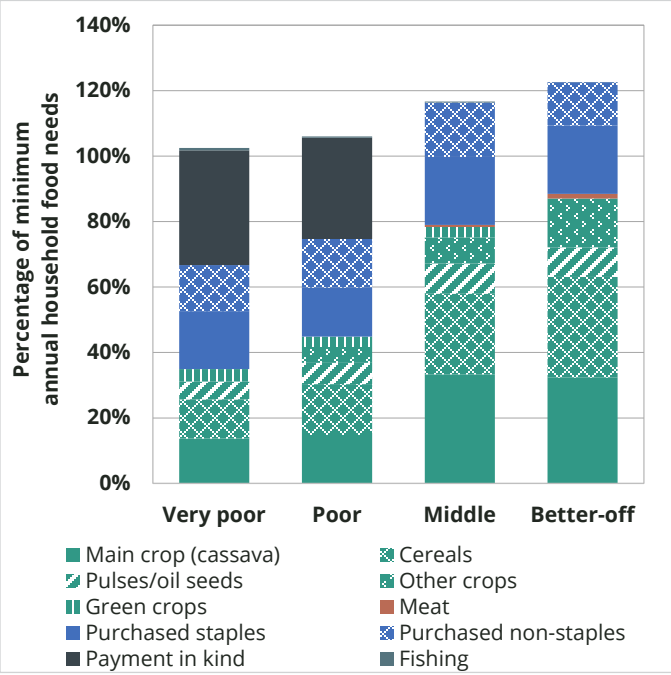
The proportion of households in the community is as follows: very poor households 20-30%, poor households 25-35%, middle households 25-35%, and better-off households 10-20%.

It is important to note that women in this livelihood zone have the right to inherit land if they are widows, but only if family members agree. If a woman is abandoned by her husband or by her family, she is usually given a portion of land free of charge. Women do not typically inherit livestock but have to buy them.

Sources of Food

Figure 4 presents the sources of food for households in different wealth groups in the livelihood zone for the period January to December 2023. January represents the start of the consumption year because it is when the consumption of the main harvest season starts. Food is presented as a percentage of the annual kilocalorie (kcal) needs of the household, based on the internationally accepted 2,100 kcal per person per day.

Figure 4. Sources of Food



There were two main sources of food in this zone for households from all wealth groups in the reference year: households' own crops and market purchases. Very poor and poor households also obtained food as labor payments, covering 30-40% and 25-35% of their minimum annual food needs, respectively. Other minor sources of food included households' own livestock products and fish.

Total food consumption increased progressively across wealth groups. Very poor households consumed just over 100% of their minimum kcal needs, increasing up to 120-130% for better-off households.

Crop production was the most important source of food in the livelihood zone, and households from all wealth groups consumed crops. Very poor households consumed 30-40% of minimum annual food needs, poor households 40-50%, middle households 75-85%, and better-off households 85-95%. The most important crops grown for own consumption were cassava, maize, groundnuts, and rice. Cassava is the main crop consumed by all households, in the form of cassava flour. *Fufu* and *pondu* are particularly popular dishes in the livelihood zone, prepared by households from all wealth groups. Poorer households obtained 10-15% of minimum annual food needs from cassava in the reference year; wealthier households obtained 30-35% from this main crop.

Households from all wealth groups obtained 3-5% of minimum annual food needs from green consumption of maize and groundnuts. Pulses and oil seeds were important sources of vegetable protein and fat for households from all wealth groups. Very poor and poor households obtained 3-10% of minimum annual food needs from this source, and middle and better-off households obtained 5-15%. Other crops that made a small contribution to food needs in the reference year included palm nuts (to prepare palm oil), bananas, and plantains.

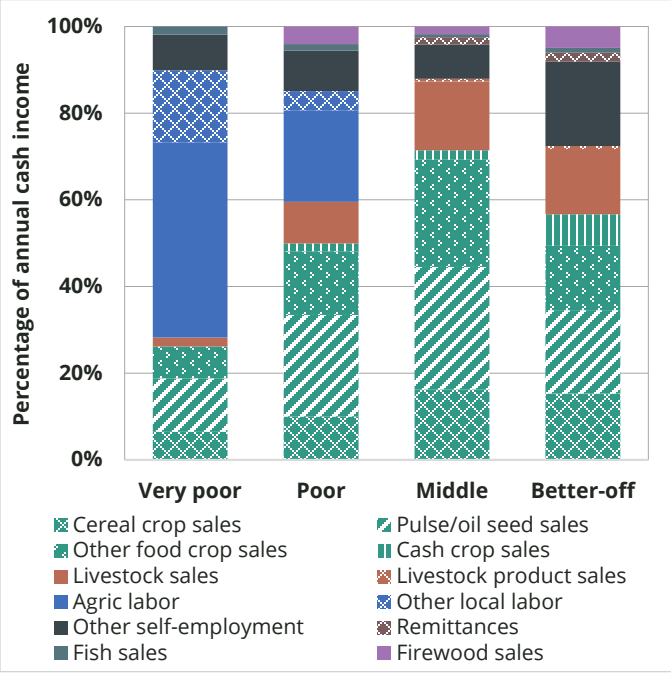
Purchased foods were the second most important food sources in the livelihood zone. All wealth groups purchased staple foods, which included maize and rice. Palm oil was an important source of fat purchased, contributing 5-15% of minimum annual food needs across all wealth groups. Other food purchased in small amounts included beans, cowpeas, sugar, fresh fish, dry fish, meat, vegetables, and groundnuts.

Overall, the reference year was average in terms of food security, with all households meeting their minimum annual food energy needs.

Sources of Cash Income

Households' own crop production and livestock management are the main livelihood activities in the *High Food Production and Trade Livelihood Zone* (see Figure 5). Crop sales and livestock sales were the main income sources for middle and better-off households in the reference year, supplemented by petty trade; other self-employment; remittances sent by relatives working in cities like Kindu, Kasongo, and Kabambare; fish sales; and livestock products sales. Crop sales were also the main income source for poor households. For poor households, cash income from local casual labor (in agriculture and construction) was the second most important income source, followed by livestock sales, other self-employment, petty trade, and fish sales. For very poor households, the main income source is local casual labor (agriculture and construction), followed by crop sales, petty trade, livestock sales, and fish sales. Other self-employment included vegetable sales, charcoal and firewood production and sales, and handicraft sales.

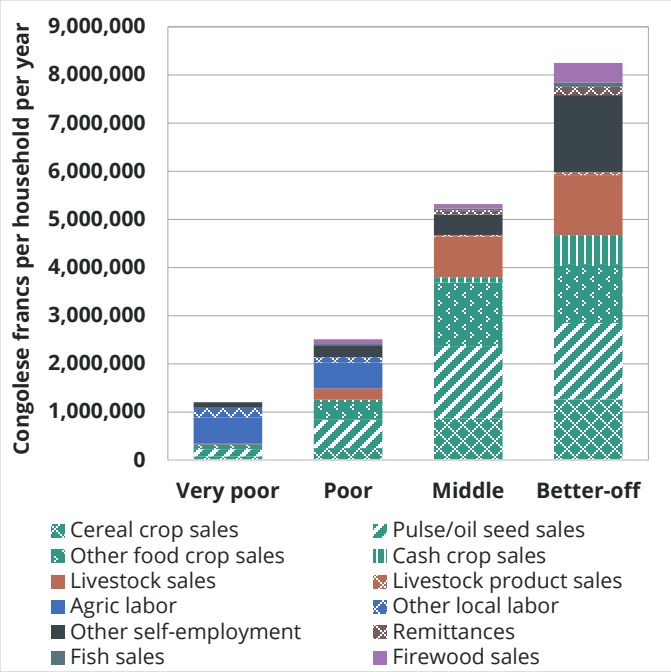
Figure 5. Sources of Cash Income as a Percentage of Annual Cash Income



Very poor households generated more than half of their cash income in the reference year from cultivation labor alone. They earned 55-65% of their total annual cash income from this source. Crop sales accounted for 20-30% of total cash income for this wealth group, petty trade 5-15%, and livestock sales and fish sales generated up to 3% each.

Poor households generated half of their cash income in the reference year from crop sales. They earned 20-30% of their total annual cash income from labor and 5-15% from livestock sales. Other self-employment accounted for 5-15%, petty trade 2-6%, and fish sales less than 2%.

Figure 6. Total Annual Cash Income



Middle households earned 60-80% of their total annual cash income from crop sales and 10-20% from livestock sales in the reference year. They earned 5-15% from petty trade and other self-employment together. Their remaining income came from remittances, fish sales, and livestock product sales, contributing 1-5% to total income.

Better-off households earned 50-65% of their total annual cash income from crop sales and 10-20% from livestock sales. Other self-employment and petty trade contributed 20-30% of the total cash income in the reference year. Their remaining income came from remittances, fish sales and livestock product sales, contributing 2-6% to total income.

Differences between wealth groups in the absolute amount of cash income generated during the reference year were very large. This gap is illustrated in Figure 6 and Table 4. Better-off households earned close to six to eight times the cash income of very poor households. The differences between wealth groups in per capita cash income was smaller than for total income. Better-off households earned one to two times the annual per capita cash income of very poor households. Annual per capita cash income increased progressively with wealth.

Table 4. Income Summary (Congolese Francs or CDF)

Wealth Group	Very Poor	Poor	Middle	Better-Off
Annual income per household[3]	800,000–1,600,000	2,000,000–3,000,000	4,000,000–7,000,000	7,500,000–10,000,000

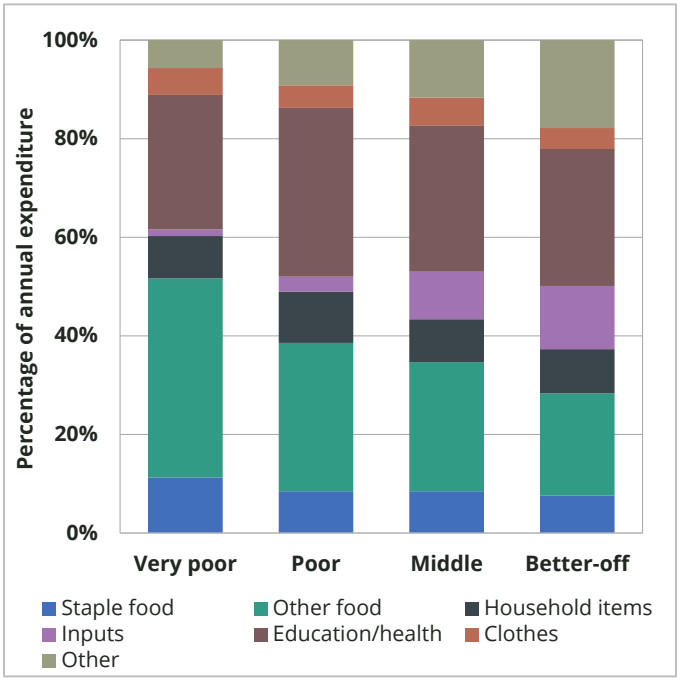
Expenditure Patterns

Figure 7 presents expenditure patterns for the reference year January to December 2023. While absolute expenditure increases with wealth in line with total cash income, this graph's expenditure breakdown by percentage shows the *relative* amount of income spent on different categories. Households in the zone need to cover a range of essential expenditures over the year. These include staple foods, non-staple foods, household items/services (like salt, soap, tea, coffee, lighting, milling,

[3] The average exchange rate from January 2023 to December 2023 was 1 USD = 2,382 CDF.

etc.), productive inputs, social services (which include health and education), clothing, transportation, as well as other essential and non-essential items.

Figure 7. Total Annual Cash Expenditure by Category



All households spent significant proportions of their annual incomes on staple and non-staple foods in the reference year. As noted in the Sources of Food section, households in CD07 secured up to 40% of their annual food energy needs from food purchases. The remaining income was spent on household items, productive inputs, social services (health and education), clothing, transportation, and other essential and non-essential items. Households did not purchase water. Expenditure on productive inputs and “other" increased with wealth. Very poor households’ expenditure on staple foods accounted for 5-15% of their annual expenditure in the reference year. Non-staple foods expenditure was 30-50% of total expenditure, household items (including lighting and grinding costs) 5-10%, productive inputs less than 2%, social services (health and education) 20-30%, clothing/shoes approximately 5%, and “other” items (including transportation, phone credits, festivals, etc.) were less than 10%.

Poor households’ expenditure on staple foods accounted for 5-10% of annual expenditure. Non-staple foods expenditure was 20-30% of total expenditure, household items 5-15%, productive inputs less than 5%, social services 30-35%, clothing/shoes 2-8%, and ”other” 5-15%.

Middle households’ expenditure on staple foods accounted for 5-10% of annual expenditure. Non-staple foods expenditure was 20-30%, household items 5-15%, productive inputs 10-15%, social services 25-35%, clothing/shoes about 5%, and ”other” items 10-15%.

Better-off households’ expenditure on staple foods accounted for 5-10% of annual expenditure. Non-staple foods expenditure was 15-25%, household items 5-15%, productive inputs 10-20%, social services 20-30%, clothing/shoes about 5%, and “other” items 15-20%.

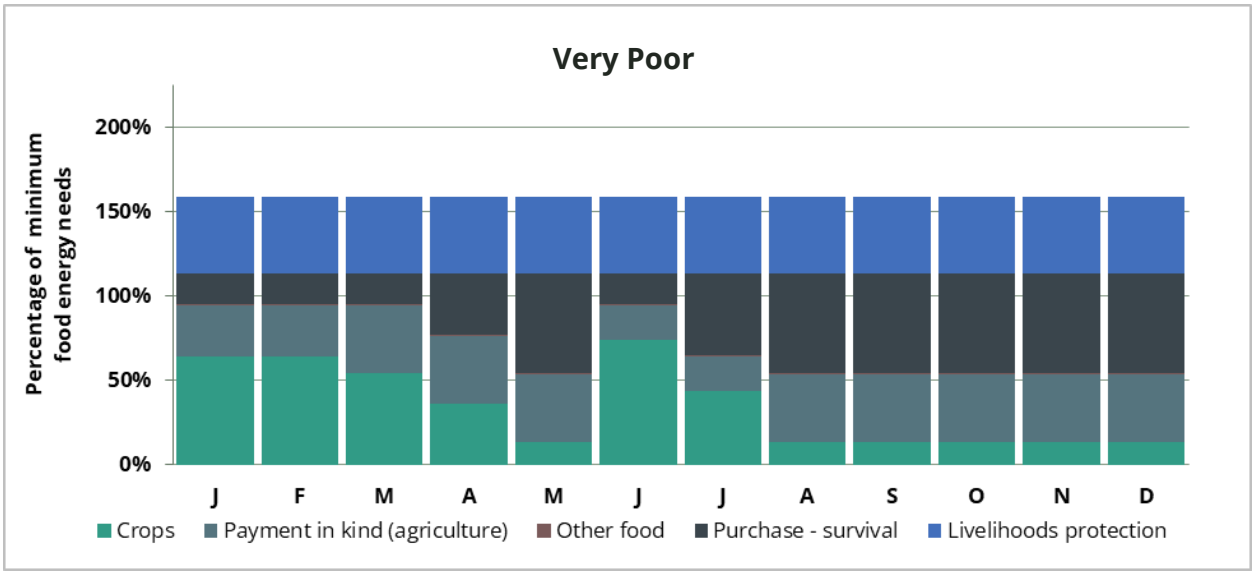
Expenditure on social services (health and education) and on non-staple foods are the categories that contribute most to total spending for all wealth groups in the reference year, representing 60-75% of total expenditures for very poor households, 60-70% for poor households, 50-60% for middle households, and 45-55% for better-off households.

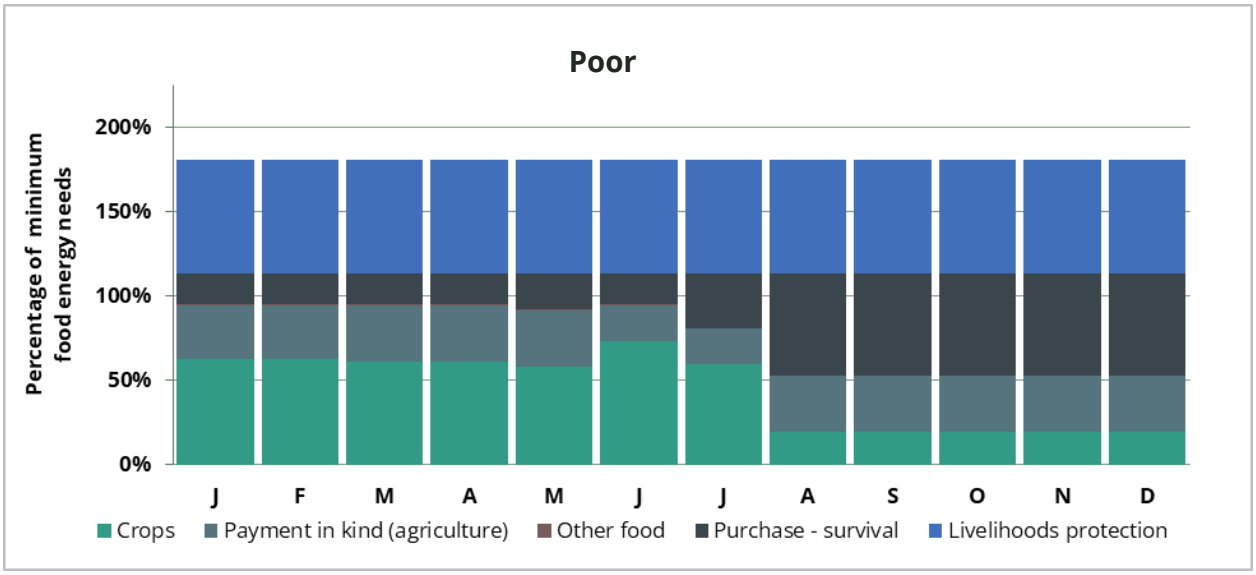
Food Access Calendars

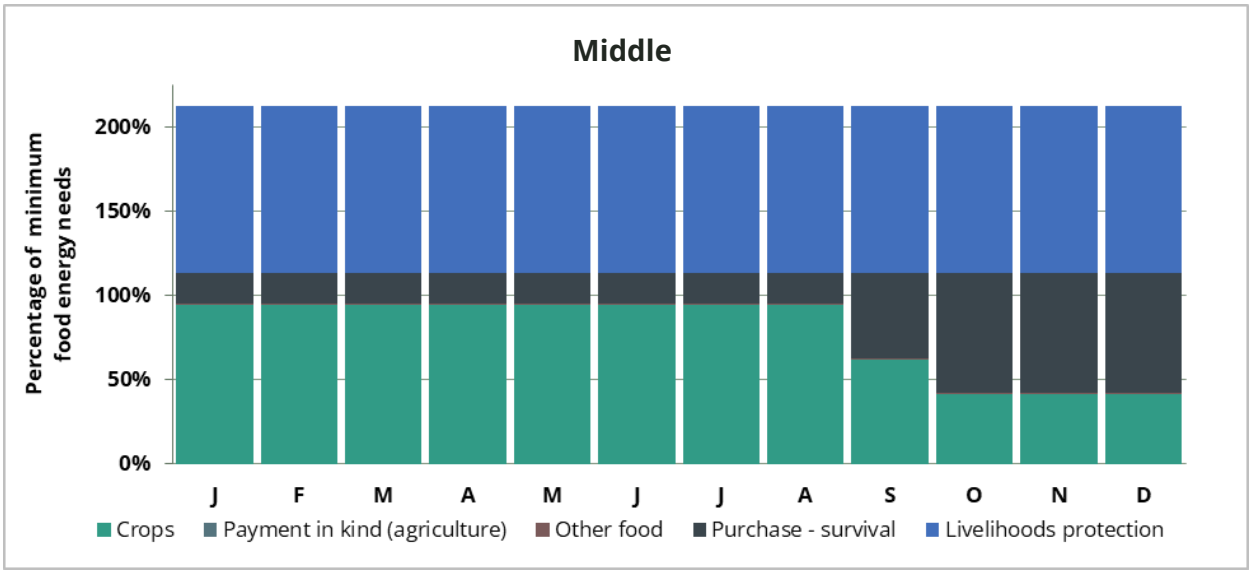
The graphs in Figure 8 present monthly food and cash access calendars for the four wealth groups.

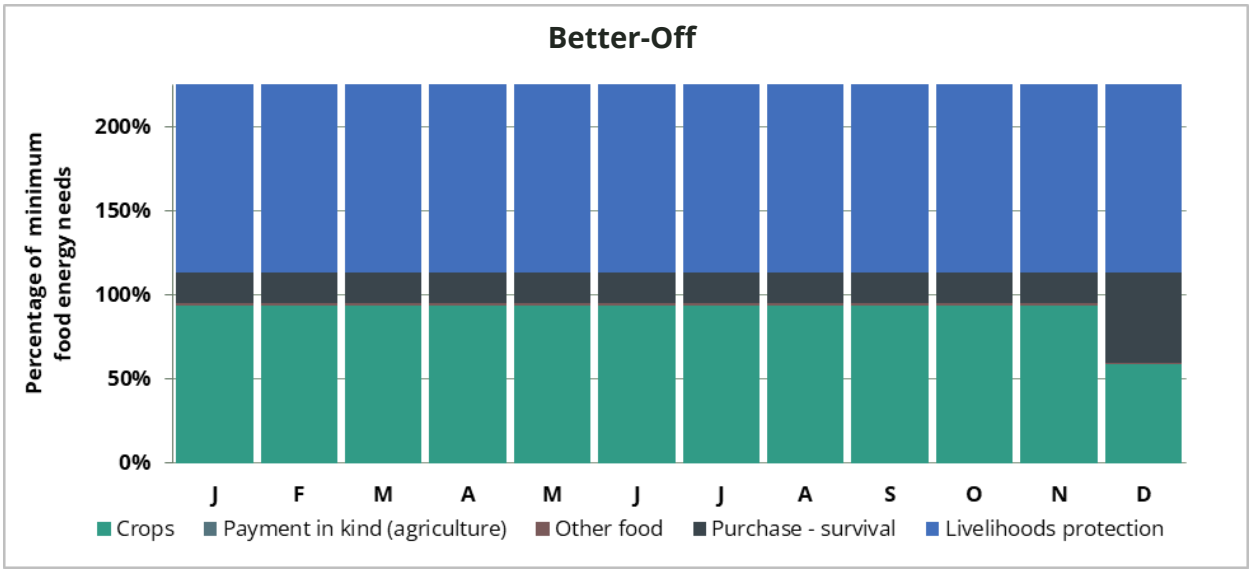
Households in all wealth groups were able to meet their survival and livelihoods protection thresholds year-round in the reference year. The Season A harvest started in January, and the Season B harvest started in June, although cassava was available throughout the year. Very poor and poor households obtained some food from payment in-kind for casual agricultural labor throughout the year. The dark blue "livelihoods protection" sections of the bars increase as a proportion of the total because wealthier households can afford to spend more on productive inputs, health and education.

Figure 8. Seasonal Food and Cash Access Calendars per Wealth Group









Poor Female-Headed Households

Female-headed households are found in the very poor and poor wealth groups, as shown in the wealth breakdown (Figure 3). During fieldwork, data collectors conducted in-depth interviews with female-headed households from the poor wealth group. In CD07, female-headed households are often led by a widow or a woman who is divorced or separated from her husband. This is a group that faces similar constraints and characteristics as male-headed households in the same wealth group, but they are further disadvantaged by a lack of enough adult male labor, which potentially leads to additional constraints on certain types of asset ownership, productive work, or income-generating activities.

Figure 9 shows that poor female-headed households and poor male-headed households share a similar pattern of food access. In the reference year, they met their annual minimum food energy needs from similar food sources, mainly payments in-kind from labor, their own crop production, and market purchases. Poor male-headed households cultivated slightly more land than poor female-headed households, and thus harvested slightly more and obtained slightly more calories from crop production. Other constraints faced by poor female-headed households in the reference year included limited access to financial resources, prevalence of livestock diseases, lack of access to animal health care, and insufficient financial means to engage in other economic activities.

Figure 9. Sources of Food: Poor Households vs Poor Female-Headed Households

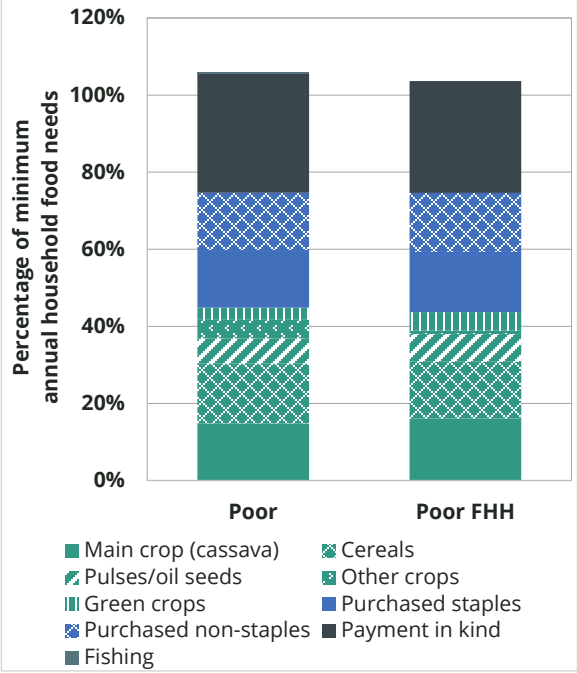
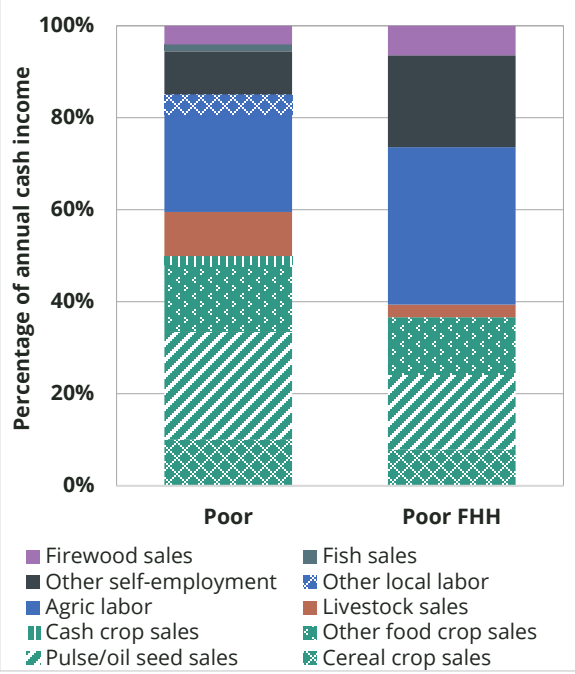


Figure 10. Sources of Cash: Poor Households vs Poor Female-Headed Households



The income picture in Figure 10 shows that poor male-headed households and poor female-headed households had similar sources of cash income in the reference year. The main sources of cash income for poor female-headed households were, in order of importance: crop sales, labor payments, petty trade, other self-employments, and livestock sales.

Comparing totals of cash income, poor female-headed households earned almost half that of poor male-headed households in the reference year. Poor female-headed households were smaller than male-headed households (5-7 household members compared to 8-10 members) and per capita cash income was 20-35% less.

Crop sales made up a much smaller percentage of annual cash income for poor female-headed households at 30-45% compared to 45-55% for poor male-headed households. Other self-employment and livestock sales also made up a smaller percentage of annual cash income for poor female-headed households.

However, labor payments made up a higher percentage of annual cash income for poor female-headed households at 30-40% compared to 20-30% for poor male-headed households. Petty trade also made up a higher percentage of annual cash income for poor female-headed households, 15-25%, compared to 2-6% for poor male-headed households.

Response Strategies

In response to hazards and years with lean levels of production, households attempt to meet their minimum food needs and cash requirements through several strategies. Some responses are similar across wealth groups, while others vary. Below are some common strategies employed by households.

All households try to reduce expenditures on non-essential or more expensive items first, like cutting down on festival costs or not buying clothes or household utensils that year. Households consume less rice in favor of cassava flour, which is the least expensive staple.

Very Poor and Poor Households

Very poor and poor households try to increase cash income through the intensification of casual labor activities. However, in less productive years, as increasing numbers of people flood the labor market, this option quickly loses its value because wage rates drop and jobs are harder to find. Poorer households also intensify self-employment activities, like the sale of firewood and charcoal. Poorer households also seek social support from family and/or wealthier households.

Middle and Better-Off Households

Middle and better-off households cope with hazards differently. Middle and better-off households sell additional livestock to cover basic food and non-food expenses in less productive years and to destock when the local environment cannot support all the livestock. They also increase self-employment activities like petty trade.

Key Parameters for Monitoring

The key parameters listed in Table 5 are food and income sources that make a substantial contribution to the household economy in CD07. These should be monitored to track potential losses or gains to local household incomes through ongoing monitoring systems or periodic assessments.

Table 5. Key Parameters for Monitoring

Item	Key Parameter – Quantity	Key Parameter – Price
Crop production	• Maize Season A – quantity produced • Maize Season B – quantity produced • Cassava – quantity produced • Groundnuts Season A – quantity produced • Groundnuts Season B – quantity produced • Cowpeas – quantity produced • Palm oil – quantity collected • Rice – quantity produced • Plantains – quantity produced	• Maize Season A – producer price • Maize Season B – producer price • Cassava – producer price • Groundnuts Season A – producer price • Groundnuts Season B – producer price • Cowpeas – producer price • Palm oil – collector price • Rice – producer price
Livestock production	• Pigs – herd size • Goats – herd size • Sheep – herd size • Poultry – flock size	• Pigs – producer price • Goats – producer price • Sheep – producer price • Poultry – producer price
Other food and cash income	• Cultivation labor (pre-harvest and harvest) – number of days worked • Harvest labor – number of days worked • Fishing – quantity caught • Construction labor – number of days worked • Remittances – volume • Charcoal/firewood sales – quantity sold • Other self-employment – demand • Petty trade – demand	• Cultivation labor – wage rates • Harvest labor – wage rates • Fish – seller price • Construction labor – wage rates • Remittances – amount received • Charcoal/firewood sales – producer price • Other self-employment – seller price • Petty trade – daily earnings
Expenditure		• Maize – consumer price • Rice – consumer price • Cooking oil – consumer price

CD08 Livelihood Zone

Reference Year: February 2022–January 2023

North Tanganyika Midland Agriculture Livelihood Zone

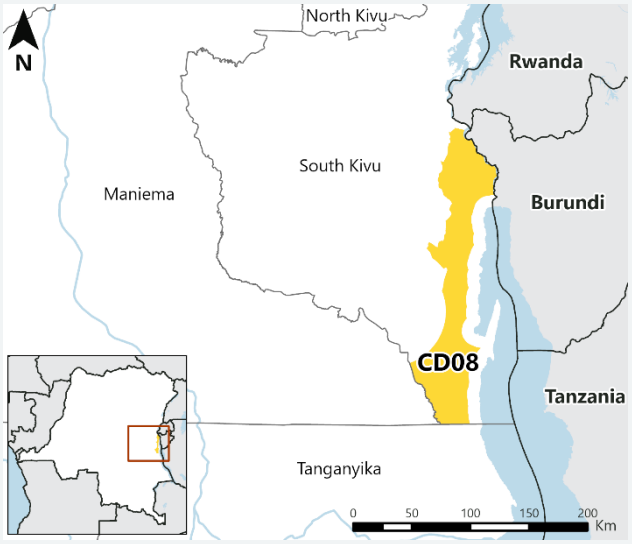


Figure 1. CD08 Livelihood Zone

Summary: The *North Tanganyika Midland Agriculture Livelihood Zone* (CD08) is a midland agricultural area covering the southeastern part of the Democratic Republic of the Congo (DRC). Rainfall levels in this zone are moderate, ranging from 680 to 2,000 millimeters (mm) per year. Crop and livestock production are the main livelihoods, supplemented by labor and trade activities. Fishing happens along the shores of Lake Tanganyika, but it is only practiced by a some households close to the lake. The zone is a food surplus zone, with moderate to high agricultural capacity. Households' own crop production is complemented by market purchases. However, the security situation in the zone limits access to markets.

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Zone Description

The *North Tanganyika Midland Agriculture Livelihood Zone* (CD08)[1] is in the province of South Kivu in the eastern part of the DRC. It covers the territories of Uvira and Fizi. The livelihood zone marks most of the border of the DRC with Burundi to the east. It is dominated by a tropical climate, with a rainfall level that ranges from 680 mm to 2000 mm per year.[2] The Rainy Season runs from September to May, but the growing seasons are split into two seasons, with the first running from September to February and the second from February to July. Average temperatures range between 18°C in July and 25°C in October. The topography of the zone is dominated by mountainous terrain (including the Mitumba mountains), with the shoreline of Lake Tanganyika to the east. Several key rivers flow through the zone, including the Ruzizi, Kanyabululu, Magunga, Rwanzobe, Magunga, Sange, and Ruvungi. The Itombwe National Reserve borders this zone to the northwest.

The vegetation found in the zone is a mixture of marshes and agricultural land in the low-lying valleys; bamboo, stunted spruce trees, and mountain forests at middle elevation; and grassland and heather at the highest elevations. The zone has fertile, sandy-clay soils that support good potential for agricultural production. The area is rich in methane gas, thermal waters, as well as mineral resources, including tin, wolframite, monazite, diamonds, gold, columbite tantalite (coltan), limestone, and cassiterite. These resources are mainly exploited on an artisanal basis by a few households. The zone also has red wood that is exploited.

Livelihoods in CD08 are mainly based on crop production, livestock production, labor, and trade. Crop production is mainly rainfed, and the main crops are cassava, maize, beans, groundnuts, and rice. Maize, beans, groundnuts, and rice are grown in two seasons. Some flood irrigation is used for rice cultivation by middle and better-off households. Land preparation is done traditionally, using rudimentary tools, techniques, and local inputs. Households keep pigs, cattle, goats, and poultry. Livestock freely graze on savannah grasslands and bushes in the Ruzizi Plain and consume post-harvest crop residues. Other livelihood activities include trade and handicrafts. Labor is mainly agricultural, with poor household members working for middle and better-off households for food and cash. Other types of labor performed in the zone are construction and various domestic activities.

The RN5 and RP527 roads run through the livelihood zone and along the lake, providing the main roadway network. The population is concentrated along these roads, with a density of 104 people per square kilometer; the total population of CD08 is 1,404,658.[3] The roads connect the zone to the markets in Uvira, Baraka, and Bukavu within the DRC and to Bujumbura in Burundi. The zone is also connected to Tanzania by the lake. The main commercial activity supported by the accessibility of

[1] Fieldwork for the current profile was undertaken from March 22 to April 23, 2024. The information presented in this profile refers to the reference year, which was the consumption year that covered the period February 2022 to January 2023. Provided there are no fundamental and rapid shifts in the economy, the information in this profile is expected to remain valid for approximately five to 10 years (i.e., until 2028-2033). All prices referred to in the document are for the reference year.
[2] Fisheries and Livestock Annual Report 2023 Uvira and 2022 Fizi.
[3] FEWS NET Data Explorer, population data (2023), accessed 2025, https://fdw.fews.net/data-explorer/.

the road network is petty trade, which is dominated by wealthier households who have the capital to invest.

CD08 experiences several hazards that affect its economy and livelihoods. The main hazards include floods, drought, conflict/insecurity, livestock diseases, and increased food and non-food prices. Drought occurs in about one out of every three years. Conflict/insecurity occurs almost every year, including armed conflict that disrupts trade and agriculture activities, leading to higher food prices and fluctuations in livestock prices. Livestock diseases include anthrax and dermatosis affecting cattle and *pasteurellosis* affecting cattle and goats. These illnesses are controlled either by vaccination or treatment offered by the government and humanitarian organizations. Other risks include human disease outbreaks, especially malaria. The burning of vegetation in the process of making charcoal and baking of bricks degrades biodiversity.

In terms of service provision, households from all wealth groups obtain water for drinking and other uses for free from manually drilled wells, boreholes, rivers, and springs. Households also pay monthly for access to public taps. In terms of sanitation, most households use hand-dug traditional pit latrines, while a few use the bush. Primary healthcare is accessed through community health centers, especially by poorer households, who also use traditional medicine. Wealthier households mainly use referral health centers and hospitals. For lighting, most poorer households use battery-operated flashlights, while wealthier households mostly use solar panels and solar flashlights. Mobile phone service and use is widespread and includes access to the internet, although some poorer households do not own phones. For education, poorer households usually send their children through primary school; better-off households can send their children through college but many stop at secondary school. There is limited access to credit, but households have access to either informal loans from savings groups or formal credit through microfinance companies and lending cooperatives.

The area is subject to numerous constraints, the most important of which are insecurity, disease, flooding, and poor service delivery. These constraints have dramatic socioeconomic consequences for the population, including death, displacement, loss of livelihood, reduced agricultural production, food insecurity, malnutrition, and poverty.

Markets

This zone has poor market access due to bad road conditions and long distances to remote villages that are far from main urban centers, main link roads, and markets. In this zone, transportation infrastructure is limited to the main highways (RN5 and RP527) that link Uvira, Bukavu, and Bujumbura. Much of CD08, like most parts of eastern DRC, is served by rural trails and tracks on sand, which are difficult to use, particularly during the Rainy Season.

Households living in the *North Tanganyika Midland Agriculture Livelihood Zone* have strong commercial and social ties with Burundi and Tanzania. Trade with Burundi is by road year-round,

while trade with Tanzania is by boat across the lake and then by road. Markets play a very important role in access to food and household income. Thus, the market is a key determinant of household livelihoods and food security.

Cassava, beans, groundnuts, rice, and maize are traded locally and in the main towns and cities. The main markets, where crops from the zone are purchased are Uvira, Fizi, and Baraka towns inside the zone and Bukavu city outside zone. Cattle, pigs, and goats are the main types of livestock sold by households year-round in CD08. Livestock trade traditionally consists of transporting live animals to market centers, either for local consumption or for further trade to Bukavu. However, with insecurity, mobility is periodically limited, which affects normal trade routes.

Very poor and poor households purchase staple foods when their own crops run out. The main food items purchased include cassava, maize, rice, beans, groundnuts, sugar, and cooking oil. Several markets supply the zone with cassava and maize, which are mainly imported from Burundi and Tanzania (Kigoma) and transported through major markets such as Uvira, Baraka, Fizi, and Bukavu. Maize is the main foodstuff imported into the area. Some of the cassava produced in the Baraka area is sold to Uvira and Bukavu. Rice and cooking oil are also imported into the zone through the same major towns.

Casual labor is mostly carried out within the livelihood zone. Approximately 80% of casual labor is undertaken within the local rural area and around 15% in towns within the zone. Around 5% of labor is sold outside the zone to other parts of the country, including Kalemie, Mwenga, Maniema, and Shabunda. Migration is a seasonal occurrence, especially during difficult periods, and is done by men. Migration happens in two time periods: from June to August and from October to December.

Timeline and Reference Year

The baseline assessment refers to a very specific period called the “reference year.” In CD08, the reference year covers the consumption period from February 2022 to January 2023. During community leader interviews, data collectors asked informants to score the last five years in terms of seasonal performance with “1” indicating a poor season and “5” indicating an excellent season. Table 1 summarizes the response of the community leaders.

As in many areas of eastern DRC, most years have seen insecurity since the outbreak of armed conflict in 2012. In periods of heightened insecurity, livelihoods are disrupted due to displacement, limited access to markets, and reduced agricultural production, all of which lead to food insecurity.

Despite these issues, key informants ranked most of the seasons between 2019 and 2023, including the reference period, as “3” (average) in terms of household food security except for 2020, which was ranked as “2” (below average) because of drought coupled with insecurity and the impact of COVID-19. Informants ranked the reference year (shown as 2022 in Table 1) as slightly above average for the main agricultural production activities; food prices moved within the normal range, and trade activity continued as normal despite insecurity in the zone.

Table 1. Timeline

Production Year	Score	Critical Events
2023	3	Insecurity, good and heavy rains, normal crop and livestock production.
2022	3	Insecurity, stormy rains, crop pests, flooding, normal crop and livestock production.
2021	2	Seed shortages, insecurity, drought.
2020	3	Insecurity, moderate rainfall, normal seasonal production.
2019	2	Insecurity, heavy rains, livestock and crop diseases, migration to urban centers.
2018	3	Insecurity, normal rains, good food production.

5 = Excellent season for household food security (e.g., due to good rains, good prices, good crop yields)
4 = Good season or above average season for household food security
3 = Average season for household food security
2 = Below-average season for household food security
1 = Poor season for household food security (e.g., due to drought, flooding, livestock disease, pest attack)

Seasonal Calendar for Reference Year

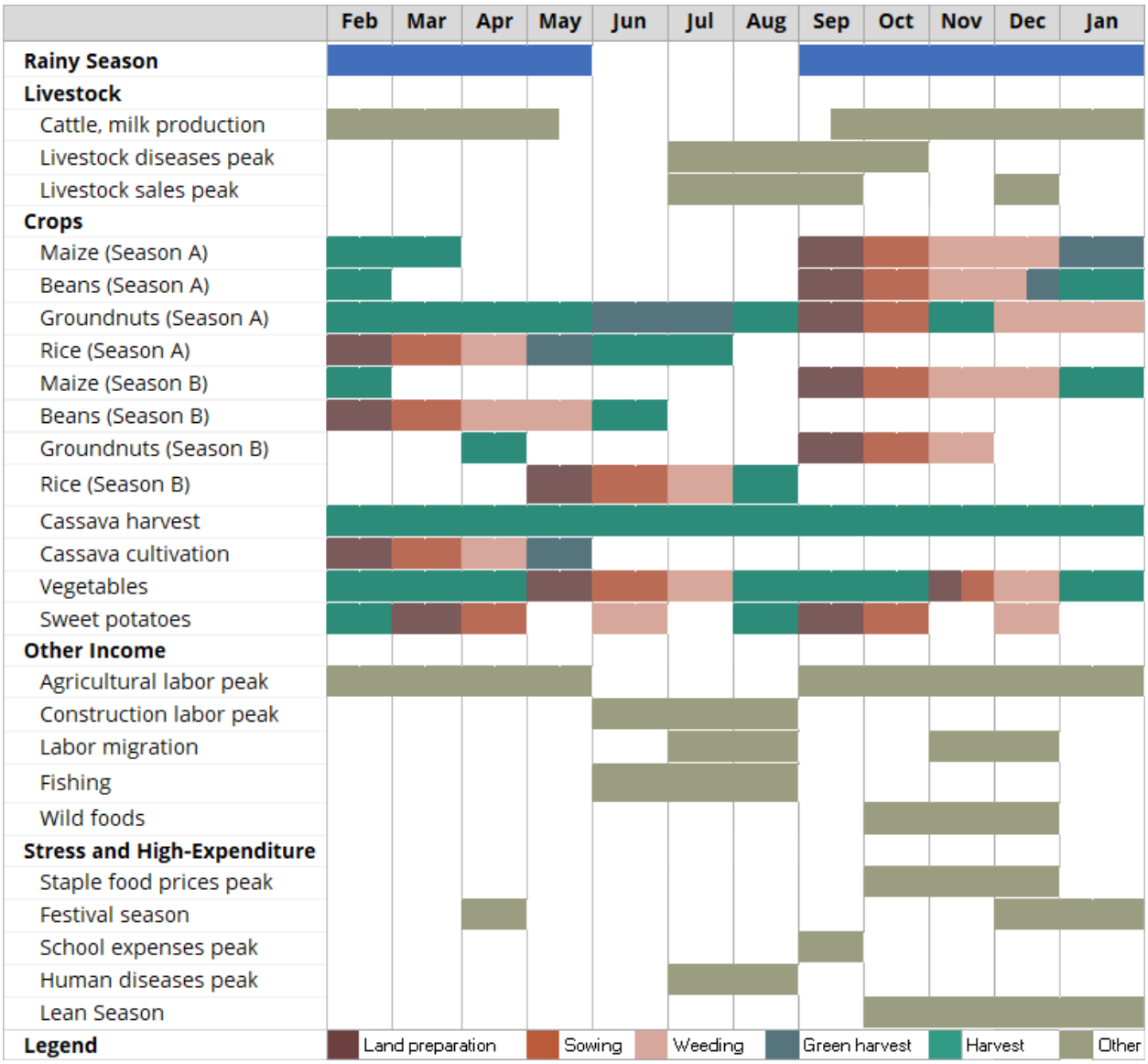
The seasonal calendar (Figure 2) illustrates the main economic activities and events of the reference year. It outlines the rainy months, agricultural activities, non-agricultural activities, and food purchasing periods.

The agricultural economy revolves around one long Rainy Season, which is split into two parts: the first Rainy Season from September to January (Season A) and the second Rainy Season from February to May (Season B). CD08 has one short Dry Season that coincides with the cold season between June and August. The main livelihood activity is crop production, which is spread throughout the year.

Crop production depends on the outcome of the Rainy Season and the capacity of households to invest in irrigation. The main season (Season A) commences with preparing land at the start of the Rainy Season in September and with harvesting in February (which is the start of the consumption year). The second season (Season B) starts at the same time as the Season A harvest, in February, and Season B crops are harvested in June. Cassava is harvested throughout the year, and planting is typically done in September and October. Agriculture-related activities peak during the planting, weeding, and harvesting periods for Seasons A and B. Households plant maize, groundnuts, and beans in October and March. The first maize harvest takes place in January/February and the second in June/July. Sweet potatoes and vegetables are harvested in February and August.

Whether households keep livestock also depends on the outcome of the Rainy Season. During the Rainy Season, surface water and pasture availability for livestock production improves, thereby increasing reproduction and productivity. Livestock conceptions mostly occur after the rains have started and mature females have access to better nutrition. Gestation periods are 9 months for cattle and 5-6 months for goats. Cattle are milked in the Rainy Season. Notwithstanding peak production during the rains, there is some milk production throughout the year. Livestock are sold throughout the year with peak periods in the Dry Season and festival periods. Livestock diseases can occur at any time of the year. However, the peak period is from July to October. During this period, there is increased expenditure on livestock drugs.

Figure 2. Seasonal Calendar



The Lean Season occurs from October to January. It is characterized by low stocks and high prices for staple foods. During these months, very poor and poor households have difficulty accessing food due to high prices and limited incomes.

Table 2 shows the typical division of labor. Men and boys are responsible for most livestock production activities, trade/small business, and labor/self-employment activities. Women are mostly responsible for domestic work, including cooking, taking care of children, laundry, and petty trade. Agriculture-related tasks like preparing land, planting, weeding, and harvesting are shared responsibilities by both men and women household members.

Table 2. Typical Division of Labor

Shared Tasks	Women's Tasks	Men's Tasks
• Crop planting, weeding, harvesting, sales • Paid agricultural labor • Petty trade • Firewood/charcoal sales	• Milk sales • Cooking meals • Domestic water collection • Washing clothes • Domestic firewood collection • Domestic labor	• Crop land preparation, irrigation, threshing • Livestock watering, herding, slaughter, care, sales and tradeConstruction labor • Fishing • Sand and stone harvesting and sales

Wealth Breakdown and Productive Assets

Table 3 summarizes the types and numbers of productive assets that typical households within each wealth group own and/or manage. Asset holdings are shown in a range that reflects the diversity of household situations within a wealth group. Figure 3 shows the percentage of households within the zone that fall in each wealth group. The communities themselves carried out the wealth breakdown of households in the zone.

Land ownership is the most important determinant of wealth in CD08. Other wealth determinants include the number and types of livestock owned (especially cattle) and the availability of household labor to engage in a variety of strategies. Cultivation is common in the livelihood zone and practiced by all wealth groups. There is a progressive increase in land area cultivated with wealth. Overall, better-off households cultivate twice the land area cultivated by very poor households. Irrigation is common in the livelihood zone, practiced by the middle and better-off wealth groups. Overall, better-off households irrigate one to two times the area irrigated by middle households. In addition to cultivating their own land, very poor and poor households rent supplemental land for cultivation from better-off households. The middle and better-off wealth groups produce a surplus of crops for sale. The very poor and poor wealth groups produce less staple food than they need and must purchase food in the pre-harvest Lean Season. There is no production of cash crops in the livelihood zone.

Table 3. Wealth Breakdown

Household Size and Productive Assets	Very poor	Poor	Middle	Better-off	Poor Female-Headed
Household size	7-9	7-9	7-9	7-9	6-8
Land (hectares [ha])	0.25-0.75	0.5-1	1-3	3-5	0.25-0.75
Land cultivated (ha)	0.5-1	0.5-1.5	1-3	2-4	0.5-1
Pigs	0	0-2	2-4	2-6	0
Cattle	0	0	0-4	5-10	0
Goats	0-2	1-2	2-8	5-15	0-2
Poultry	0-5	0-5	5-15	5-15	2-6
Motorbikes	0	0	0-1	0-1	0
Grinding mills	0	0	1	1	0
Generators	0	0-2	1-2	1-2	0
Solar panels	0	0	0-2	1-2	0
Telephones	0	0	1	1	0

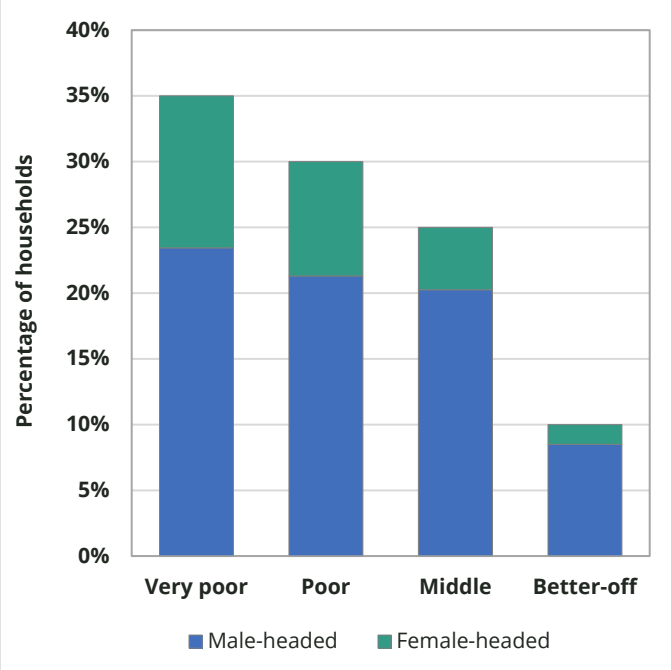
The ability to hire additional labor to complement household labor is the second most important determinant of wealth in CD08. Middle and better-off households hire additional laborers from the very poor and poor wealth groups for cultivating and harvesting labor. This work limits the amount of labor that very poor and poor households can devote to their own crop and livestock production.

Livestock ownership is the third most important determinant of wealth in the zone. The most important types of animals are cattle and pigs. Some rabbits are owned within the zone, but this is not common for any wealth group. Very poor and poor households own a few goats and poultry. Cattle are owned by the middle and better-off wealth groups. Overall, better-off households own close to four times the number of cattle owned by middle households. Pigs are owned by the poor, middle, and better-off wealth groups. For these groups, the number of pigs owned progressively increases with wealth.

All wealth groups sell live animals. Very poor households generate enough cash from live animal sales to purchase 0-5% of their minimum annual food needs compared to close to 85% for better-off households. Better-off households also sell milk, generating enough cash to purchase 50-55% of their minimum annual food needs.

Figure 3. Wealth Breakdown

Note: All results are the mid-point of a range



All wealth groups undertake small businesses, the most important of which are petty trade and self-employment activities, such as livestock trading, fodder sales, and transportation.

Female-headed households make up a portion of all wealth groups, with the highest percentage found in the very poor wealth group (see Figure 3).

Household size is similar across wealth groups (7-9 people) except for poor female-headed households, who typically have 6-8 people. The proportion of households in the community is as follows: very poor households 35-50%, poor households 25-35%, middle households 15-20%, and better-off households 5-15%.

Sources of Food

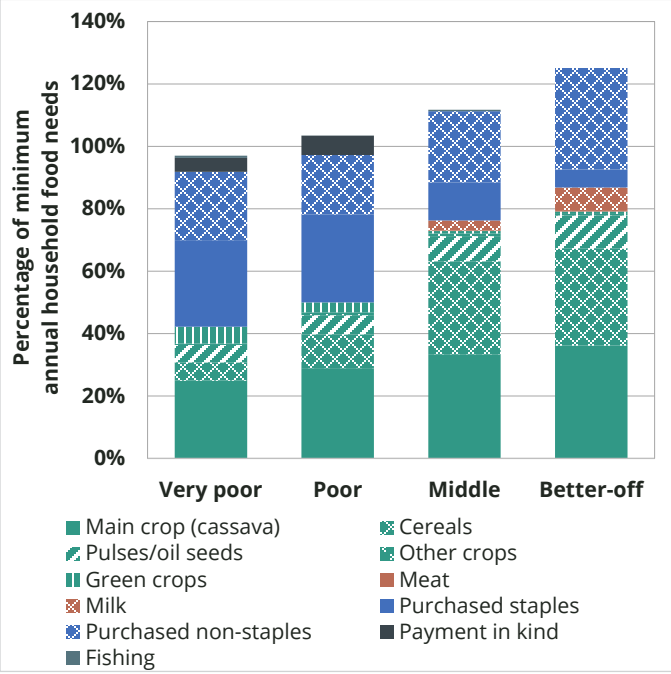
Figure 4 presents the sources of food for households in each wealth group in CD08 for the period from February 2022 to January 2023. February represents the start of the consumption year because it is when the main harvest begins, thereby marking the end of the Lean Season. Food is presented as a percentage of the annual kilocalorie (kcal) needs of the household, based on the internationally accepted 2,100 kcal per person per day for the 12-month period.

Total food consumption progressively increased with wealth in the reference year. Overall, very poor households consumed 95-100% of minimum annual food needs, and better-off households 120-130%.

There were two main sources and four minor sources of food in the reference year. The main sources were households' own crop production and market purchase. The four minor sources were payments in-kind, households' own milk, households' own meat, and wild foods.

Crop production was the most important source of food in the livelihood zone and took place over two seasons. Middle and better-off households grew almost enough crops to cover their minimum consumption needs. Overall, very poor households consumed 35-40% of minimum annual food needs from their own crops, and better-off households 80-90%. The most important crops grown for households' own consumption were cassava, maize, beans, groundnuts, and rice.

Figure 4. Sources of Food



Market purchases, including staple and non-staple foods, were the second most important source of food in the livelihood zone. The most important staple foods were maize flour, cassava flour, oil, and sugar. The most important non-staple foods were beans, rice, groundnuts, and fish. Poor households purchased approximately half of their minimum annual food needs compared to 30% for better-off roughly households.

Minor food sources included payments in-kind to members of very poor and poor households and consumption of households' own milk by middle and better-off households. Very poor and poor households received payments in-kind that contributed to about 5% of their minimum annual food needs. Middle households consumed roughly 5% of minimum annual food needs from their own milk production, and better-off households 5-10%.

Sources of Cash Income

Agriculture, trade, and labor are the main livelihood activities in the *North Tanganyika Midland Agriculture Livelihood Zone*. However, the primary means of obtaining cash income in this zone varies by wealth group (see Figure 5).

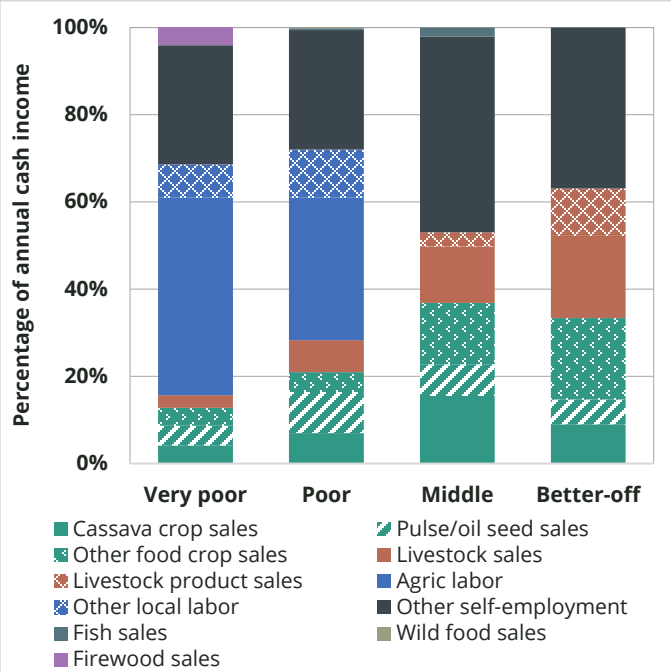
In relation to income profile, the wealth groups fall into two groups. The very poor and poor wealth groups have a similar income profile, with wage labor, small businesses, and crop sales as the top three sources of cash, supplemented by firewood/charcoal sales. The middle and better-off wealth groups also have a similar income profile, with crop sales, small businesses, and livestock sales as the top three sources of cash.

Wage labor was the most important source of cash for very poor and poor households in the reference year, generating 50-55% of total cash income for very poor households and roughly 40-50% for poor households. The main types of labor were cultivating, harvesting, and construction.

Self-employment was the second most important source of cash for very poor and better-off households and mainly included trading activities. It generated roughly 25-30% of total cash income for very poor households, 40-50% for middle households, and 35-40% for better-off households. The main types of trade included livestock trade (typically done by men) and the sale of non-food

grocery items (typically done by women). Other trade activities included the sale of fish, beer, and cooked food.

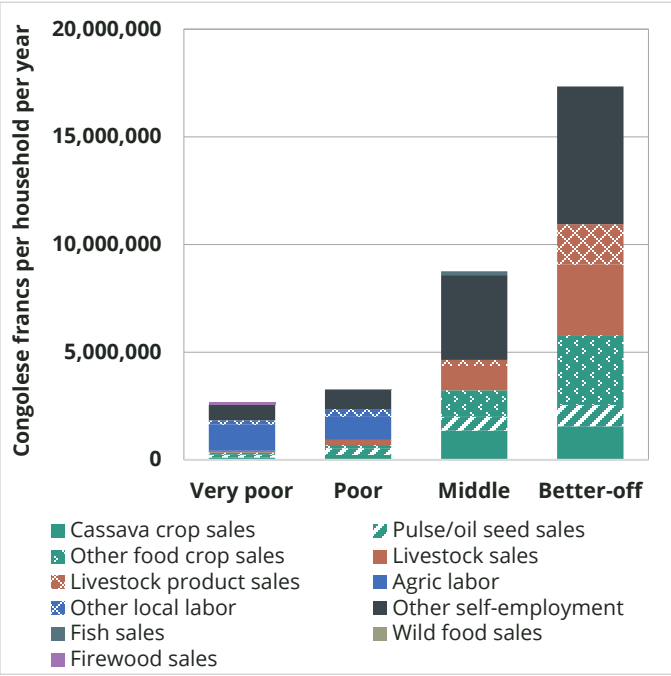
Figure 5. Sources of Cash Income as a Percentage of Annual Cash Income



Crop sales were the third most important source of cash for very poor households, and the most important for better-off households. Crop sales generated 10-20% of total cash income for very poor and poor households and 30-40% for middle and better-off households. The main food crops sold were cassava, maize, beans, groundnuts, rice, and sweet potatoes.

Livestock sales were an income source for all wealth groups. They generated less than 5% of total cash income for very poor households and almost 20% for better-off households. The main livestock types sold were cattle, goats, and pigs.

Figure 6. Total Annual Cash Income



There was a large difference in wealth between very poor and better-off households. In the reference year, better-off households earned almost seven times more than very poor households and more than five times more than poor households. This gap is illustrated in Figure 6 and Table 4. There was an increase in annual per capita cash income with increasing wealth.

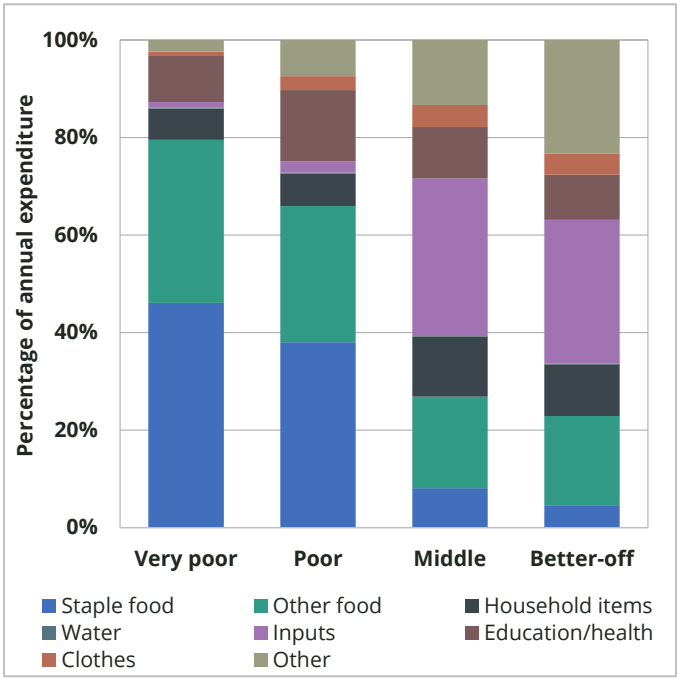
Table 4. Income Summary Table (Congolese Francs or CDF)

Wealth Group	Very Poor	Poor	Middle	Better-Off
Annual income per household[4]	2,500,000–3,000,000	3,000,000–3,500,000	8,000,000–10,000,000	15,000,000–20,000,000

Expenditure Patterns

Figure 7 presents expenditure patterns for the reference year from February 2022 to January 2023. While absolute expenditure increased with wealth in line with total cash income, this graph's expenditure breakdown by percentage shows the *relative* amount of income spent on different categories.

Figure 7. Total Annual Cash Expenditure According to Category



Households in the zone covered a range of essential expenditures over the year. These included staple foods, non-staple foods, household items/services (like salt, soap, tea, lighting, milling services, etc.), productive inputs, social services (which include health and education), clothing, as well as other essential and non-essential items.

Very poor and poor households had similar expenditure patterns, with staple foods, non-staple foods, and health/school the top three expenditure items. Middle and better-off households also had a similar pattern, with inputs, other non-essential items, and non-staple foods the top three expenditure items.

Staple foods accounted for the largest share of total expenditures for very poor households. As wealth increased, the proportion of expenditure on staple foods decreased, from 40-50% among very poor households to less than 10% by better-off households. The main staple foods purchased were maize flour, cassava flour, and other cereals. Non-staple foods accounted for the second largest share of total expenditure for very poor households and the third most important for better-off households. As wealth increased, there was a progressive decrease in the share of total expenditure on non-staple foods, from 30-35% for very poor households to 15-20% for better-off

[4] The average exchange rate from February 2022 to January 2023 ranged 1 USD = 2,200-2,500 CDF.

households. The main non-staple foods purchased were vegetable oil, sugar, beans, groundnuts, and fish.

Health and education accounted for the third largest share of total expenditure for poorer households, roughly 10% by very poor households and roughly 15% by poor households.

As wealth increased, there was a progressive increase in the proportion of total expenditure on productive inputs. Inputs accounted for less than 5% of total expenditure for poorer households and 25-35% for better-off households. The main items in this category included labor, livestock, livestock medicines, and seeds.

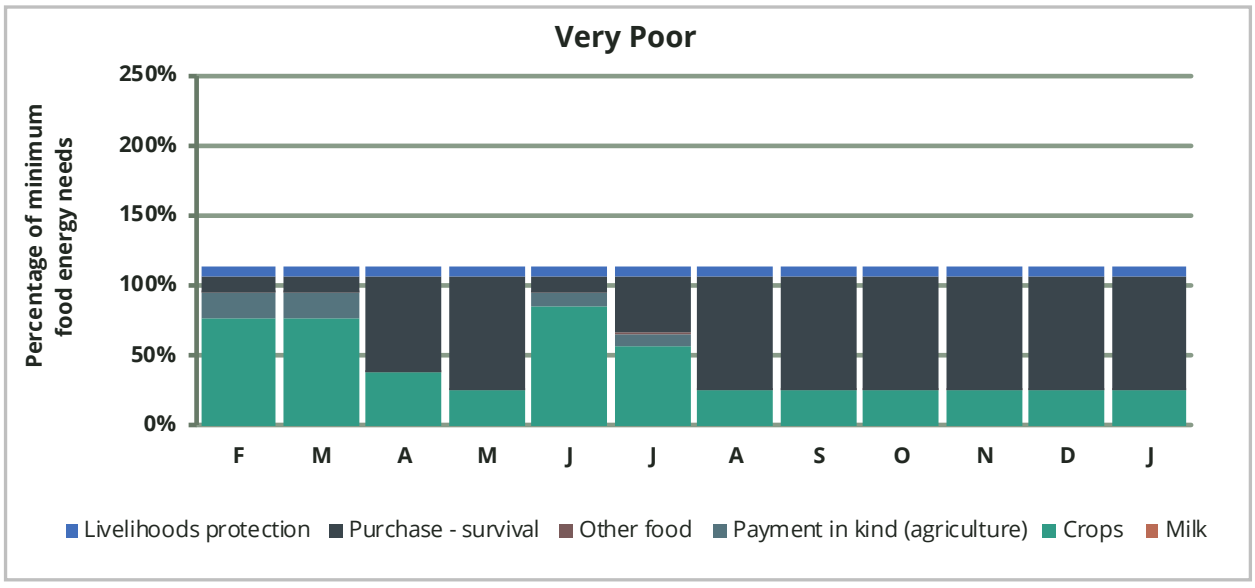
Other non-essential items accounted for the second largest share of total expenditure for better-off households. As wealth increased, there was a progressive increase in the share of total expenditure on non-essential items, accounting for less than 5% by very poor households and 20-25% by better-off households. This category included expenditure on festivals, phone credit, and transportation.

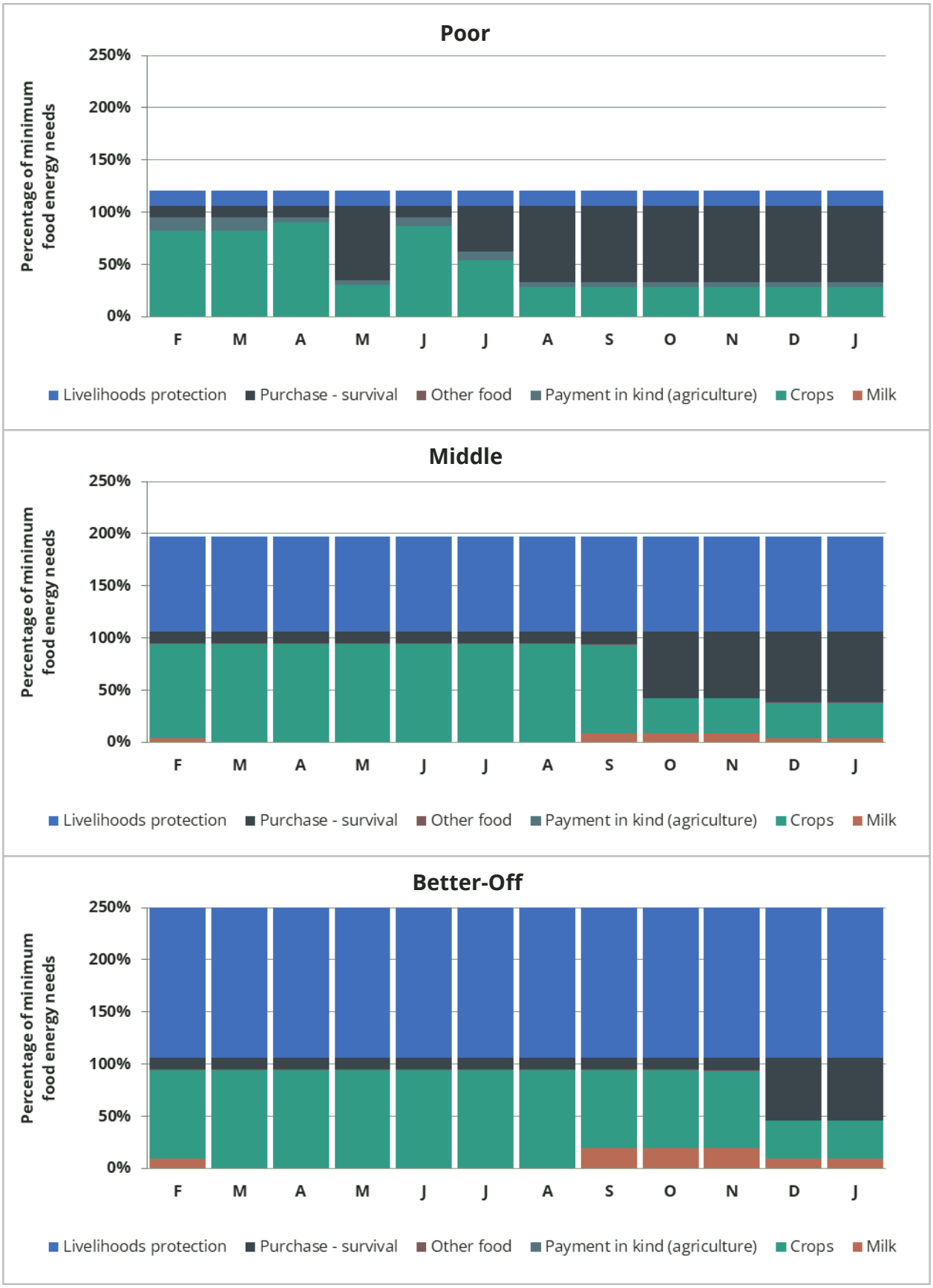
Food Access Calendars

Figure 8 presents monthly food and cash access calendars for the four wealth groups.

Households in all wealth groups were able to meet their survival and livelihoods protection thresholds year-round in the reference year. The Season A harvest started in February, and the Season B harvest started in June, although cassava was available throughout the year. Very poor and poor households obtained some food from payments in-kind for casual agricultural labor in the main harvest periods. Food purchases were very important for poorer households and less important for wealthier households. Middle and better off households obtained a small amount of food from cow milk.

Figure 8. Seasonal Food and Cash Access Calendars per Wealth Group




Poor
Percentage of minimum food energy needs
250%
200%
150%
100%
50%
0%
F M A M J J A S O N D J
Livelihoods protection
Purchase - survival
Other food
Payment in kind (agriculture)
Crops
Milk
Middle
Percentage of minimum food energy needs
250%
200%
150%
100%
50%
0%
F M A M J J A S O N D J
Livelihoods protection
Purchase - survival
Other food
Payment in kind (agriculture)
Crops
Milk
Better-Off
Percentage of minimum food energy needs
250%
200%
150%
100%
50%
0%
F M A M J J A S O N D J
Livelihoods protection
Purchase - survival
Other food
Payment in kind (agriculture)
Crops
Milk

Poor Female-Headed Households

In CD08, there are female-headed households across all wealth groups, as highlighted in the wealth breakdown (Figure 3). During fieldwork, data collectors conducted in-depth interviews with female-headed households from the poor wealth group. These households share similar constraints and characteristics with male-headed households within the same wealth group. However, the lack of adult male labor further exacerbates their challenges, particularly in terms of asset ownership, engaging in productive work, or participating in income-generating activities. Despite these challenges, women in this livelihood zone possess the legal rights to inherit and own land, and acquire cattle, goats, and sheep through purchase, inheritance, or gifts.

The analysis of poor male-headed and poor female-headed households in Figure 9 reveals that these two groups share a similar pattern of food access. These two groups relied on similar staple crops, with negligible differences in their consumption of cassava and purchased staples. Poor female-headed households exhibited a slightly greater consumption of pulses and oil seeds. On the other hand, poor male-headed households consumed fish, which is absent in poor female-headed households. Neither group consumed milk nor meat, and neither receives aid relief, gifts, or school feeding.

Figure 9. Sources of Food: Poor Households vs Poor Female-Headed Households

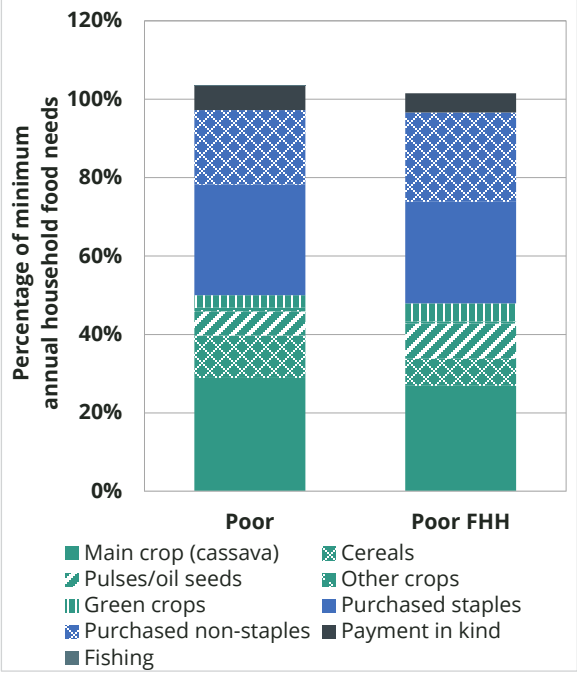
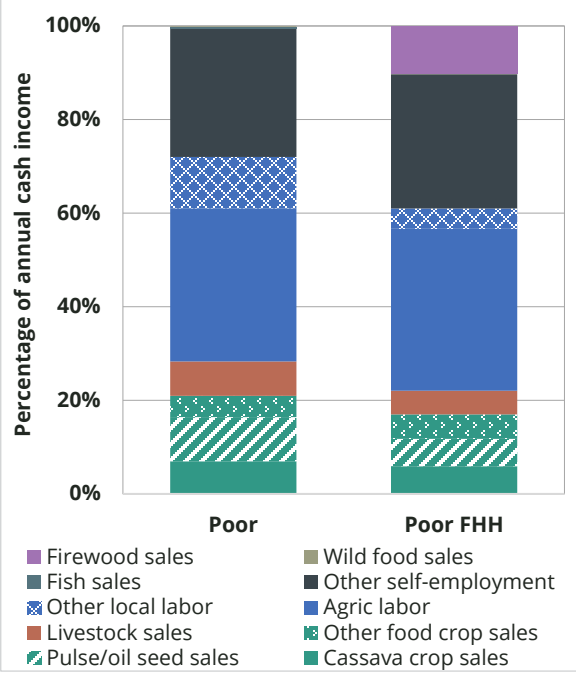


Figure 10. Sources of Cash: Poor Households vs Poor Female-Headed Households



In the reference year, poor male-headed and poor female-headed households met their annual minimum food energy needs from similar food sources, mainly market purchases and crop production. The poor male-headed households cultivated slightly more land than the poor female-

headed households and thus harvested slightly more and obtained slightly more calories from crop production than the poor female-headed households.

The income picture shown in Figure 10 shows that poor male-headed households and poor female-headed households had similar patterns of sources of cash income in the reference year, except for firewood sales, which were only done by poor female-headed households, and fish sales, which were only done by poor male headed households. Despite having similar sources of cash income, poor female-headed households earned 10-50% less than the poor male-headed households.

Poor female-headed households earned less income from crop and livestock sales than poor male-headed households. Poor male-headed households had more income from agricultural labor since they had more adult males to work, as well as more income from petty trade. Households in neither wealth group received income from remittances, labor migration, or gifts.

Response Strategies

In response to hazards and years with lean production, households attempt to meet their minimum food needs and cash requirements through several strategies. Some responses vary by wealth group, while others are similar across wealth groups. Below are some common strategies employed by households.

Households from all wealth groups try to reduce expenditure on non-essential or more expensive items first, such as cutting down on festival costs or not buying clothes or utensils that year. Households consume less rice and in favor of maize and cassava, which are the least expensive staples.

Very Poor and Poor Households

Very poor and poor households try to increase cash income by intensifying casual labor activities to earn more cash. However, in lean years, as additional workers join the labor market, this option quickly loses its value because wage rates drop and jobs are harder to find. Poorer households also intensify self-employment activities, such as the sale of firewood and charcoal, in lean years. They also seek social support from family and/or wealthier households. Poorer households may also turn to debt/credit.

Middle and Better-Off Households

Middle and better-off households sell additional livestock to cover basic food and non-food expenses in lean years and to destock when the local environment cannot support all the livestock. They also increase self-employment activities, like trade.

Key Parameters for Monitoring

The key parameters listed in Table 5 are food and income sources that contribute substantially to the household economy in the *North Tanganyika Midland Agriculture Livelihood Zone*. These should be monitored to indicate potential losses or gains to local household economies, either through ongoing monitoring systems or through periodic assessments.

Table 5. Key Parameters for Monitoring

Item	Key Parameter – Quantity	Key Parameter – Price
Crop Production	• Cassava – harvest quantity • Maize – Season A – harvest quantity • Maize – Season B – harvest quantity • Beans – Season B – harvest quantity • Groundnuts – Season A – harvest quantity • Groundnuts – Season B – harvest quantity • Rice – harvest quantity	• Cassava – producer price • Maize – Season A – producer price • Maize – Season B – producer price • Beans – Season B – producer price • Groundnuts – Season A – producer price • Groundnuts – Season B – producer price • Rice – producer price
Livestock production	• Pigs – herd size • Cattle – herd size • Goats – herd size • Cow milk – Season 1 – yield per animal • Cow milk – Season 2 – yield per animal	• Pigs – producer price • Cattle – producer price • Goats – producer price • Cow milk – Season 1 producer price
Other food and cash income	• Cultivation labor – number of days • Domestic labor – number of days • Harvest labor – number of days • Livestock trade (or other) – number of animals • Self-employment (fodder and transportation) – number of days • Petty trade/trade – number of days	• Cultivation labor – wage rates • Domestic labor – wage rates • Harvest labor – wage rates • Livestock trade (or other) – market price • Self-employment (fodder and transportation) – amount earned per day • Petty trade/trade – amount earned per day
Expenditure		• Cassava – consumer price • Rice – consumer price

CD09 Livelihood Zone

Reference Year: December 2022–November 2023

Eastern Highlands Mixed Farming Livelihood Zone

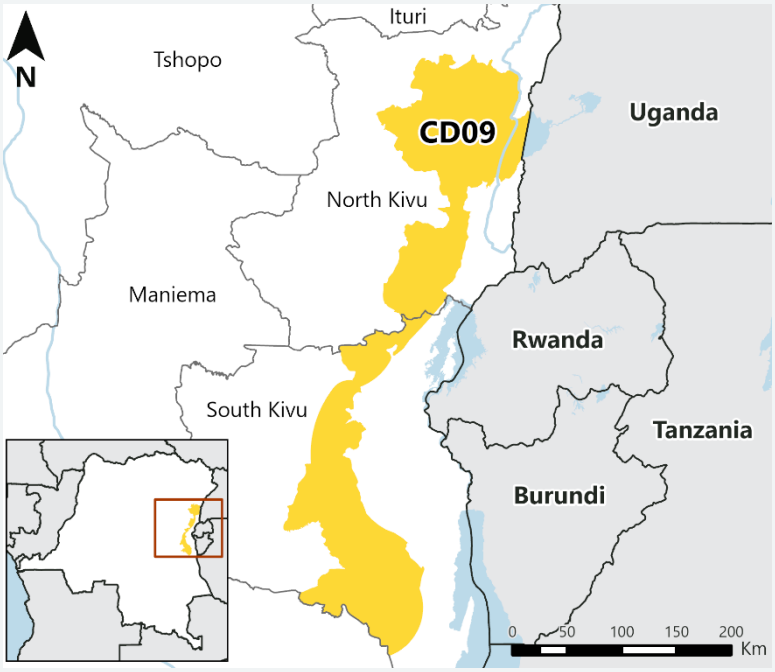


Figure 1. CD09 Livelihood Zone Map

Summary: The *Eastern Highlands Mixed Farming Livelihood Zone* (CD09), located in eastern Democratic Republic of the Congo (DRC), is a high-lying livelihood zone with a predominantly agricultural economy. It spans most of the eastern highlands of North Kivu and South Kivu Provinces. The climate is tropical humid but cold, with average temperatures often below 20°C. Average annual rainfall is high, between 1,300 and 1,600 millimeters (mm) and more in certain areas. Most people in this densely populated zone live between 1,500 and 2,000 meters (m) in elevation, particularly along the main road. The highest mountain peaks are at over 3,000 m elevation. Important income-generating activities include crop and livestock production (largely excluding cattle), small-scale trade, and casual labor. The zone stands out for its palm oil and cassava production. It features moderately fertile soils, although cultivation techniques and climate conditions limit productivity.

FEWS NET is a United States Government-funded activity. The content of this document does not necessarily reflect the view of the United States Government.

Zone Description

The *Eastern Highlands Mixed Farming Livelihood Zone* (CD09)[1] is a rural livelihood zone characterized by a predominantly agricultural economy. Stretching from the north of North Kivu to the south of South Kivu, the zone rises above the forest of the neighboring *Forest Cultivation and Collected Products Livelihood Zone* (CD12) for almost its entire western border. At its far northeastern point, it skirts Lake Edward. At its far southeastern point, it lies somewhat inland on the northern shore of Lake Tanganyika, buffered by the middle-elevation *North Tanganyika Midland Agriculture Livelihood Zone* (CD08). The territories of the *Eastern Highlands Mixed Farming Livelihood Zone* (CD09) are Lubero, Masisi, Mwenga, Kalehe, and Fizi.

The zone features a tropical agroecological climate with cool temperatures, especially in the highest elevations, where the Virunga and Mitumba volcanic mountains and Mount Kahuzi dominate the landscape. The zone's topography also includes high plains, valleys, and rivers, like Luhoho and Chinganda. The zone experiences a Rainy Season that lasts from September to April, with annual precipitation ranging from 1,350 mm to 1,800 mm per year and above 2000 mm at the highest elevations. Average temperatures are often below 20°C. The low-lying valleys feature marshes alongside cultivated land, while natural vegetation at middle altitudes includes bamboo, stunted spruce trees, and mountain forests; at the highest elevations (above 3500 m) there is grassland and heather. The intermediary forest, or the transition area between the valley floors and the mountain forests, covers the area from 1,000 to 1,750 m in elevation, and it is here where most of the zone's population lives, particularly along the main roads. The zone is bordered by national parks like Kahuzi Biega National Park and Itombwe Reserve. Timber from the intermediary forest is an essential natural resource that is exploited by some households, although the primary economic activities revolve around agriculture and livestock farming. The population density in the area is comparatively high at 182 people per square kilometer, with a total population of 5,938,619.[2]

The zone features fertile soils that promote high crop production and dense settlement, although current cultivation techniques and climate conditions moderate potential productivity. The main crops are cassava, beans, maize, groundnuts, plantains, rice, and palm oil. These crops are rainfed, with one to two harvests per year, depending on the crop. The perennial crops — plantains, bananas, and oil palms — have staggered harvest periods through the year. Cassava, by far the main staple crop, has a yearly growing cycle, but there is effectively a year-round harvest because of staggered planting and because mature tubers can stay in the ground for several months. Maize, rice, beans, and groundnuts have two cycles per year (see seasonal calendar in Figure 2 below).

All cultivation is manual, so preparing land, planting, weeding, and harvesting are all labor-intensive activities. Wealthier households hire labor for these tasks. Other than purchased seeds, no

[1] Fieldwork for the current profile was undertaken from July 21 to August 13, 2024. The information presented in this profile refers to the reference year, which was the consumption year that covered the period December 2022 to November 2023. Provided there are no fundamental and rapid shifts in the economy, the information in this profile is expected to remain valid for approximately five to 10 years (i.e., until 2029-2034). All prices referred to in the document are for the reference year.
[2] FEWS NET Data Explorer, population data (2023), accessed 2025, https://fdw.fews.net/data-explorer/.

agricultural inputs are typically used, whether chemical fertilizers or pesticides; storage of crops typically takes place within homes. Farmers' cooperatives are not prevalent in the area. The main constraints to agricultural production for households include lack of access to land, labor, and financial resources for inputs. Additionally, arrangements like sharecropping, land rentals, and work-group rotations (where a group of farmers works in turn on each member's land) are common methods for overcoming these challenges.

The types of livestock kept in the zone are goats, pigs, sheep, poultry, and guinea pigs. Up to a few years ago, wealthier households owned a substantial number of cattle. However, households lost these cattle due to wholesale theft during armed conflict in the region, and it is now rare to find a household that keeps cattle. Animals are typically fed through free-range grazing on grass, crop residues, and undergrowth, and no households rely on purchased livestock feed. Households source water for livestock from main rivers during the Rainy and Dry Seasons, and they do not pay for water use. Livestock sales peak in August, September, December, and January, aligning, respectively, with peak cash needs for seeds for agriculture, for fees and materials at the beginning of the school year, and preparing for the Christmas and New Year festivities. Livestock producers in the zone face constraints, like seasonal lack of pasture, insufficient crop residues, and shortage of money to buy new animals and for veterinary treatment. Wealthier and poorer households often engage in livestock-sharing arrangements, the latter typically borrowing productive animals, maintaining them, and keeping a portion of the offspring. This practice helps poorer households engage in livestock production.

In addition to agriculture and livestock farming, other important economic activities in the zone are small businesses, notably trade and the sale of firewood or charcoal. These activities occur within the zone and in nearby markets, like Bukavu city. Men, women, and older children are all involved in these year-round activities.

Additional income sources include paid work on pond construction, fish farms, local beer production, and handicrafts. Households can access credit through village savings and loan associations, with terms involving a contribution period of one to three months with a 10% interest rate.

CD09 experiences several recurring hazards that have a significant impact on agricultural production, livestock, and overall economic stability. The main hazards include heavy rains, crop diseases and pests, livestock diseases, conflict, and impassable agricultural feeder roads. Heavy rains occur approximately once every two years. These rains can lead to floods, damage to crops, and soil erosion, which disrupt agricultural activities and negatively impact crop yields. Crop diseases are also an annual challenge. Common diseases include wilt, bacterium, and mosaic, which affect key crops like cassava and maize. These diseases reduce food security and income for households that depend on crop sales. Livestock diseases are a persistent issue, occurring every year. The most common diseases include swine fever and bird flu, which affect pigs and poultry, respectively. These diseases reduce the productivity of livestock and limit income from animal sales.

At least one conflict tends to occur every few years. These conflicts often involve disputes over land, grazing areas, or other resources, leading to temporary disruptions in agricultural production and restricted access to markets. The poor condition of agricultural feeder roads is a recurring annual hazard. During the rainy season, these roads become impassable and limit the ability of farmers to transport their produce to markets. This issue not only reduces income but also contributes to post-harvest losses due to delayed market access.

In this zone, access to essential services varies between wealth groups. Households in all wealth groups rely on springs for drinking water. Water for other household uses, like laundry, comes from springs and rivers. There is no payment required for water access. Sanitation facilities vary slightly between the wealth groups. Poorer households often use simple latrines made from wood, straw, and thatch or resort to open-air defecation. In contrast, wealthier households have latrines constructed with adobe bricks, providing slightly better sanitation conditions. Primary healthcare is accessed through community health centers and traditional medicine for poorer households, while wealthier households can typically afford transportation and fees for hospital treatment for more advanced care. For lighting, poorer households use small flashlights and firewood, whereas wealthier households use flashlights and solar panels. Households in all wealth groups use firewood as the primary cooking fuel, while most of the charcoal produced is traded to towns. Poorer households typically do not have mobile phones, while wealthier households typically use mobile phones only for communication (not for data). Educational attainment differs significantly, with members of poorer households typically only attaining primary level education, whereas individuals from wealthier households have access to secondary, vocational, and tertiary education. For credit and savings, both poorer and wealthier households similarly participate in village savings and credit associations; wealthier households also invest in livestock as a form of savings.

Markets

Market access in this zone is notably poor due to challenging road infrastructure. The primarily dirt track roads are in poor condition and often impassable, especially during the Rainy Season, which makes access difficult. Additionally, the rocky mountain roads and the lack of well-maintained bridges further hinder transportation within the zone. This remoteness from urban centers significantly limits market access for local producers and traders.

Despite these challenges, trade occurs along established routes from Hombo through Kambegete, Bulambika, and Bitale, eventually reaching Bukavu on Lake Kivu, the main town and commercial hub for South Kivu Province.

The primary crops sold in these markets are cassava, beans, maize, bananas, and palm oil. Peak sales for these products vary, with cassava and bananas being most frequently sold in July and August (although harvesting continues through the year), while beans and maize peak in June and December. Palm oil is sold consistently from August to December. Goats, pigs, and poultry are also traded along the same route, with sales peaking in September and December. Other notable

products sold are timber wood, with peak sales in the Dry Season from June to August, and groundnuts sold primarily in June and December.

Households in CD09 also rely on local markets to purchase staple foods, mainly cassava and beans. As poorer households tend to run out of their own harvest stocks and depend increasingly on markets, food prices rise at the same time and peak during the run-up to the next harvest. In this period, better-off households that retained stocks release them to the market.

The casual labor market in the zone is primarily local, with 60% of the work occurring within the rural area and 30% in nearby towns, while 10% is work migration outside the zone. In lean years, men are more likely to migrate to places like Kamituga, Shabunda, and Walikale in search of work, particularly in farm labor. This migration typically occurs throughout the year, with no specific months tied to the movement, but it is more common during lean economic years.

Timeline and Reference Year

The baseline assessment refers to a very specific period called the “reference year.” In CD09, the reference year covers the consumption period from December 2022 to November 2023. During community leader interviews, FEWS NET asked informants to score the last five years in terms of seasonal performance with “1” indicating a poor season and “5” indicating an excellent season. Table 1 summarizes the response of the community leaders.

Table 1. Timeline

Production Year/Season	Score	Critical Events
2023/Season B	3	Normal climate conditions, with adequate grasses for livestock and no increase in livestock diseases reported.
2022-2023/Season A	3	Normal climate conditions, no notable crop or livestock pests or increased diseases reported.
2022/Season B	4	Favorable conditions for household food security, with no significant events or abnormalities affecting crops and livestock reported.
2021-2022/Season A	4	Favorable conditions for household food security, with no significant events or abnormalities affecting crops and livestock reported.
2021/Season B	2	Crop pests, climatic disruptions with significant rain failure. Households coped through the intensification of labor for poorer households, and the sale of livestock and property along with the intensification of petty trade for wealthier households.

2020-2021/Season A	2	Crop pests, climatic disruptions with significant rain failure. Households coped through the intensification of labor for poorer households, and the sale of livestock and property along with the intensification of petty trade for wealthier households.
2020/Season B	3	Normal climate conditions, with adequate grasses for livestock and no increase in livestock diseases reported.
2019-2020/Season A	3	Normal climate conditions, with adequate grasses for livestock and no increase in livestock diseases reported.
2019/Season B	3	Normal climate conditions, with adequate grasses for livestock and no increase in livestock diseases reported.
2018-2019/Season A	3	Normal climate conditions persisted, with adequate grasses for livestock and no increase in livestock diseases reported.

5 = an excellent season for household food security (e.g., due to good rains, good prices, good crop yields)
4 = a good season or above average season for household food security
3 = an average season for household food security
2 = a below average season for household food security
1 = a poor season for household food security (e.g., due to drought, flooding, livestock disease, pest attack)

The timeline for the zone from 2019 to 2023 shows a mix of stable and challenging periods, with the most difficult year being 2021, which was marked by climate disruptions and crop pests. Otherwise, moderate climatic conditions and stable economic factors supported agricultural and livestock production.

The reference year for agricultural production was considered average, with moderate climatic conditions, no significant crop pests or livestock diseases, and stable market prices. While there were no conflicts reported in CD09 in the reference year, the zone does experience some occasional, localized conflicts that primarily affect access to land and pastoral movements.

Seasonal Calendar for Reference Year

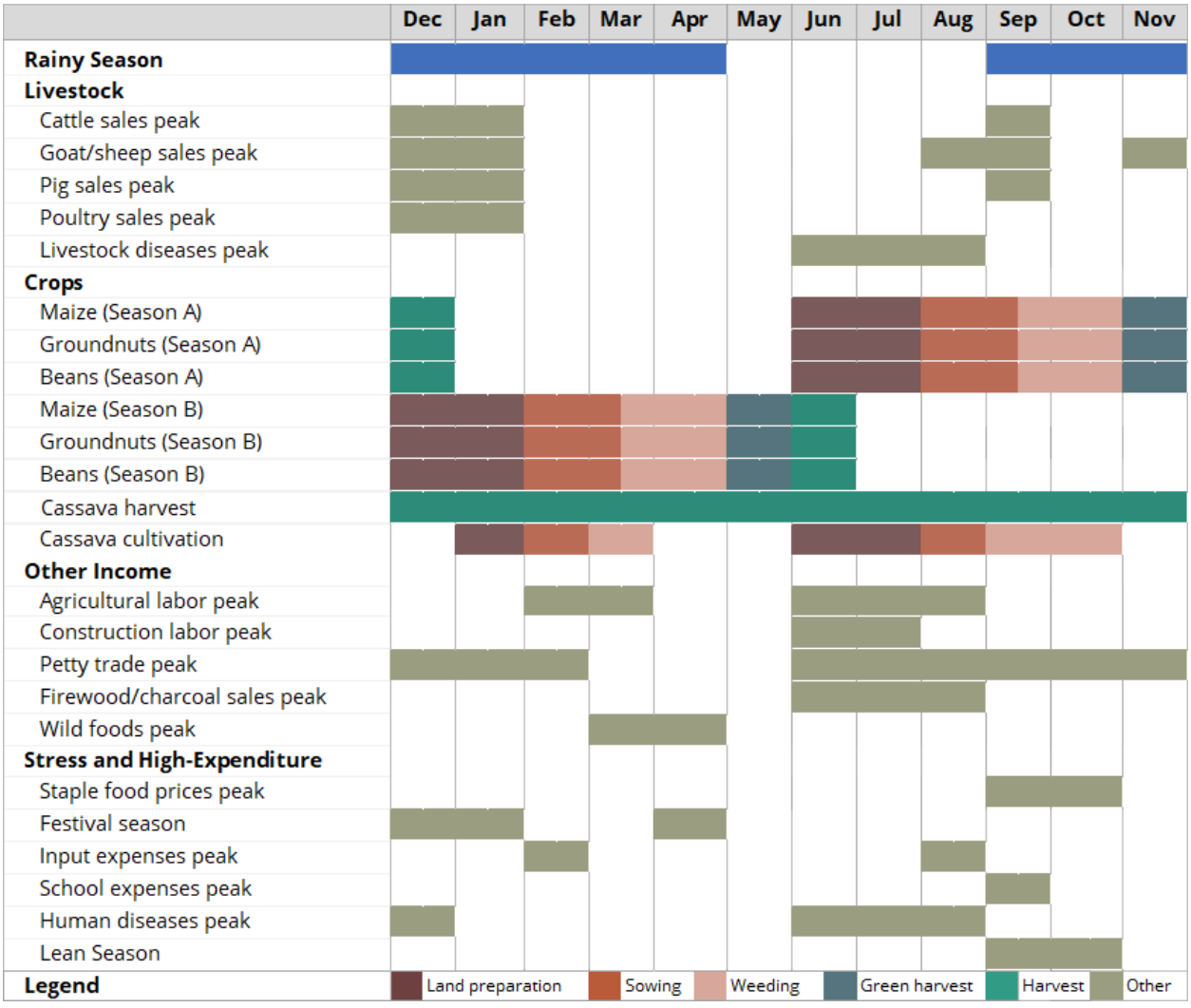
The seasonal calendar (see Figure 2) illustrates the main economic activities and events of the reference year. It traces the rainy months and highlights key agricultural, livestock, and economic activities throughout the year, as well as food purchasing periods, etc.

The seasonal patterns in the zone are marked by distinct rainy and dry periods, which heavily influence agricultural activities, livestock management, and other economic activities, as well as stress periods. The Rainy Season in the zone is from September to April, with the Dry Season from May to August.

The zone has two main cropping seasons, Season A (from June to December) and Season B (from December to June). The main crops cultivated are cassava, maize, groundnuts, beans, palm oil,

bananas, and rice. Cassava, beans, maize, and groundnuts are commonly intercropped in the same field. For cassava, land preparation occurs in January, June, and July, with planting in February, August, and September; cassava is harvested year-round. For maize, Season A land preparation is in June and July, planting from August to early September, and weeding in from late-September to October. The "green" harvest, when grain and pulse crops are cut/pulled up before full maturity and eaten "fresh" occurs in November, with the main harvest in December. Season B land preparation is from December to January, planting is from February to early March, and weeding in late from March to April. The green harvest takes place in May, with the dry harvest in June. Groundnuts and beans follow a similar calendar as maize, with two planting seasons and peaks in green and dry harvests corresponding to the same months. Other crops like palm oil, bananas, and rice are cultivated individually and follow separate growth cycles.

Figure 2. Seasonal Calendar



Agricultural paid labor peaks between June and August, the main period of preparing land and planting for the main season. Household expenditures on agricultural inputs like seeds and tools

peak in February and August. Peak livestock sales are January, September, and December for pigs; January, August to September, and November to December for small ruminants; and December and January for poultry.

Paid construction labor peaks in June and July. Petty trade peaks from January to February and from June to December. Firewood/charcoal sales peak during the Dry Season from June to August. Wild foods collection peaks in March and April.

High staple prices are seen from September to October, coinciding with the Lean Season when food availability is low due to the depletion of food stocks, especially for poorer households. The festival seasons in December, January, and April (for Christmas, New Year, and Easter) entail higher household expenditures.

Human diseases peak from June to August and in December. School expenses peak in September as the school year begins.

Table 2 shows the typical division of labor, listing the activities shared and not shared by men and women. All agricultural production activities, including agricultural labor, are shared by men and women. Men and boys are largely responsible for all livestock production activities (except for the rearing and selling of poultry, which is primarily done by women), construction labor, and labor migration. Women are mostly involved in small businesses, firewood collection and sale, poultry sales, and domestic work, including cooking, taking care of children, and laundering clothes.

Table 2. Typical Division of Labor

Shared Tasks	Women's Tasks	Men's Tasks
• Land preparation • Planting • Weeding • Harvesting • Threshing/winnowing • Crop sales • Charcoal production and sale • Agricultural paid labor	• Firewood collection and sale • Livestock management and sales – poultry • Petty trade/small business • Household chores (water and firewood collection for domestic use, cooking meals, feeding small kids, washing clothes)	• Livestock management and sales – pigs, goats, and sheep • Caring for sick animals • Livestock slaughter • Building livestock shelter • Fencing • Construction labor • Labor migration

Wealth Breakdown and Productive Assets

Table 3 summarizes the types and numbers of productive assets that typical households within each wealth group own and/or manage. Asset holdings are shown in a range that reflects the diversity of households' situations within a wealth group. Figure 3 shows the percentage of households within the zone that falls in each wealth group. Communities in the zone carried out their own wealth group categorization of households.

Table 3. Wealth Breakdown

Household Size and Productive Assets	Very Poor	Poor	Middle	Better-Off	Poor Female-Headed
Household size	7-9	8-10	8-10	8-12	7-9
Land (hectares [ha])	0.25-0.75	1-1.5	3-4	4-6	0.5-1
Land rented (ha)	0-0.2	0-0.5	0-0.5	0-1.5	0-0.5
Land cultivated (ha)	0.3-0.6	0.5-1	1.5-3	3-4	0.3-1
Land cultivated – food crops (ha)	0.3-0.5	0.3-0.5	0.75-1.25	1-3	0.3-0.5
Land cultivated – cash crops (ha)	0-0.1	0.2-0.5	0.75-1.75	1-2	0-0.1
Pigs	0	0	2-3	0-5	0
Goats	0	0-1	2-6	5-15	0
Sheep	0	0	0	0-5	0
Guinea pigs	0-10	0-10	0-20	0-25	0-10
Poultry	0-3	2-5	5-10	5-25	2-4
Motorcycles	0	0	0	1	0
Grinding mill	0	0	0	1	0
Solar panels	0	0	0-2	0-2	0
Mobile phones	0	0	1	1-2	0

The main determinants of wealth in this zone are primarily access to land and livestock ownership. Other wealth determinants include the ability to engage in commerce/small businesses, the ability to engage in logging, the ability to hire agricultural labor, and ownership of productive assets, like solar panels, telephones, and more valuable assets like motorcycles and grinding mills.

Wealthier households have distinctly larger land holdings than the poorer ones, owning 3-6 ha compared to as little as 0.25-1.5 ha, respectively. Households in all wealth groups rent some land from other households for two purposes: market gardening and palm oil production. For market gardening, whose land is rented depends on who has surplus land, and some households rent multiple plots. For palm oil production, households mainly rent land from middle and better-off households that have the appropriate land for this type of crop. More generally, middle and better-off households focus on food and cash crops, while very poor and poor households primarily

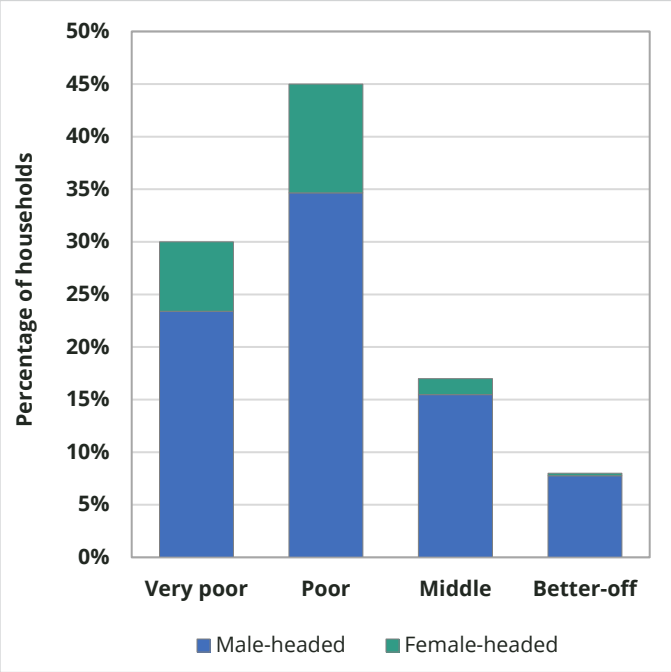
cultivate food crops. Wealthier households can also afford to hire farm labor, whereas poorer households must rely on their own labor, which limits their productivity.

Middle and better-off households own more livestock, including pigs, goats, and poultry, whereas the very poor and poor households often own little or no livestock.

Middle and better-off households also own productive assets, like solar panels and telephones. Additionally, better-off households possess more valuable assets like motorcycles and grinding mills. Poorer households, on the other hand, have fewer or no productive assets, except for some animals and land.

Figure 3. Wealth Breakdown

Note: All results are the mid-point of a range



Household size increases with wealth. Very poor households have a household size of approximately 7-9 members, poor households 8-10, middle households 8-10, and better-off households 8-12. The wealthier the household, the larger it is, with more livestock and productive assets.

The proportion of households in the community is as follows: very poor households 25-35%, poor households 40-50%, middle households 15-20%, and better-off households 5-10%. The percentage of female-headed households in each wealth group is approximately 20-25% in the very poor and poor wealth groups, 10% in middle, and less than 5% in the better-off wealth group. Female-headed households include women who are widows, were abandoned by their husbands, or are single women living alone with their children.

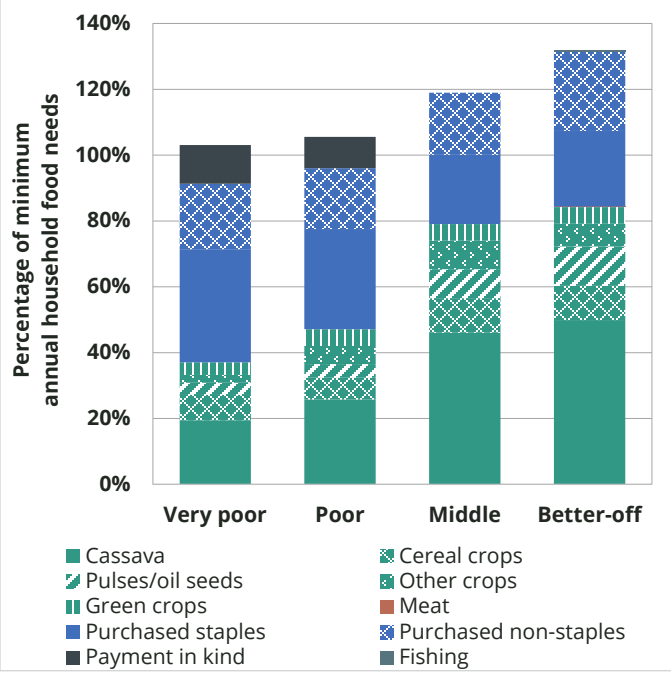
Sources of Food

Figure 4 presents food sources for households each wealth group in CD09 for the period from December 2022 to November 2023. December represents the start of the consumption year as all Season A crops are ready for consumption and harvest. Food is presented as a percentage of the annual kilocalorie (kcal) needs of the household, based on the internationally accepted standard of 2,100 kcal per person per day.

The primary sources of food in the zone vary across wealth groups, with food mainly coming from crops, market purchases, and payments in-kind. Middle and better-off households rely more heavily

on their own harvests, while very poor and poor households depend more on purchased food and in-kind payments.

Figure 4. Sources of Food



For very poor households, 35-40% of their food in the reference year came from their own crops, with cassava (15-25%) being the most significant contributor. Purchased staples accounted for 30-40% of their annual food needs in the reference year, while purchased non-staples contributed 15-25%. Payments in-kind accounted for 10-15% of the annual food needs for this wealth group, particularly during harvest periods in exchange for work on the farms of middle and better-off households.

Poor households derived 40-50% of their food in the reference year from their own crops, with cassava (20-30%) again being a major staple. Purchased staples accounted for 25-35% of annual food needs, while purchased non-staples contributed 15-25%. Payments in-kind contributed 5-15% of annual food requirements in the reference year.

Middle households were mainly self-reliant, with 75-85% of their food in the reference year coming from their own agricultural production, with cassava accounting for 40-50%. Purchased staples accounted for 15-25% of the annual food needs, while purchased non-staples contributed 15-20% of the food needs.

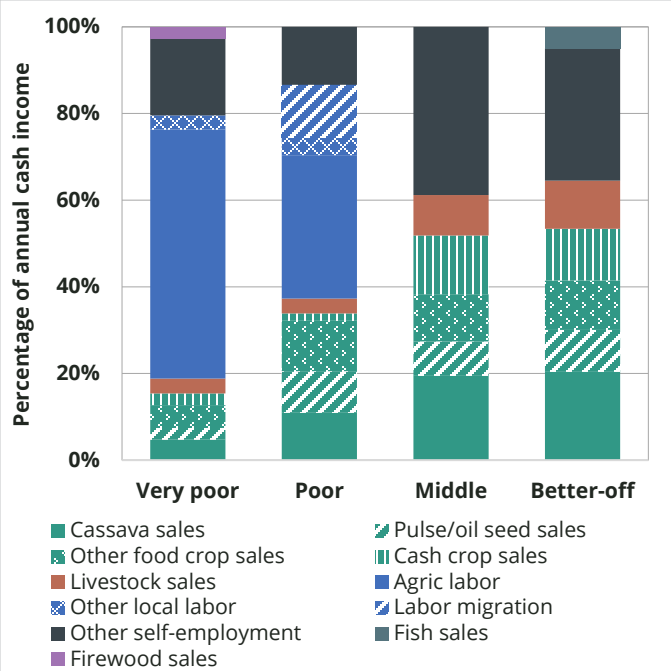
Better-off households were the group who ate most from their own crop production at 80-90% of their minimum calorie requirement, with cassava making up 45-55%. Other crops, like pulses and cereals, were other important food sources. Better-off households purchased about 20-25% of their staples, while non-staples also constituted 20-25% of their food sources in the reference year. Their diet was highly diversified, including some contributions from meat and fish, which accounted for approximately 0.2% and 0.5% of their food sources, respectively.

Sources of Cash Income

Cash income in CD09 was derived from various activities, with significant differences between the wealth groups (see Figure 5). The key sources of income included crop sales, agricultural paid labor, self-employment, and small-scale trade. Middle and better-off households relied heavily on crop sales and self-employment, while very poor and poor households were more dependent on

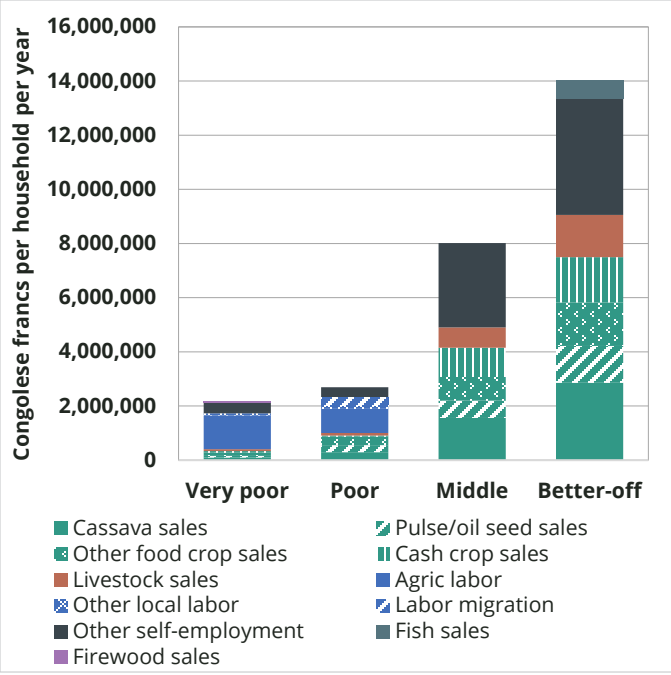
agricultural labor and small-scale income-generating activities. In terms of pricing, middle and better-off households tended to obtain better prices for their crops and livestock compared to very poor and poor households, due to larger production volumes and better market access.

Figure 5. Sources of Cash Income as a Percentage of Annual Cash Income



Very poor households generated more of their cash from agricultural labor, which contributed 55-65% of their total cash income in the reference year. This high proportion of income reflected their dependence on labor-intensive work for wealthier households, particularly when preparing land, weeding, and harvesting. Crop sales accounted for 10-20% of their total cash, primarily from cassava, pulses, and other food crops. Self-employment activities, like the sale of firewood and small-scale trade, accounted for 15-20% of their income, with a focus on local markets. A small portion of income came from firewood sales and construction labor, each accounting for about 3% of total income. There was no significant income from livestock sales or remittances

Figure 6. Total Annual Cash Income



Poor households generated a substantial portion of income from crop sales which accounted for 30-35% of the total income in the reference year. Agricultural labor also provided 30-35% of their income, indicating a reliance on seasonal labor. Self-employment, which included small business activities, like the sale of palm oil and charcoal, contributed 10-15% of total income. Labor migration was unique to this group, as poor households sought work outside the zone when local opportunities were insufficient. This work also accounted for 10-15% of total income.

Middle households earned 50-55% of their total income in the reference year from crop

sales, the largest source of income, with cassava contributing 15-20% and other food and cash crops supplementing the remainder. Self-employment activities, like trade and small businesses, accounted for 35-45% of total income, demonstrating their ability to diversify income streams beyond agriculture. Livestock sales contributed 5-10% of income, indicating some investment in livestock rearing for cash generation.

Better-off households, like middle households, generated 50-55% of their total income in the reference year from crop sales, with cassava contributing 15-25%. Between 30-35% of their total income came from self-employment, particularly in higher-value trade or other small businesses. Livestock sales accounted for 10-15% of the total income, reflecting their greater investment in livestock rearing. Unlike other wealth groups, roughly 5% of income for better-off households came from fish sales from their own fish farming, highlighting their diverse income sources.

In the reference year (from December 2022 to November 2023), better-off households earned almost seven times more than very poor households and roughly five times more than poor households, though there was not a great difference in household sizes. This gap is illustrated in Figure 6 and Table 4.

Table 4. Income Summary Table (Congolese Francs or CDF)

Wealth Group	Very Poor	Poor	Middle	Better-Off
Annual income per household[3]	1,700,000-2,500,000	2,500,000-3,000,000	6,000,000-10,000,000	10,000,000-18,000,000

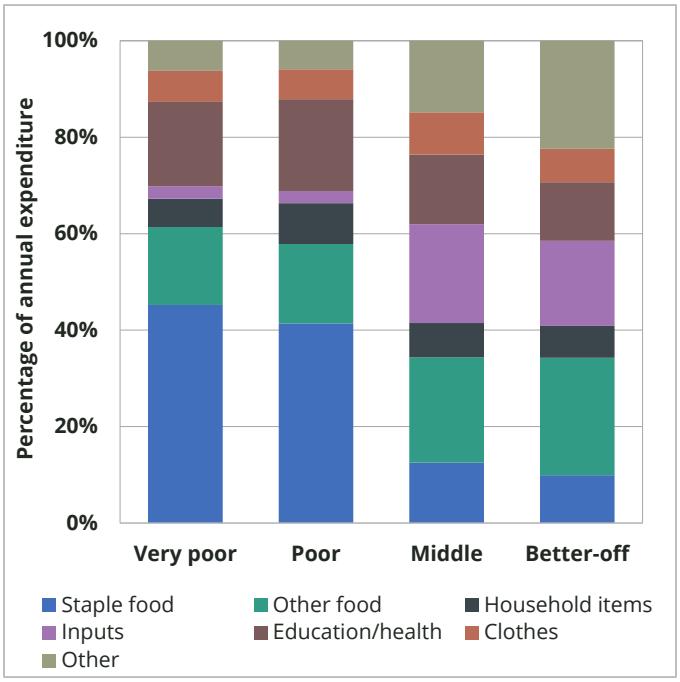
Expenditure Patterns

Figure 7 presents expenditure patterns for the reference year from December 2022 to November 2023. While absolute expenditure in CD09 increased with wealth in line with total cash income, this graph's expenditure breakdown by percentage shows the relative amount of income spent on different categories. Households in the zone need to cover a range of essential expenditures over the year. These include staple foods, non-staple foods, household items/services (like salt, soap, tea, lighting, milling, etc.), productive inputs, social services (which include health and education), clothing, and "other" essential and non-essential items.

Expenditure patterns in CD09 differed significantly across wealth groups, with very poor and poor households allocating a larger portion of their income to staple food purchases, while middle and better-off households spent more on non-staple food items, inputs, and "other" expenses, including transportation, phone credits, festivals expenditures, etc.

[3] The average exchange rate from December 2022 to November 2023 was 1 USD = 2,257 CDF.

Figure 7. Total Annual Cash Expenditure by Category



Poorer households spent a large share of their income on staple food purchases, accounting for 40-50% of annual expenditure. This would have been significantly more without the effective substitution of food received as payment in-kind.

For very poor households, spending on non-staple foods accounted for approximately 10-20% of annual expenditure. Purchases of household items accounted for about 5-10% of annual expenditure, agricultural inputs (seeds and tools) 5%, social services (education and health) 15-20%, and clothing/shoes and "other" 5-10% each.

Poor households' spending on staple foods accounted for roughly 40-45% of their annual expenditure. Non-staple foods accounted for approximately 10-20% of expenditure and purchase of household items about 5-10%. Less than 3% of annual expenditure went toward agricultural inputs (seeds and tools). Expenditure on social services (education and health) accounted for 15-20%, and clothing/shoes and on "other" items also accounted for 5-10% of annual expenditure, respectively.

Middle households spent significantly less on staple food, 10-15% of annual expenditure, compared to the poorer wealth groups, as they produced more of their own food. They spent 20-25% of annual expenditure on non-staple food and 5-10% on household item purchases. A substantial amount of their income, 15-25% of annual expenditure, was allocated to agricultural inputs, mainly to hire labor. Social services accounted for 10-15% of annual expenditure, clothing/shoes 5-15%, and "other" items 10-20%.

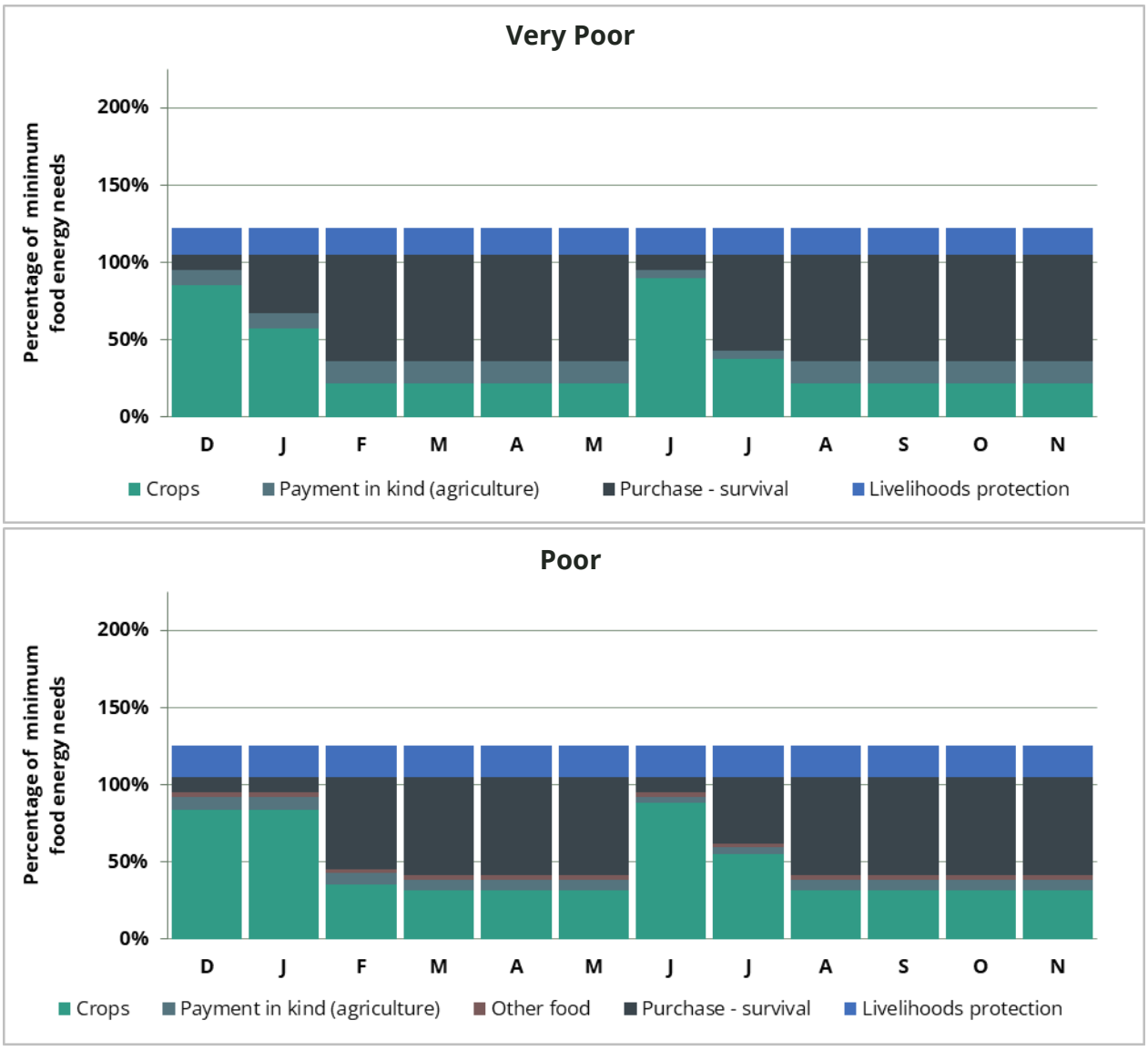
Better-off households spent only 5-15% of their annual expenditure on staple foods, as they produced most of what they consumed, and they spent 20-25% on non-staple food. Purchases of household items accounted for about 5-10% of their annual expenditure and 15-20% on agricultural inputs, mainly to hire labor. Expenditure on social services in the reference year accounted for 10-15% of better-off households' annual expenditure. Expenditure on clothing/shoes accounted for 5-10% of annual expenditure, and "other" items 20-25%.

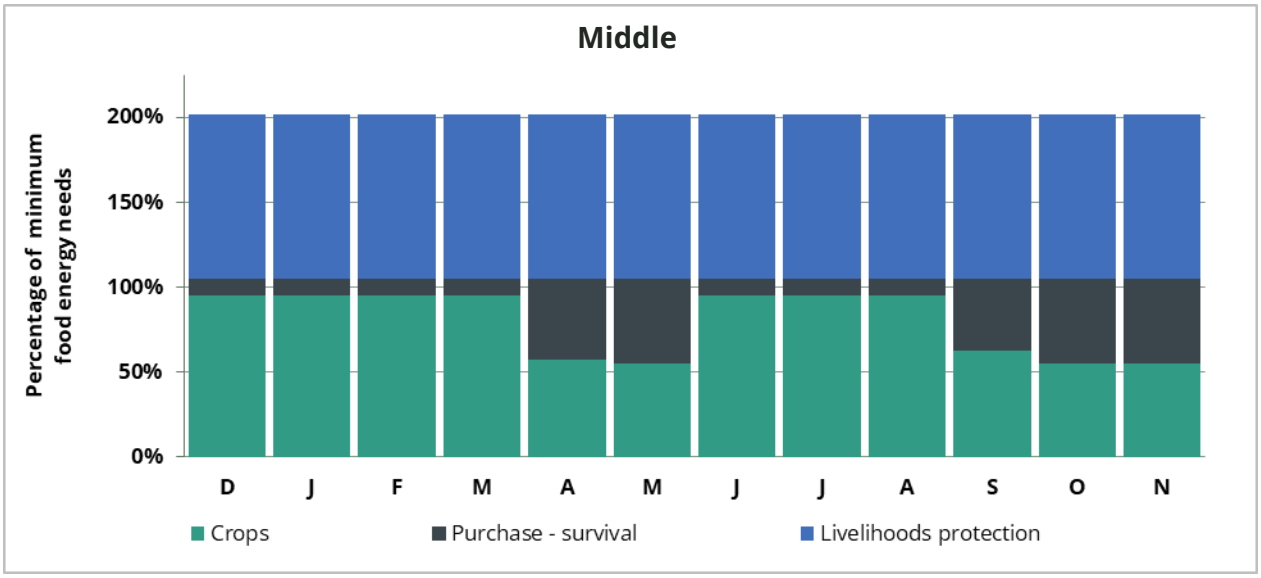
Food Access Calendars

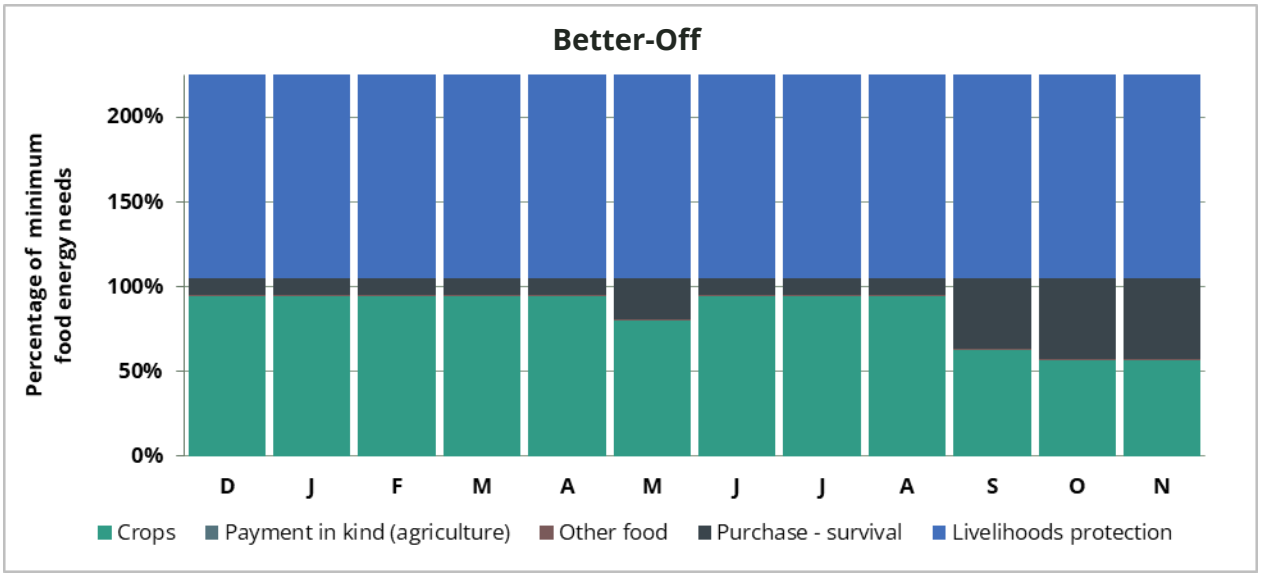
The graphs in Figure 8 present monthly food and cash access calendars for the four wealth groups.

Households in all wealth groups were able to meet their survival and livelihoods protection thresholds year-round in the reference year. The Season A harvest started in December and the Season B harvest started in June, although cassava was available throughout the year. Very poor and poor households obtained some food from payment in-kind for casual agricultural labor. Food purchases were very important for poorer households in February to May and August to November.

Figure 8. Seasonal Food and Cash Access Calendars per Wealth Group







Poor Female-Headed Households

Female-headed households are found in each of the wealth groups, as shown in the wealth breakdown (Figure 3). The proportion of female-headed households in the poor wealth group is 10-30%. During fieldwork, data collectors conducted in-depth interviews with poor female-headed households. This group faces similar constraints and characteristics as male-headed households in the same wealth group, but they are further disadvantaged by a lack of enough adult male labor, which potentially leads to additional constraints on certain types of asset ownership, productive work, or income-generating activities. It is important to note that women across all wealth groups in this livelihood zone have the right to independently own, inherit, rent, and share land. They also have the right to own, buy, and inherit livestock including goats, guinea pigs, and poultry.

Figure 9 shows that poor female-headed households and poor male-headed households share a similar pattern of food access. In the reference year, these households met their annual minimum food energy needs from similar food sources, mainly market purchases of staples and non-staple foods and crop production. Poor female-headed households purchased a significant amount of their food, highlighting their dependence on the market for sustenance. Poor male-headed households cultivated slightly more land than the poor female-headed households and thus harvested slightly more and had slightly more calories from their own crop production than poor female-headed households.

Figure 9. Sources of Food: Poor Households vs Poor Female-Headed Households

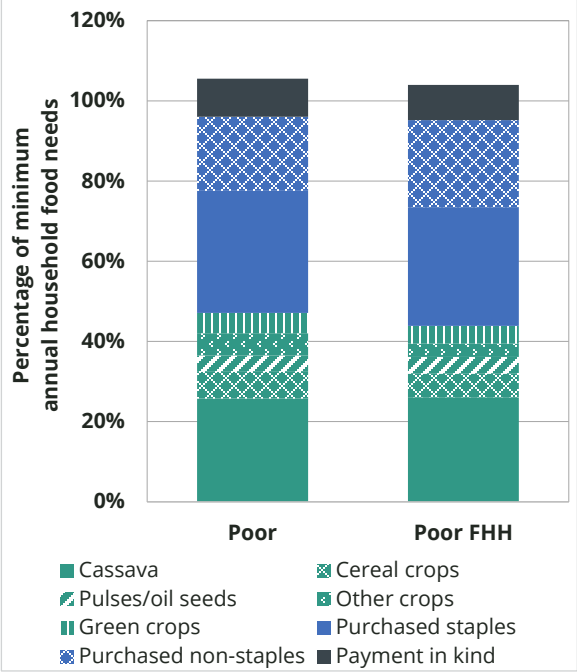
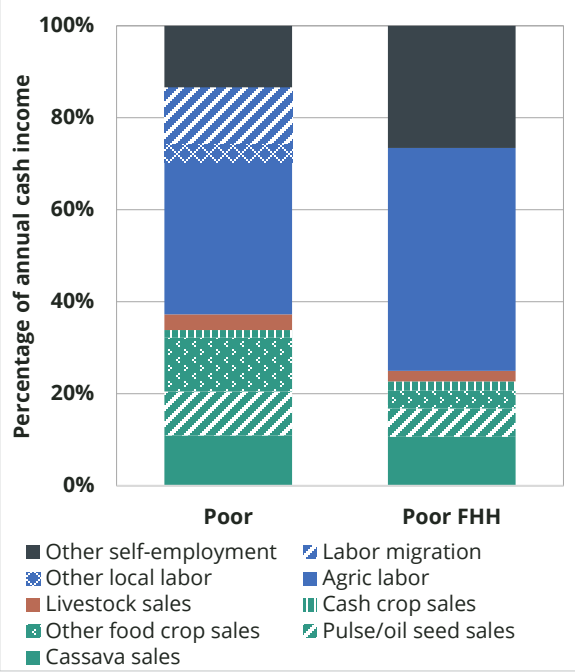


Figure 10. Sources of Cash: Poor Households vs Poor Female-Headed Households



The income picture in Figure 10 shows that poor male-headed households and poor female-headed households had similar sources of cash income in the reference year, except for construction labor and labor migration, which only concerned poor male-headed households. For poor female-headed households, agricultural labor was the primary source of income, contributing 45-55% of their total cash income in the reference year. Additionally, self-employment activities, like petty trade, made up 25-30% of their income, a significantly higher proportion compared to poor male-headed households. Crop sales also contributed 20-25% to their income, but livestock sales only accounted for approximately 2%, reflecting their limited ownership of livestock.

Response Strategies

In response to hazards and years with lean production, households attempt to meet their minimum food and cash requirements through several strategies. Implemented responses implemented tend

to vary across wealth groups though most of them are similar. Below are some common strategies employed by households.

Households from all wealth groups try to reduce expenditure on non-essential or more expensive items first, like cutting down on festival costs or not buying clothes or household utensils that year. Households also consume more cassava than usual, as it is the least expensive staple.

Very Poor and Poor Households

Very poor and poor households try to increase cash income by intensifying casual labor activities. However, in lean years, as increasing numbers of people flood the labor market, this option quickly loses its value because wage rates drop, and jobs are harder to find. Poorer households also intensify self-employment activities, like petty trade and the sale of firewood and charcoal, in lean years. Poor households will have additional household members migrate in lean years to look for casual work and/or increase the duration of migration. In lean years, poorer households will also rely on debts/credit through village savings and loan associations.

Middle and Better-Off Households

Middle and better-off households have the advantage of significant livestock holdings: in lean times they sell additional livestock to cover immediate basic food and non-food expenses. They also increase self-employment activities, like trade. Wealthier households will also rely on debts/credit through village savings and loan associations. In the most extreme cases, households resort to selling property, like land and/or their homes, which is a last-resort strategy, as it reduces their asset base and can lead to greater vulnerability in the long-term.

Key Parameters for Monitoring

The key parameters listed in Table 5 are food and income sources that make a substantial contribution to the household economy in the *Eastern Highlands Mixed Farming Livelihood Zone*. These should be monitored to track potential losses or gains to local household economies through ongoing monitoring systems or periodic assessments.

Table 5. Key Parameters for Monitoring

Item	Key Parameter – Quantity	Key Parameter – Price
Crop production	• Maize Season A – quantity produced • Maize Season B – quantity produced • Cassava – quantity produced • Groundnuts Season A – quantity produced • Groundnuts Season B – quantity produced	• Maize Season A – producer price • Cassava – producer price • Beans – producer price • Plantain – producer price • Banana – producer price • Rice – producer price • Palm oil – producer price

Item	Key Parameter – Quantity	Key Parameter – Price
	• Beans – quantity produced • Plantains – quantity produced • Bananas – quantity produced • Rice – quantity produced • Palm oil – quantity	
Livestock production	• Pigs – herd size • Goats – herd size	• Pigs – producer price • Goats – producer price
Other food and cash income	• Fishing – amount collected • Cultivation labor – number of days • Harvest labor – number of days • Migration labor – number of days • Self-employment – quantity sold • Petty trade – demand	• Fishing – producer price • Cultivation labor – wage rates • Harvest labor – wage rates • Migration labor – wage rates • Self-employment – producer price • Petty trade – daily earnings
Expenditure		• Cassava – consumer price • Maize – consumer price

CD10 Livelihood Zone

Reference Year: June 2021–May 2022

Savannah Midland Agriculture Livelihood Zone

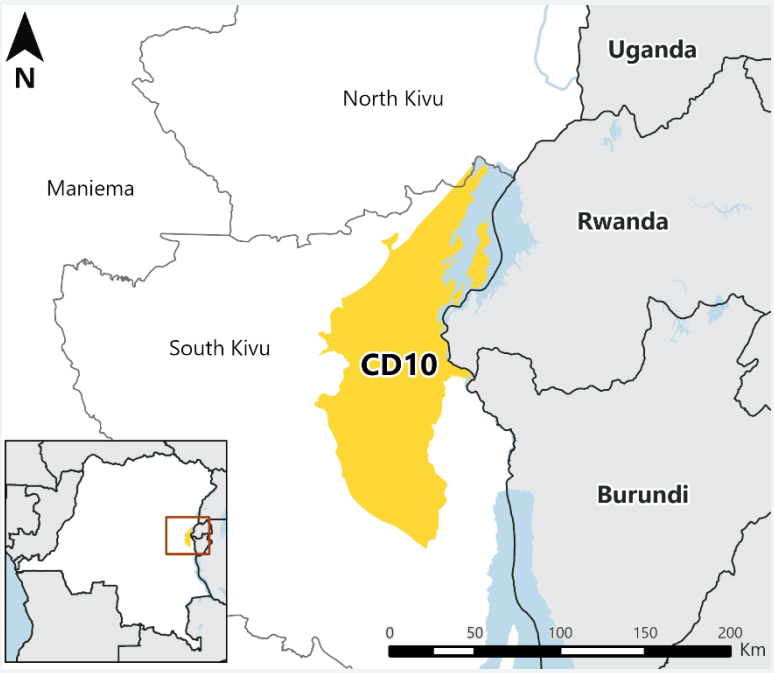


Figure 1. CD10 Livelihood Zone

Summary: The *Savannah Midland Agriculture Livelihood* Zone (CD10) occupies a small territory between the *North Tanganyika Midland Agriculture Livelihood Zone* (CD08), the *Eastern Highlands Mixed Farming Livelihood Zone* (CD09), and the border with Rwanda. The livelihood zone is made up of mid-elevation hills and marshy plains located between the Mitumba Mountains to the west and Lake Kivu and Lake Tanganyika to the east. The zone's elevation ranges from 1,400 to 2,000 meters (m). Annual precipitation ranges from 900 to 1,500 millimeters (mm). The zone is an agriculture area, dominated by rainfed crop production. The main crops cultivated for household consumption and for sale are cassava, maize, beans, and sweet potatoes.

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Zone Description

The *Savannah Midland Agriculture Livelihood Zone* (CD10)[1] occupies a small territory between the *North Tanganyika Midland Agriculture Livelihood Zone* (CD08), the *Eastern Highlands Mixed Farming Livelihood Zone* (CD09), and the border with Rwanda. It covers sections of Kalehe, Kabare, Walungu, Mwenga, and Idjwi Territories.

The zone consists of mid-elevation hills and marshy plains located between the Mitumba Mountains to the west and Lake Kivu and Lake Tanganyika to the east. The zone's elevation ranges from 1,400 to 2,000 m. The vegetation found at this elevation is dominated by mountain forest or transition vegetation to the west and wooded savannah vegetation to the east. Agricultural land also dominates the zone. The local soils are mainly clay and are moderately fertile. The climate is humid equatorial, with annual precipitation ranging from 900 to 1,500 mm and falling from September through May/June. The main Rainy Season is from September to January and the secondary Rainy Season is from March to May/June. Temperatures range from 17°C in July to 26°C in October. The population of the zone is 3,595,791, with a comparatively high population density of 299 people per square kilometer (km).[2]

The major geographical features of the zone include the Mulume-Munene mountain ranges and the Chidododoba, Murundu, Cifula, Lwiro, Nyabarongo, and Luzinzi Rivers. The zone includes parts of the Kahuzi Biega National Park and the Itombwe Natural Reserve and contains mineral deposits, including gold and cassiterite. Major roads in the zone include the Route Nationale (RN) 2, RN3, and RN5. Main towns and cities in the zone include Bukavu, Walungu, Idjwi, and Kabare. Other natural resources in the zone include fish exploited by part of the population in Idjwi Territory (not visited for data collection), wood exploited by the population in CD10, and minerals mined by a few households (not included in the data).

The zone is reliant on agricultural production, and crops are predominantly rainfed. The main crops cultivated for household consumption and for sale are cassava, maize, beans, and sweet potatoes. There is one cropping season for cassava, which is harvested year-round, while maize, beans, and sweet potatoes have two cropping seasons. Cultivation is mixed cropping, with cassava, maize, and beans grown together. Land areas cultivated are generally small and range from 0.25-0.75 hectares (ha) for poorer households to 1-3 ha for wealthier households. Land preparation is done by hand using hoes. Poorer households use their own household labor whereas wealthier households use hired labor from poorer households. Labor is paid in cash and/or in-kind for all agricultural production activities, including preparing land, planting, weeding, harvesting, and threshing/

[1] Fieldwork for the current profile was undertaken in from February to March 2024. The information presented in this profile refers to a reference year, which was the consumption year that covered the period from June 2021 to May 2022. Provided there are no fundamental and rapid shifts in the economy, the information in this profile is expected to remain valid for approximately five to 10 years (i.e., until 2029-2034). All prices referred to in the document are for the reference year.
[2] FEWS NET Data Explorer, population data (2023), accessed 2025, https://fdw.fews.net/data-explorer/.

winnowing. This work generates year-round demand for labor, which is an important source of income for poorer households.

Apart from crop production, households in the zone own and keep some livestock, including cattle, goats, pigs, guinea pigs, rabbits, and poultry, for consumption and sale. Livestock are a means of saving rather than a principal economic activity. Cattle, pigs, and goats are mainly the responsibility of men, while guinea pigs, rabbits, and poultry are the responsibility of women. Cattle are owned by wealthier households, with cows providing milk during the Rainy Season. All livestock are stall-fed on grass, scrub, and crop residues. Households do not purchase livestock feed and only purchase livestock drugs and salt. In the Wet and Dry seasons, households obtain water for livestock from secondary rivers. Although livestock are sold throughout the year, the months of September and December have the highest levels of livestock sales. September marks the start of the school year and the eve of the rains (when agricultural inputs are required). There is typically increased demand for livestock in December for the festive season. Livestock are slaughtered (more so male animals) during festive periods and ceremonies.

Besides crop and livestock production, households generate additional income from labor, mainly agricultural, construction, domestic, and migratory labor. Other income sources included self-employment (brewing beer and selling prepared foods), petty trade, and firewood/charcoal sales.

The *Savannah Midland Agriculture Livelihood Zone* (CD10) experiences several hazards that affect its economy and livelihoods. The main hazards include climatic disturbances/heavy rains, crop diseases and pests, livestock diseases, and soil erosion. Climatic disturbances, like heavy rains and floods, occur one out of every two years. Soil erosion is a common problem due to frequent heavy rains that cause high surface run-off and floods. Crop diseases and pests occur one out of every three years, affecting production and yields. Common crop diseases include bacterial wilt and cassava mosaic. Common pests include caterpillars. Livestock diseases also occur one out of every three years. They include *peste des petits ruminants*, an acute disease affecting goats, and avian flu, affecting poultry. Households attempt to manage these diseases through vaccination or treatment. Other risks include human disease outbreaks, especially malaria and respiratory illnesses. Livelihoods in the zone are disrupted by occasional localized conflict, which leads to population displacement and loss of crops and/or livestock.

There are two sub-groups living within this livelihood zone whose livelihoods are different from those described in this profile. The first are small communities of fishermen living on the shores of Lake Kivu, within the territory of Bahavu. The second are the *bambuti* (or *mbuti*) people, who are hunter-gatherers and share collective ancestral ties to one of the oldest Indigenous cultural groups in the Congo region. They live in the Kahuzi Bierga National Park and the Itombwe Natural Reserve, among other locations in eastern Democratic Republic of the Congo (DRC).

In terms of housing, poorer households live in houses made of mud with mud/clay floors and thatched/straw roofing. Some wealthier households have houses like the poor, while others have houses made of bricks, cemented floors, and iron sheet roofing. Water to drink and for domestic use

is obtained for free by households from all wealth groups from springs, rainwater, boreholes, rivers, and taps. In terms of sanitation, poorer households use open defecation, toilets, and traditional hand-dug latrines, whereas wealthier households use either toilets or hand-dug traditional latrines. Poorer households access primary healthcare through health centers, dispensaries, and traditional medicine, while wealthier households access healthcare in health centers and general reference hospitals. For lighting, most poorer households use battery-operated flashlights and palm oil and wick lamps, while wealthier households use various sources, including generators, solar panels, and electricity. Poorer households use coal and firewood for cooking, while wealthier households use these sources as well as gas-powered stoves. Mobile phone service and use are limited in this zone. Most poorer households do not own phones; wealthier households typically have at least one phone per household for either voice use or for voice and internet use. For education, children from poorer households usually complete primary school, with only a few attending secondary-level schooling; children from better-off households usually attend secondary school, and a few attend college/university. Financial services are scarce and access to credit is difficult, but mainly poorer households use *Association Villageoise d'Épargne et de Credit* (AVEC; with 10% interest), whereas wealthier households have access to either microfinance or cooperatives. Savings banks and formal savings schemes are virtually non-existent in the zone.

Markets

Overall, poor market access is due to the lack of passable roads, particularly during the Rainy Season. There are three national roads which traverse the zone: RN1, linking Bukavu to Walikale via Kabare and Kalehe; RN2, linking Bukavu to Maniema via Walungu and Mwenga; and RN3, linking Bukavu to Goma via Kabare and Kalehe. The only paved stretch of road is the 20 km linking Bukavu to Kavumu. In general, the roads are dirt tracks that are poorly maintained. During the Rainy Season, access becomes difficult. Access improves during the Dry Season, but river crossings remain a problem as bridges are rudimentary, not well-maintained, and many are made of wood. With few roads in the zone, goods are mainly transported on men's and women's heads and backs, by bicycle, or by *tshukudu*, a type of hybrid between a bicycle and a wheelbarrow. The zone's weak infrastructure generates a high demand for labor to transport goods.

The large cities of Bukavu and, to a lesser extent, Goma, dominate trade in CD10. All local markets supply or are supplied mainly by Bukavu, the capital of South Kivu. Intermediary markets in between the large cities and village level include the towns of Kamituga, Kavumu, Miti, Katana, Mudaka, Mwenga, Kasika, Mugogo, Walungu, and Ihusi.

The main foods/crops sold in the markets are cassava flour, maize, and beans. These crops are sold year-round, with peak periods between June and August for cassava flour, April for maize, and February for beans. The flow of crops sold is usually from the villages to the local markets and then to the main markets like Katana to Kavumu to Bukavu; or Mugogo to Walungu to Bukavu.

Households sell livestock and crops in the same local markets, which are then transported to Bukavu by traders. Households sell small animals, like poultry, rabbits, and guinea pigs, and animal products, like eggs and milk, either within the villages or at the closest local markets.

Other important marketed goods include bananas and firewood, which are sold from the villages to Walungu/Kavumu and then to Bukavu. Banana sales peak in September and March, while firewood sales peak between June and August.

The most important staple foods purchased from the local markets are cassava flour and maize flour. Maize flour is imported from international markets through the ports of Mombasa and Dar es Salaam and enters the DRC via Bukavu. Cassava flour is produced locally. Staple food purchases steadily increase from November to December for cassava flour and from September to January for maize flour as households' own stocks dwindle. The supply flow for staple foods are the same as for crops but in the opposite direction, from Bukavu to the local markets in CD10's territories.

Labor sales, predominantly farm-related, are mostly done locally within the livelihood zone. Approximately 80% of casual labor is undertaken within the local rural area. Off-farm work, like construction labor, is available in local towns and cities but is less common than agricultural labor. Around 15-20% of the labor sold is for work conducted in towns within the zone. Additionally, households can find labor opportunities outside the zone in Bukavu and Goma and even outside the country in Rwanda. Less than 5% of labor is sold outside the zone to other parts of the country or outside the country; this comprises mostly men who travel outside the zone to search for work in towns and cities, with peak departure times in January and September. The types of activities carried out by these migrant laborers are driving motorcycle taxis, building work, or transporting goods in and around the markets.

Timeline and Reference Year

The baseline assessment refers to a very specific period called a "reference year." In the *Savannah Midland Agriculture Livelihood Zone,* the reference year covers the consumption period from June 2021 to May 2022. During community leader interviews, data collectors asked informants to score the last five years in terms of seasonal performance with "1" indicating a poor season and "5" indicating an excellent season. Table 1 summarizes the community leaders' responses.

Of the last five years, two years were average for production and livelihood outcomes. One year was considered average to above average and two years were considered below average for production and livelihood outcomes due to hazards, such as climatic disturbances.

The reference year (2021-2022 in Table 1) was average to above average for the main activities in CD10, including agricultural yield, despite heavy rains that impacted Season A harvests.

Table 1. Timeline

Production Year	Score	Critical Events
2022-2023	3	Good and heavy rainfall. Support on agricultural practices.
2021-2022	3-4	Stormy weather, heavy rains. Disease identification training.
2020-2021	3	Heavy rains, flooding of marshes. NGO interventions through the provision of improved seeds.
2019-2020	2	Moderate rainfall. Households coping through labor intensification, use of hazard-resistant crops.
2018-2019	2	Heavy rains, climatic disturbances. Households coping through migration to large urban centers.

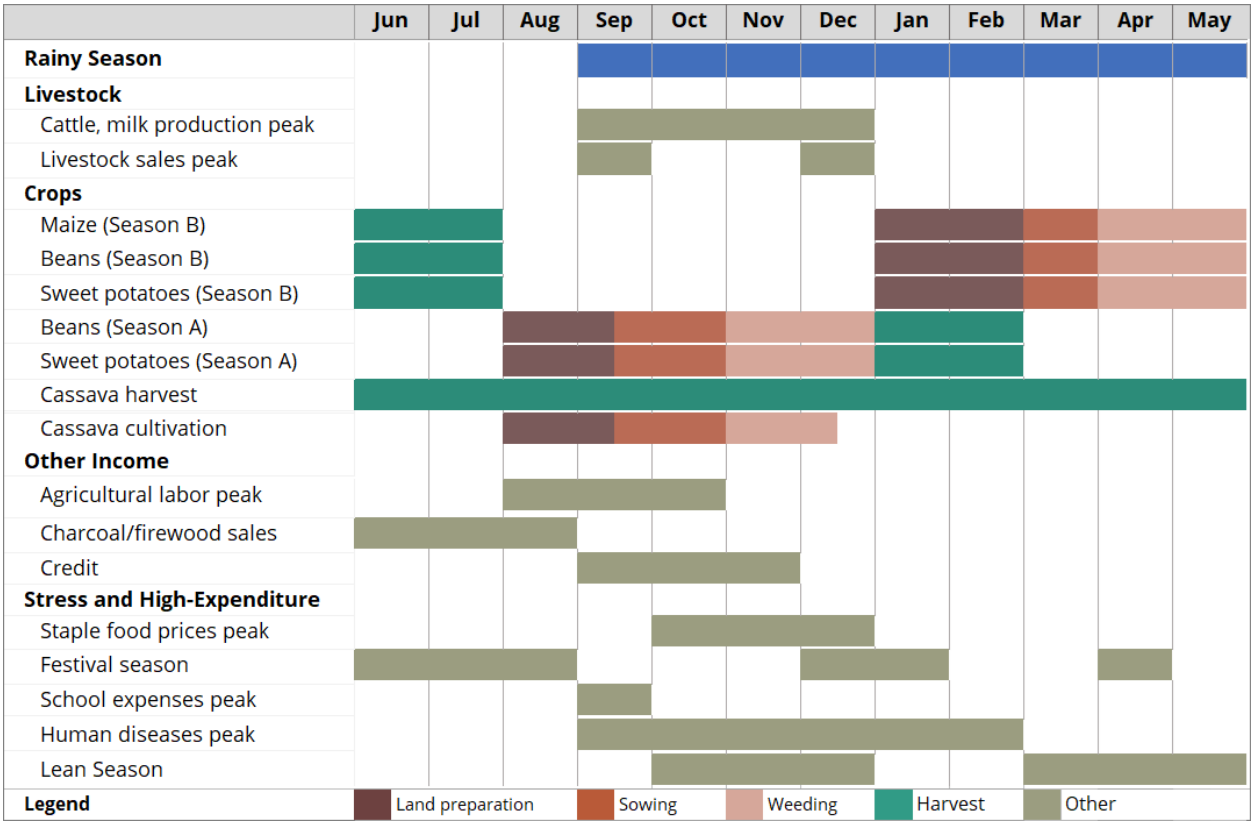
5 = Excellent season for household food security (e.g., due to good rains, good prices, good crop yields)
4 = Good season or above average season for household food security
3 = Average season for household food security
2 = Below-average season for household food security
1 = Poor season for household food security (e.g., due to drought, flooding, livestock disease, pest attack)

Seasonal Calendar for Reference Year

The seasonal calendar (see Figure 2) illustrates the main economic activities and events of the reference year. It highlights the rainy months, agricultural activities, food purchasing periods, etc.

CD10 has a long rainy season running from September through May, which can be split into two sections: the main Rainy Season from September to January and the second Rainy Season from March to May; the remaining months of June to August are dry. Crop production is largely determined by the outcome of the rains. There are two separate cropping seasons in the area, Season A and Season B. Season A crops, including maize, beans, and sweet potatoes, are planted at the start of the Rainy Season, with land preparation occurring 1-2 months before. Season A lasts from August to February. Land preparation for Season A crops is done in August and part of September, with planting taking place from around September to early October, depending on the crop type. Weeding follows the planting season and is done between November and December, with harvesting taking place between December and January. Season B lasts from January to July and starts with land preparation in January and February (overlapping with the harvest months of Season A crops). Planting takes place in March followed by weeding in April to May. The harvest of Season B crops is from June to July. Cassava is harvested and available throughout the year. It starts with land preparation in January and February (overlapping with the harvest months of Season A crops). Planting takes place in March, followed by weeding in April to May. The harvest of Season B crops is from June to July. Cassava is harvested and available throughout the year.

Figure 2. Seasonal Calendar



Agricultural labor is available throughout the year and is an important income source for poorer households. The peak period for agricultural labor is from August to October during land preparation and planting for Season A.

Livestock are sold throughout the year, with peak periods in September (the start of the school year and Season A) and in December (to cater for the festive season).

Human diseases can occur at any time of the year. However, diseases such as malaria and respiratory illnesses peak during the Rainy Season from September to February. During this period, there is an increase in household expenditure on health.

There are two lean seasons before the main harvest periods when food reserves are somewhat depleted. These periods are often characterized by high prices for staple foods, which affect the purchasing power of poorer households especially.

Table 2 shows the typical division of labor. Both men and women are engaged in farming, including crop sales, livestock sales (men sell cattle and goats, and women sell guinea pigs and poultry), agricultural labor, and self-employment activities, such as petty trade/small business, brewing beer, and beer sales. Men and boys are largely responsible for all other livestock production activities, with women only engaging in meat and milk sales where applicable. Men and boys also engage in casual work, including construction labor, and are responsible for the sale of construction materials,

such as sand and stones. Women and girls are mostly responsible for domestic work, including collecting water and firewood for domestic use, cooking, taking care of children, and laundering clothes.

Table 2. Typical Division of Labor

Shared Tasks	Women's Tasks	Men's Tasks
• Land preparation • Planting • Weeding • Harvesting • Threshing/winnowing • Crop sales • Handicraft production and sale • Brewing beer • Petty trade/small business	• Livestock sales – guinea pigs, poultry • Milk/meat sales • Firewood collection and sale • Charcoal production and sale • Water collection for domestic use • Cooking meals • Firewood collection for domestic use • Feeding small children • Washing clothes	• Milking cattle • Livestock herding • Livestock sales – cattle, goats • Livestock watering • Care for sick livestock • Livestock slaughter • Fencing • Building livestock shelter • Construction labor • Sale of construction materials • Migratory labor

Wealth Breakdown and Productive Assets

Table 3 summarizes the types and numbers of productive assets that typical households within each wealth group own and/or manage. Asset holdings are shown in a range that reflects the diversity of households' situations within a wealth group. Figure 3 shows the percentage of households within CD10 that falls in each wealth group. The socioeconomic categorization of households in the zone was carried out by the communities themselves.

The main determinants of wealth in this zone are the amount of land owned and cultivated and the number and types of livestock owned. Other wealth determinants include the ability to engage in commerce/small business, the ability to hire and pay for labor, and ownership of productive assets, such as grinding mills and generators.

The amount of land cultivated increased with wealth. There is no difference in terms of food crop types cultivated by the different wealth groups. Rather, it is only the quantity produced that differs due to the amount of land cultivated and the ability to hire labor (with wealthier households cultivating more land and using hired labor).

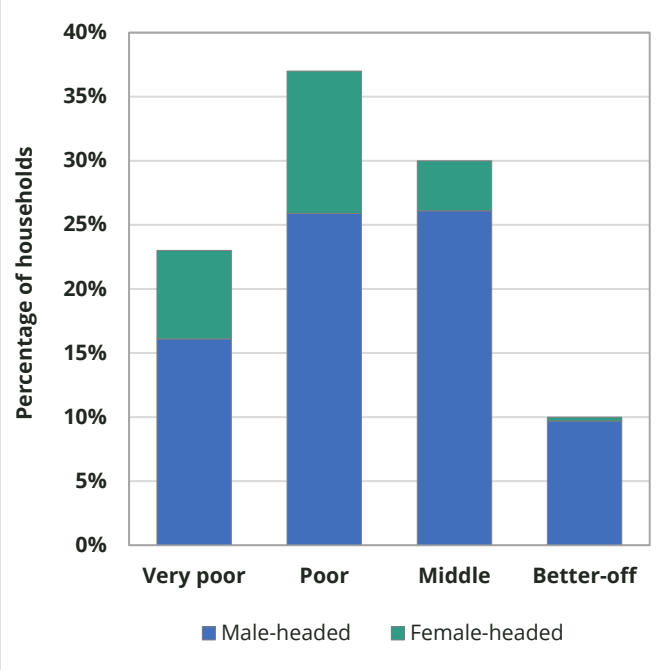
Livestock ownership is another important determinant of wealth in this zone, with livestock also being a significant source of income and a form of savings. The main types of livestock kept in this zone are cattle, goats, pigs, guinea pigs, rabbits, and poultry. Poorer households have small numbers of livestock, with very poor households keeping only guinea pigs and poultry. Only middle and better-off households keep cattle. The number of livestock owned increases with wealth.

Table 3. Wealth Breakdown

Household Size and Productive Assets	Very Poor	Poor	Middle	Better-Off	Poor Female-Headed
Household size	6-8	7-9	7-9	7-9	6-8
Land (ha)	0.25-0.75	0.75-1	1.5-2	2-4	0.25-1
Land cultivated (ha)	0.25-0.75	0.75-1	1.5-2	2-4	0.25-1
Land cultivated – food crops (ha)	0.25-0.75	0.25-0.75	1-1.5	1-3	0.25-0.75
Land cultivated – cash crops (ha)	0	0-0.5	0-1	0.5-1.5	0-0.25
Pigs	0	0-2	2-4	2-6	0-2
Cattle	0	0	0-4	3-8	0
Goats	0	1-5	2-8	4-10	0
Guinea pigs	6-10	10-30	10-30	10-15	6-10
Poultry	0-2	2-8	4-12	5-30	1-5
Rabbits	0	0-2	0-8	0-14	0-2
Grinding mill	0	0	0-2	0-2	0
Generator	0	0	0-2	0-4	0

Figure 3. Wealth Breakdown

Note: All results are the mid-point of a range



Middle and better-off households cultivate more land in total and per capita than very poor and poor households. To help with this cultivation, wealthier households employ laborers from poorer households. Wealthier households also own productive assets, including grinding mills and generators.

Household size increases slightly with wealth. Very poor and poor female-headed households have a household size of approximately 6-8, while poor, middle, and better-off households have approximately 7-9.

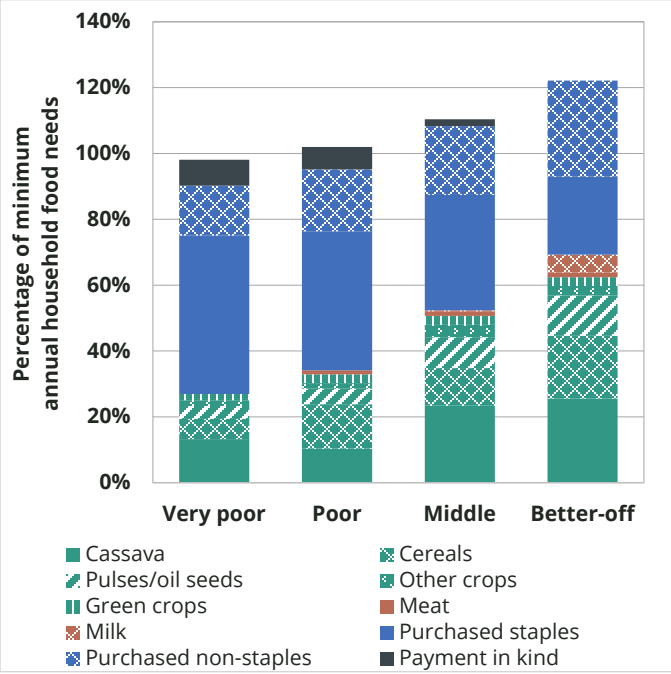
The proportion of households in the community is as follows: very poor

households range roughly between 20-25%, poor households 25-50%, middle households 25-35%, and better-off households 5-15%.

Sources of Food

Figure 4 presents the sources of food for households in each wealth group in CD10 for the period June 2021 to May 2022. June represents the start of the consumption year as most foods including cassava, maize, beans, and sweet potatoes are ready for green consumption and harvest. Food is presented as a percentage of the annual kilocalorie (kcal) needs of the household, based on the internationally accepted 2,100 kcal per person per day.

Figure 4. Sources of Food



Two main sources of food are available in this zone: crop production and market purchases.

Households' own crop production covered 25-35% of annual minimum calories for very poor and poor households and 50-65% for middle and better-off households in the reference year. Wealthier households obtained more food from their own crop production compared to poorer households because they cultivated more land.

Very poor and poor households purchased 60-65% of their minimum annual food needs from the market in the reference year. Middle and better-off households relied on the market for 50-60% of their minimum annual food needs. Food items purchased included cassava flour, maize flour, sugar, cooking oil, meat, groundnuts, fresh fish, dry fish, rice, beans, and soy.

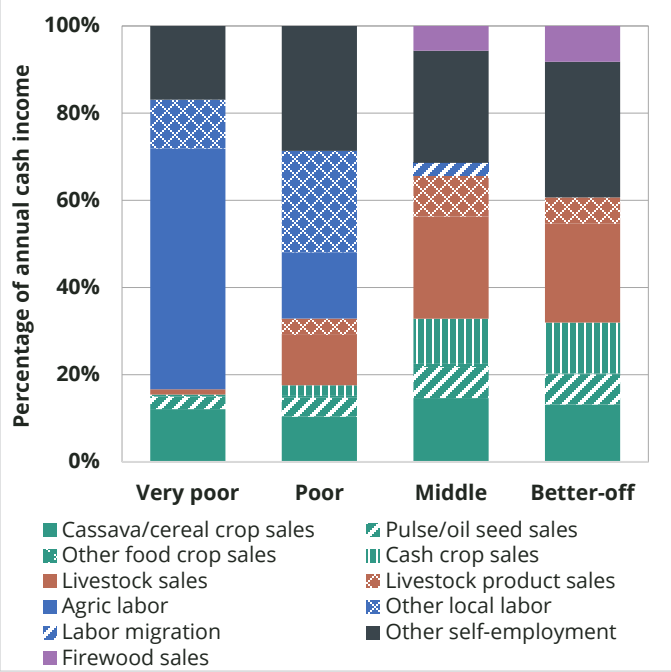
Minor food sources included livestock production and payment in-kind. The contribution of households' own milk/meat production depended on the level of livestock ownership. Middle and better-off households owned more livestock during the reference year, including milking cattle, and hence obtained more calories from their own livestock. Payment in-kind includes agricultural labor during harvest and post-harvest work (threshing and winnowing) for very poor and poor households, and labor migration for middle households.

Overall, the reference year was average in terms of food security, with most households meeting their minimum annual food energy needs.

Sources of Cash Income

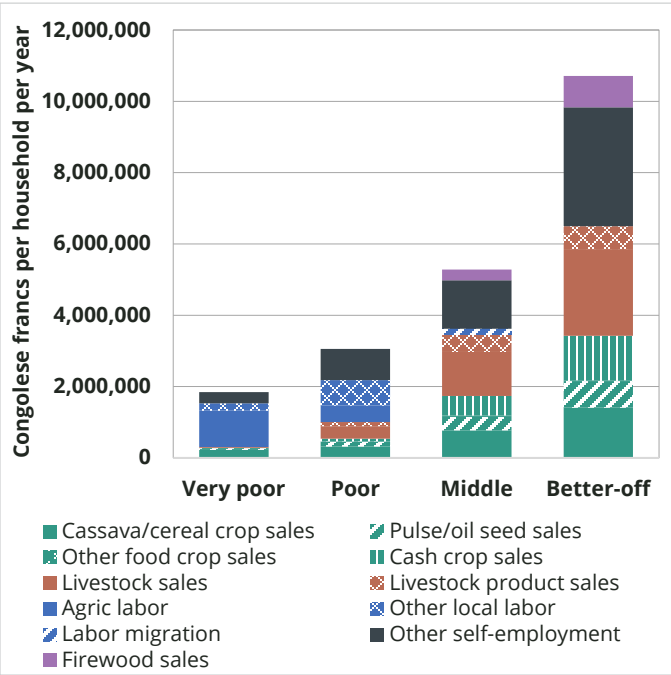
Agricultural production is the main livelihood activity in the *Savannah Midland Agriculture Livelihood Zone*, but the primary means of obtaining cash income varies by wealth group (see Figure 5). Wealthier households obtained most of their income from the sale of their own production, while poorer households obtained most of their income from labor in the reference year.

Figure 5. Sources of Cash Income as a Percentage of Annual Cash Income



The main means of obtaining cash income for poorer households was from casual labor (agricultural, construction, and domestic). Other income sources included self-employment (e.g., brewing beer and selling prepared foods), petty trade, crop sales, and some live animal sales. For wealthier households, the main means of obtaining cash income was crop sales. Other income sources included live animal sales, petty trade, firewood/ charcoal sales, livestock product sales, and self-employment (e.g., brewing beer and selling prepared foods).

Figure 6. Total Annual Cash Income



Very poor households earned 50-60% of their total annual cash income from agricultural labor, 5-15% from construction labor, 10-20% from crop sales, 15-20% from self-employment and 0-2% from livestock sales.

Poor households earned 25-35% of their total annual cash income from self-employment (including brewing beer, prepared food sales, and petty trade), 20-25% from construction labor, 15-20% from crop sales, 10-20% from agricultural labor, and 10-20% from livestock and livestock product sales.

Middle households obtained about one-third of their total annual cash income from crop sales, another one-third from livestock and livestock product sales, 20-30% from

self-employment, and another approximately 10% from minor sources (e.g., labor migration and firewood sales).

Better-off households obtained one-third of their total annual cash income from crop sales, 25-35% from livestock and livestock product sales, 25-35% from self-employment, and 5-10% from firewood sales.

There is a large difference in wealth between very poor and better-off households. In the June 2021 to May 2022 reference year, better-off households earned almost six times more cash income than very poor households and three to four times more than poor households. This gap is illustrated in Figure 6 and Table 4.

Table 4. Income Summary Table (Congolese Francs or CDF)

Wealth Group	Very Poor	Poor	Middle	Better-Off
Annual income per household[3]	1,300,000-2,400,000	2,000,000-3,500,000	2,500,000-4,500,000	5,000,000-7,000,000

Expenditure Patterns

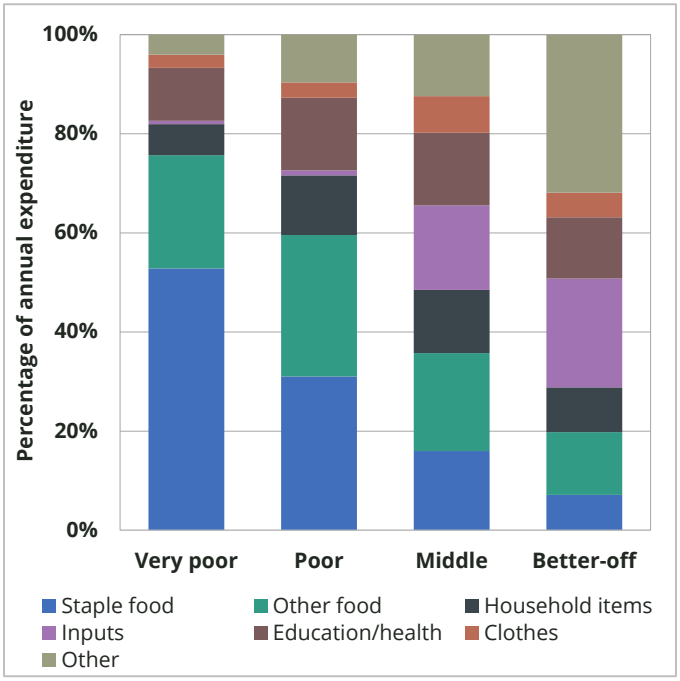
Figure 7 presents expenditure patterns for the reference year from June 2022 to May 2022. While absolute expenditure increases with wealth in line with total cash income, this graph's expenditure breakdown by percentage shows the *relative* amount of income spent on different categories. Households in the zone need to cover a range of essential expenditures over the year. These include staple foods, non-staple foods, household items (like salt, soap, tea, lighting, milling services, etc.), productive inputs, social services (which include health and education), clothing, as well as other essential and non-essential items.

As noted in the Sources of Food section, households in this zone secured 50-70% of their annual food energy needs from market purchases. As wealth increased, household expenditure on food as a proportion of total expenditure decreased in the reference year, with very poor households typically spending about 75% of their income on food and better-off households spending about 20%. In contrast, expenditure on productive inputs and on "other" discretionary items increased with wealth, both in absolute terms and as a proportion of total expenditure.

Very poor households spent 70-80% of their income on food, 5-10% on household items, only about 1% on productive inputs, 5-15% on social services (health and education), and less than 5% each on clothes and other purchases (transportation, phone credits, festivals, etc.).

[3] The average exchange rate from June 2021 to May 2022 was 1 USD = 1,990 CDF.

Figure 7. Total Annual Cash Expenditure According to Category



Poor households spent about 60% of their income on food, 10-15% on household items, only about 1% on productive inputs, 10-20% on social services, less than 5% on clothes, and 5-15% on other purchases.

Middle households spent about one-third of their income on food, 10-15% on household items, 15-20% on productive inputs (including livestock drugs, tools, seeds, and agricultural workers), 10-20% on social services, 5-10% on clothes, and 10-15% on other purchases.

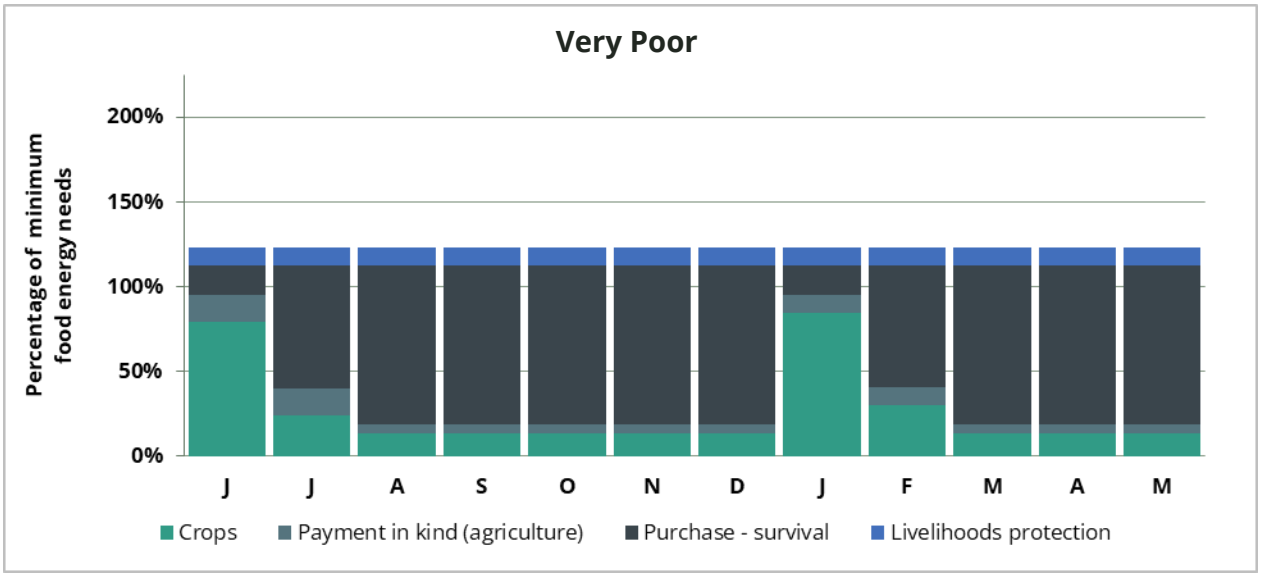
Better-off households spent about 20% of their income on food, 5-15% on household items, 20-25% on productive inputs (including livestock drugs, tools, seeds, and agricultural workers), 10-15% on social services, about 5% on clothes, and 30-35% other purchases.

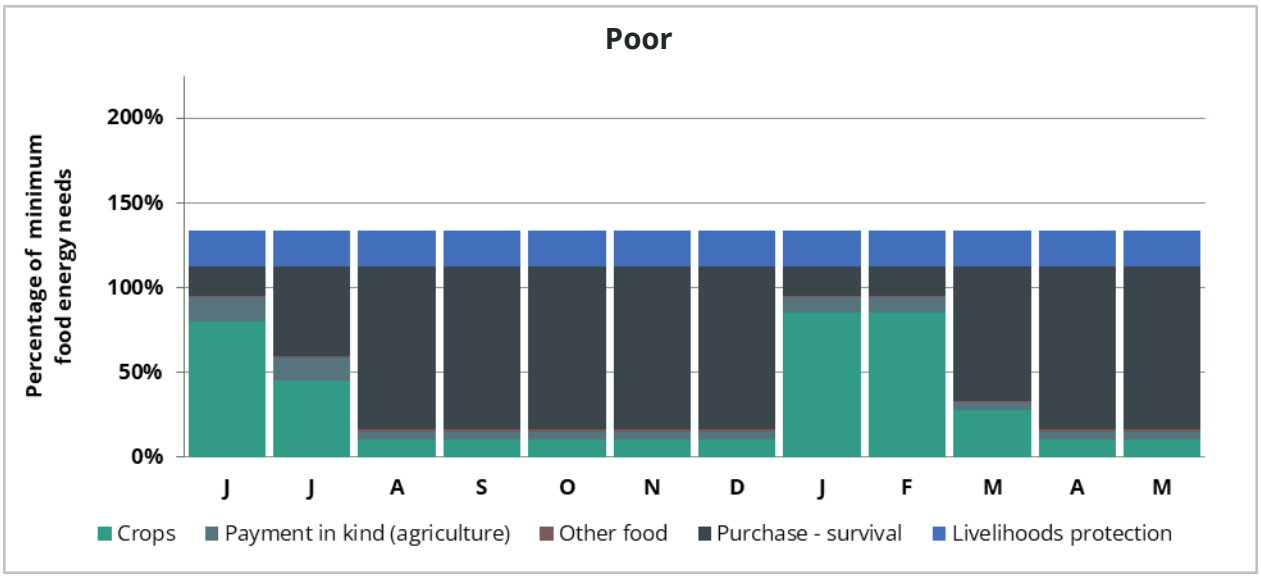
Food Access Calendars

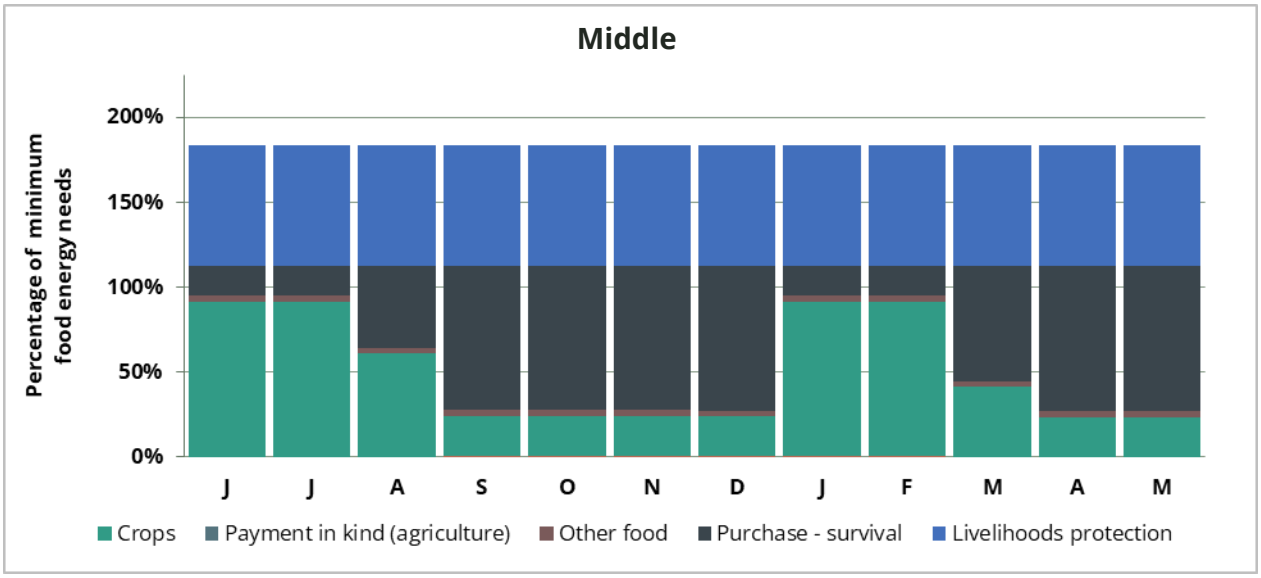
The graphs in Figure 8 present monthly food and cash access calendars for the four wealth groups.

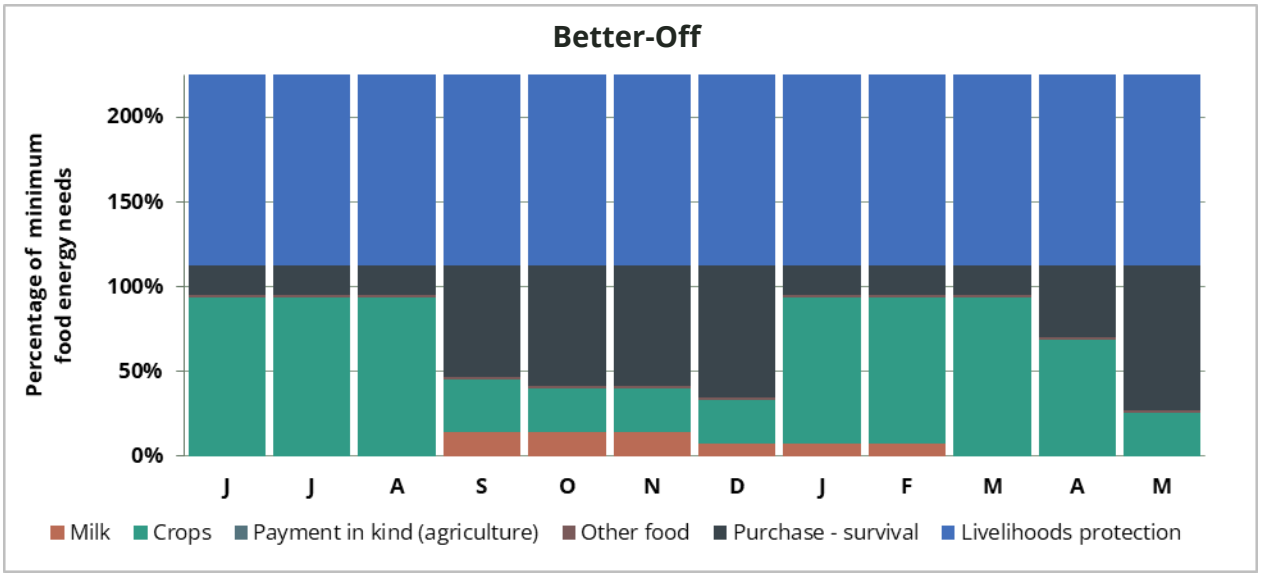
Households in all wealth groups were able to meet their survival and livelihoods protection thresholds year-round in the reference year. The main harvest period in this livelihood zone started in June and the second harvest period started in January. Very poor and poor households obtained some food from payments in-kind for casual agricultural labor (in teal) during the harvest period. Households from all wealth groups purchase food for some months of the year, particularly in September to December and in April to May. Middle and better-off households spent a large proportion of their total income on productive inputs, health, and education ("livelihoods protection" in the Figure 8 graphs).

Figure 8. Seasonal Food and Cash Access Calendars per Wealth Group









Poor Female-Headed Households

Female-headed households are found in all wealth groups, as shown in the wealth breakdown table (Figure 3 above). These include women who are widows, women who were abandoned by their husbands, or single women living alone with their children. During field work, data collectors conducted in-depth interviews with female-headed households from the poor wealth group. This group that faces similar constraints and characteristics as poor male-headed households, but they are further disadvantaged by a lack of productive intrahousehold labor and, potentially, constraints on certain types of asset ownership, productive work, or income-generating activities.

Figure 9 shows that poor female-headed households and poor male-headed households share a similar pattern of food access. Poor male-headed households obtained almost 10% more food from

their own crops compared to poor female-headed households, and the latter made up for this deficit through increased cereal purchases.

Figure 9. Sources of Food: Poor Households vs Poor Female-Headed Households

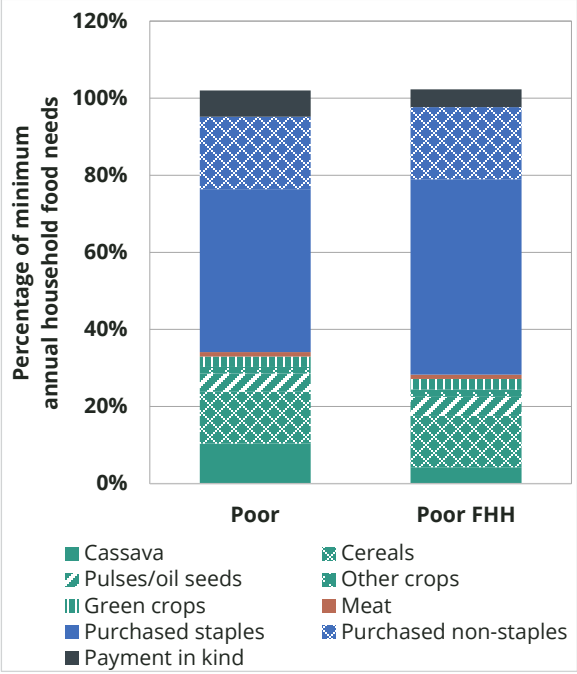


Figure 10. Sources of Cash: Poor Households vs Poor Female-Headed Households

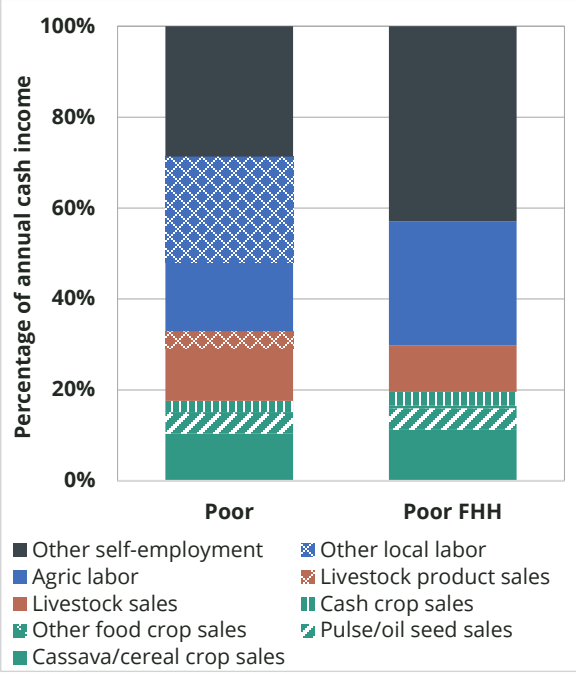


Figure 10 shows that poor female-headed households also have similar options for obtaining cash income as poor male-headed households except for livestock product sales and construction labor, which are more common for male-headed households. In absolute terms, the annual cash income of poor female-headed households is lower than male-headed households.

Response Strategies

In response to hazards and years with bad production, households attempt to meet their minimum food needs and cash requirements through several strategies. Responses implemented vary across wealth groups. Below are some common strategies employed by households.

All households try to reduce expenditure on non-essential or more expensive items first, like either cutting down on festival costs or not buying clothes or utensils that year. Households consume mainly cassava, which is the least expensive staple.

Very Poor and Poor Households

Very poor and poor households try to increase cash income by intensifying daily casual labor activities. However, in lean years, as increasing numbers of people flood the labor market, this option quickly loses its value because wage rates drop and jobs are harder to find. Poorer

households also intensify self-employment activities, like selling firewood, charcoal, and stones in lean years. Poorer households also resort to debt.

Middle and Better-Off Households

Middle and better-off households cope with hazards differently. In lean years, middle and better-off households sell additional livestock to cover basic food and non-food expenses. They also increase self-employment activities, like trade, and may have additional household members migrate to look for work and/or increase the duration of stay for those who migrate in search of work. Wealthier households also resort to debt.

Key Parameters for Monitoring

The key parameters listed in Table 5 are food and income sources that make a substantial contribution to the household economy in the *Savannah Midland Agriculture Livelihood Zone*. These should be monitored to indicate potential losses or gains to local household economies, either through ongoing monitoring systems or through periodic assessments.

Table 5. Key Parameters for Monitoring

Item	Key Parameter – Quantity	Key Parameter – Price
Crop production	• Cassava – quantity produced • Maize Season A – quantity produced • Beans Season A – quantity produced • Beans Season B – quantity produce • Vegetables – quantity produced	• Cassava – producer price • Maize Season A – producer price • Beans Season A – producer price • Beans Season B – producer price • Vegetables – producer price
Livestock production	• Cow milk – yields • Cattle – herd size • Goats – herd size • Pigs – herd size	• Cow milk – producer price • Cattle – producer price • Goats – producer price • Pigs – producer price
Other food and cash income	• Harvest labor (in-kind) – number of days • Construction labor – number of days • Domestic labor – number of days • Cultivation labor – number of days • Harvest labor – number of days • Migration labor – number of days • Firewood/charcoal sales – amount sold • Self-employment (brewing beer, prepared food sales) – demand • Petty trade – demand	• Construction labor – wage rates • Domestic labor – wage rates • Cultivation labor – wage rates • Harvest labor – wage rates • Migration labor – wage rates • Firewood/charcoal sales – amount earned • Self-employment (brewing beer, prepared food sales) – amount earned • Petty trade – daily earnings
Expenditure		• Cassava – consumer price • Maize – consumer price

CD11 Livelihood Zone

Reference Year: December 2022–November 2023

Virunga Volcanic Soils Cultivation and Cattle Livelihood Zone

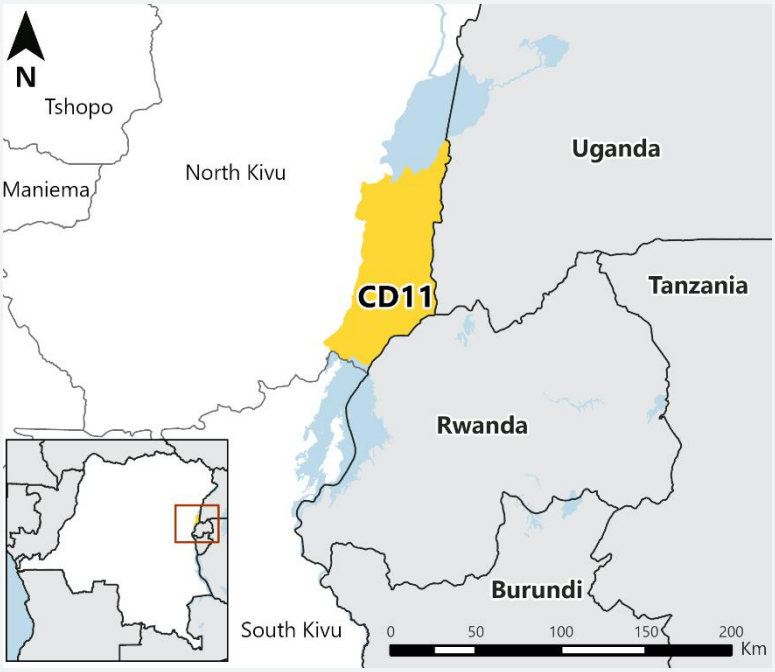


Figure 1. CD11 Livelihood Zone Map

Summary: The *Virunga Volcanic Soils Cultivation and Cattle Livelihood Zone* (CD11) is a small, densely populated, rural livelihood zone in the far east of the Democratic Republic of the Congo (DRC). It is part of North Kivu Province (Rutshuru, Nyiragongo, and part of Masisi Territories), located in the highlands between the Mitumba Mountains to the west and the Virunga Mountains, shared with Uganda and Rwanda to the east. The zone's climate is tropical highland humid, influenced by both elevation and proximity to the equator, with annual rainfall between 1,500 and 2,000 millimeters (mm), spread over two distinct Rainy Seasons. The average elevation, around which most human activity concentrates, is about 2,000 meters (m). The key economic activities include crop production, livestock rearing, petty trade, and casual labor. The most important crops are potatoes, sweet potatoes, maize, and beans. Livestock rearing includes cattle, goats, sheep, pigs, and poultry. Very poor and poor households rely on casual labor payments (mainly for agriculture labor for better-off households locally) as a source of food and cash income. Middle and better-off households have livestock as an additional source of food and cash income. There is a school feeding program in some villages in the zone.

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Zone Description

The *Virunga Volcanic Soils Cultivation and Cattle Livelihood Zone* (CD11)[1] is an agro-pastoral zone covering North Kivu Province (Rutshuru, Nyiragongo, and part of Masisi Territories) in the eastern part of the DRC. The population of the zone is 996,854, with a population density of 203 people per square kilometer, which is high by DRC standards.[2]

This region is known for its mountainous terrain, rich biodiversity, and national parks. It is also a region that has experienced various conflicts and instability due to its borders with Uganda and Rwanda.[3] CD11 experiences a tropical highland climate, influenced by its elevation of 900 to 4,500 m and proximity to the equator, with average temperatures ranging from 18°C to 24°C throughout the year. The cooler months, from July to August, typically see average temperatures ranging from 15°C to 17°C, particularly at higher elevations. The hottest months are often January and February, with average temperatures ranging from 21°C to 24°C. Relative humidity ranges 70-85%, and annual rainfall ranges 1,500-2,000 mm. The topography is characterized by mountains, hills, and plains, with vegetation predominantly consisting of savannah with herbaceous plants, like elephant grass (*Pennisetum purpureum*) and *Hyparrhenia spp*. The elevation ranges from 900 m at Lake Edward to 4,500 m. The lower elevations are characterized by valleys and foothills, mainly in Rutshuru Territory, with an average elevation of 1,250 m. The higher elevations are in the volcanic mountain ranges, particularly in areas like the Virunga Mountains, which include some of the highest peaks in Africa, such as Mount Nyiragongo (3,470 m) and Mount Mikeno (4,437 m). However, in Nyiragongo Territory, the average elevation, where most human activity concentrates, is about 2000 m.

Virunga National Park covers a large part of the zone's central area from north to south. It was established in 1925 to protect the mountain gorillas living in the forests of the Virunga Mountains and is a UNESCO World Heritage Site. The rivers in CD11 are generally permanent, mainly due to reliable precipitation that supports the flow of rivers year-round, while the dense forests and rich vegetation in the region help to maintain the water cycle by retaining moisture, reducing evaporation, and ensuring a steady release of water into rivers, eventually feeding the lakes. The main rivers are the Rutshuru and Ruzizi. Several key roads service the zone, including national highway N2, Goma-Rutshuru road, and Goma-Masisi road. Goma and Rutshuru are the main urban centers, in the far south and center of the zone, respectively. Aside from forest woods, the zone is rich in resources for construction; gravel, sand, and lime are all essential for building construction, and they find a ready market, especially in Goma.

[1] Fieldwork for the current profile was undertaken from August 12 to September 3, 2024. The information presented in this profile refers to the reference year, which was the consumption year covering December 2022 to November 2023. Provided there are no fundamental and rapid shifts in the economy, the information in this profile is expected to remain valid for approximately five to 10 years (i.e., until 2028-2033). All prices referred to in the document are for the reference year.
[2] FEWS NET Data Explorer, population data (2023), accessed 2025, https://fdw.fews.net/data-explorer/.
[3] This baseline profile was based on information collected in only one territory, Rutshuru Territory, in North Kivu Province, which is considered relatively secure.

Household livelihoods in this zone involve agriculture, livestock rearing, petty trade, and paid labor. These activities are supplemented by self-employment, such as firewood and charcoal sales, timber wood sales (primarily eucalyptus, which is used for making beds and chairs as well as for charcoal production and firewood), the sale of young eucalyptus for transplanting, domestic work, and motorcycle and wooden scooter (*tshukudu*) transport for people or goods.

CD11 has fertile soils promoting high crop yields. There are sandy clay soils in Rutshuru and volcanic soils at high elevations in Nyiragongo, which contain essential nutrients like potassium, magnesium, phosphorus, and sulfur for maximal crop growth. However, it is known as a food-deficit zone in one year out of every three. This is primarily due to external factors, such as the volcanic eruption in 2021, which negatively impacted agricultural production, and the displacement of the population in 2022 due to the M23 armed conflict, which restricted access to fields. The key crops are maize, beans, Irish potatoes, sweet potatoes, and vegetables, all of which use rainfed cultivation. There are two production seasons per year; Season A runs from August to January and Season B runs from February to July, with some variation in planting and harvesting periods by crop.

All crops, except for market garden produce, are cultivated in combination in the same field (i.e., intercropped). Agricultural practices in the zone are solely reliant on manual labor, with hand digging as the sole method for soil preparation. This is consistent across different socioeconomic groups, with no significant variation between poorer and wealthier households. The activities are land preparation, sowing/planting, weeding, and harvesting; all but sowing/planting are labor intensive. Middle and better-off households typically hire workers for field labor, paying in cash and payment in-kind (i.e., payment directly in food), mainly maize. Households from all wealth groups use agricultural inputs, especially fertilizers (e.g., NPK, urea) and organic matter, particularly for growing Irish potatoes and cabbages. Households traditionally store their harvests in their homes, but in 2019, 2020, and 2021, the World Food Programme operated a major program for communal warehouses and granaries. These were destroyed or abandoned in 2022 because of warfare and population displacement. While there were no farmers' cooperatives in the reference year, in previous years, households benefited from organizations that provided training in cultivation techniques and facilitated group sales of crops.

Livestock production in the region is centered around cattle, goat, sheep, pig, and poultry rearing. Cattle and goats typically graze on open pasture grass and brush, supplemented with crop residues. Pigs and poultry, on the other hand, are stall-fed, mainly on crop residues, cereals, and household food waste. Households do not purchase livestock feed. During the Rainy Season, livestock in Nyiragongo access water from seasonal pools and collected rainwater, while in Rutshuru, secondary rivers serve as the main water sources. In the Dry Season, livestock in Nyiragongo rely on water stored in tanks, while in Rutshuru, they continue to use secondary rivers. Milking occurs during both the Rainy and Dry Seasons for cattle. Households in this zone sell live livestock at specific times. Livestock products sold in the area include milk, skins, and eggs. Cattle are not usually replaced by purchase; instead, households wait for herds to multiply naturally. In terms of livestock

management, traditional breeding methods are employed; there is no formal control over breeding. In addition, there is no livestock migration for seasonal grazing.

In addition to cultivation and livestock raising, households in this zone engage in several other activities that are important for their income, including petty retail trade and other trade, paid agricultural labor, and charcoal production and sales. Petty trade takes place locally. Charcoal sales are conducted locally along the main road, where it is traded to towns. People principally go to Goma for seasonal work migration. Other self-employment involves motorcycle transport and *tshukudu* transport, the collection and sale of gravel, and the sale of young eucalyptus plants and vegetables.

Several endemic and periodic problems or hazards affect the zone's economy and livelihoods. Epizootic and epiphytic outbreaks are endemic problems that happen every year. The most frequent hazards are torrential rains, which occur approximately every other year, that cause soil erosion and destroy crops. Volcanic eruptions occur once every five years and pose a significant threat. Other risks include human disease outbreaks, particularly diarrhea, typhoid fever, and cholera, underscoring the ongoing public health challenges in CD11.

Households from all wealth groups obtain water from hydrants for drinking and other domestic uses. They can also obtain water from holding water from lakes and tanks managed by NGOs and the government, with a standard water payment of 500 Congolese francs (CDF) per can. Households from all wealth groups use pit latrines with wooden platforms. Domestic waste is disposed of in garbage pits.

Poorer households obtain healthcare through traditional medicine as well as health centers, while wealthier households generally access health centers and, if necessary, hospitals, as they can afford the transport and fees. Lighting and cooking fuel further illustrate the gap between the wealth groups. Poorer households mainly use flashlights for lighting and firewood for cooking fuel, whereas wealthier households use battery-operated lanterns and solar panels for lighting and charcoal in addition to firewood for cooking. For communication technology, poorer households have basic voice-only phones, and wealthier households typically pay for both voice and data services.

Education levels show a notable difference, with individuals from poorer households typically achieving only primary education, while individuals from wealthier households typically reach secondary and often further education. Borrowing money is a common practice in CD11. Households borrow typically through *Associations Villageoises d'Épargne et de Crédit* (AVEC), a community-based savings and credit system. AVEC is accessible by all wealth groups, including the poorest households. Loans are given on the condition of membership and are repayable over a three-month period with a 10% interest rate. Beyond this, households in this zone do not generally receive money from other households or family members, whether they are within or outside the livelihood zone.

Markets

In CD11, market access is good, with road links from outside to the livelihood zone passable during the Rainy Season as well as the Dry Season, with internal dirt roads generally in good condition. Bridges in the zone are well maintained.

Key crops, such as beans, potatoes, and maize, are primarily moved from local markets along trade routes that connect Rutshuru, Nyiragongo, Goma, Bukavu, Kinshasa, Uganda, and Rwanda. The peak sales months vary depending on the product and the route. Similarly, main livestock are traded through routes linking Rutshuru, Nyiragongo, Goma, and Kinshasa, with December being the peak sales month due to seasonal festivals. Other products, including wood, charcoal, and lime, are traded along routes between Nyiragongo, Goma, and Uganda. Staples such as beans, potatoes, corn, and rice are typically purchased along routes to Masisi, Goma, Nyiragongo, and Rutshuru.

The casual labor market is primarily centered in rural areas, where about 60% of casual work is done by local households. The remaining 40% occurs through seasonal work migration, especially to Goma, increasingly during lean years. There is no significant labor migration into the zone.

Timeline and Reference Year

The baseline assessment refers to a specific period called the “reference year.” In the zone, the reference year covers the consumption period from December 2022 to November 2023. During community leader interviews, informants were asked to score the last five years in terms of seasonal performance with “1” indicating a poor season and “5” indicating an excellent season. Table 1 summarizes community leader responses.

Key informants ranked Season A of 2018-19 as “4” (above average) in terms of household food security. Season A of 2019-20 and Seasons A and B of the reference year were ranked as “3” (average). Season A 2020-2021 to Season B 2022 were ranked as “2” (below average). The reference year, which includes consumption from the 2022 Season A harvest and the 2023 Season B harvest, was characterized as an average year for agricultural production. Key factors contributing to this stability included access to agricultural inputs and normal rainfall conditions, which played a significant role in maintaining steady agricultural output despite potential challenges. While the reference year did not experience any conflict, the zone is occasionally affected by politically based armed conflict, which tends to be extensive rather than localized. Conflict has significant impacts across different wealth groups, resulting in the loss of access to land and markets and restrictions on local grazing movement. In 2023, despite the challenges posed by overcrowding and the aftermath of the armed conflict in 2022 that led to massive population displacement, households coped with shocks and normal livelihood activities resumed, supported by significant humanitarian assistance in the fields of food security and health.

Table 1. Timeline

Production Year/Season	Score	Critical Events
2023/Season B	3	In 2023, Season A was characterized by torrential rains, an epizootic disease outbreak (*peste des petits ruminants*), and insecurity affecting some access to fields. However, overall substantial crops were still produced. During Season B, agricultural production remained stable. These factors contributed to an overall average year for food security among households.
2022-2023/Season A	3	
2022/Season B	2	In 2022, armed conflict, harassment, massive population displacement, and a water-borne disease outbreak marked the year. Households resorted to humanitarian aid, increased paid labor, and coping with property loss and crop theft, sometimes resorting to begging. Both seasons were below average for household food security.
2021-2022/Season A	2	
2021/Season B	2	In 2021, agricultural production in Nyiragongo suffered due to extensive soil pollution from volcanic ash after an eruption from which lava also burnt houses, leading to an increased reliance on humanitarian aid and more people working as day laborers in Goma. In addition, there was a disease outbreak among small ruminants and cattle disease. As a result, both Seasons A and B were classified as below normal for household food security.
2020-2021/Season A	2	
2020/Season B	3	In 2020, access to agricultural inputs for potatoes and market gardening was severely restricted due to trade restrictions during COVID-19. Households faced similar challenges in Season B, with an outbreak of epizootic disease compounding the difficulties. As a result, both Seasons A and B were considered normal for household food security.
2019-2020/Season A	3	
2019/Season B	4	There was successful agricultural and livestock production in both seasons, although epizootic disease was present during Season A. Nevertheless, Seasons A and B were classified as above average for household food security.
2018-2019/Season A	4	

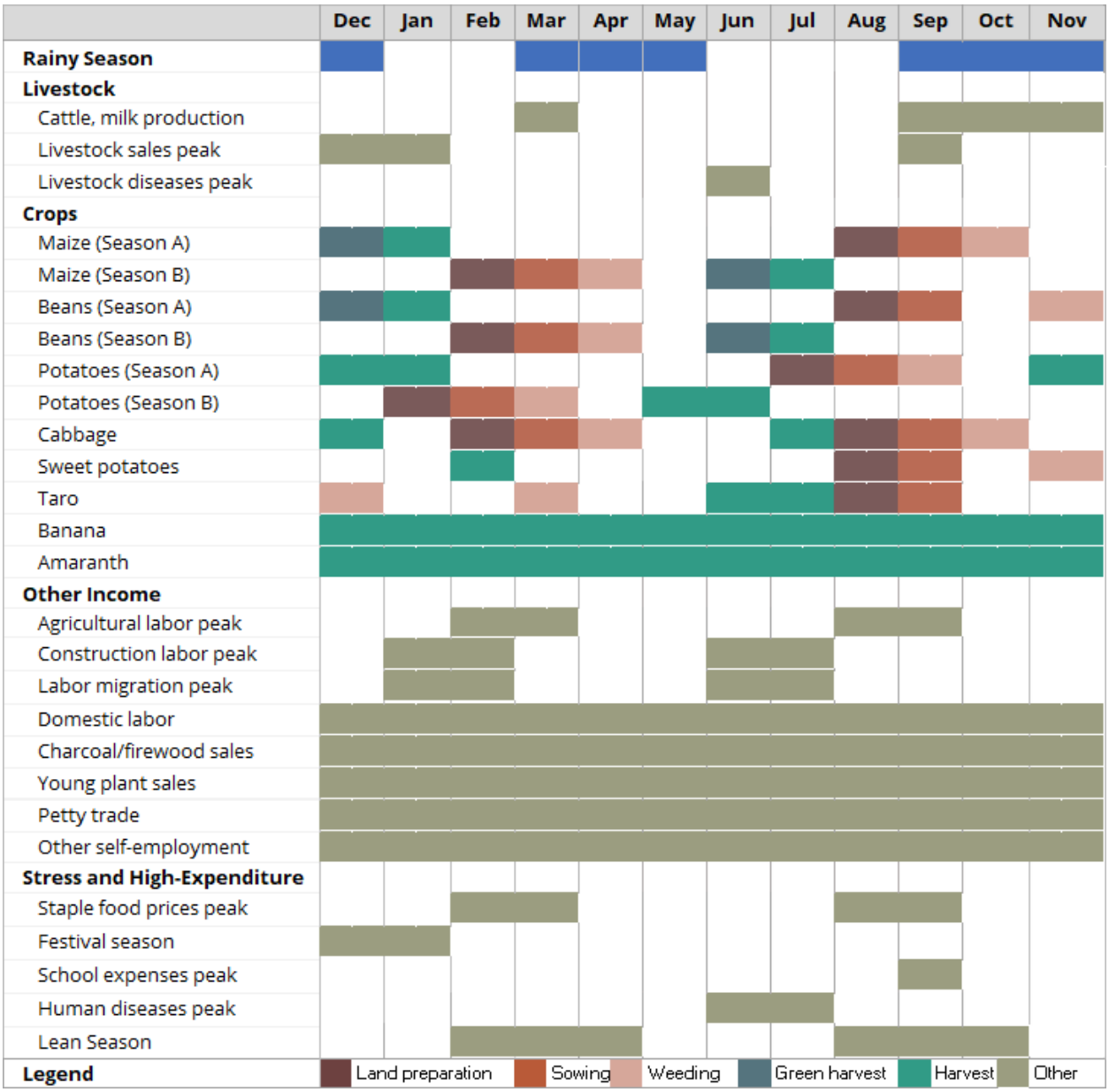
5 = an excellent season for household food security (e.g., due to good rains, good prices, good crop yields)
4 = a good season or above average season for household food security
3 = an average season for household food security
2 = a below average season for household food security
1 = a poor season for household food security (e.g., due to drought, flooding, livestock disease, pest attack)

Note: Production year refers to the farming year, usually beginning with the start of the main rains.

Seasonal Calendar for Reference Year

The seasonal calendar (see Figure 2) illustrates the main economic activities and events of the reference year. It traces the rainy months, livestock activities, agricultural activities, other important income activities periods, and stress and high-expenditure periods.

Figure 2. Seasonal Calendar



In CD11, the Rainy Seasons typically follow a bimodal pattern, to which rain-fed agriculture and livestock rearing are closely adapted. The rains allow Season A to start in September and end in December. The second Rainy Season starts in March and ends in May, supporting the second cycle in Season B. Maize is cultivated during both seasons. The main crop is in Season A, when land is

prepared in August, sowing occurs in September, weeding in October, and harvesting in January. Season B for maize starts with land preparation in February, sowing in March, weeding in April, and harvesting in July. Beans are cultivated in two seasons as well, with the land preparation in August, sowing in September, weeding in November, and harvesting in January. For Season B, land preparation occurs in February, sowing in March, weeding in April, and harvesting in July. “Green harvest” means cutting or pulling up crops that are not fully mature before the proper harvest time to be consumed “fresh.” Season A green consumption of maize and of beans occurs in December, and Season B green consumption for the same crops happens in June.

Irish potatoes are also cultivated in the two seasons. In both seasons, land preparation starts one month earlier than for maize and beans, in July and January, respectively. Season A sowing occurs in August, weeding in September, and harvesting from November to January. Season B sowing happens in February, weeding in March, and harvesting starts in May and extends to June.

Households in this zone also cultivate sweet potatoes, cabbage, taro, and bananas. Land preparation for sweet potatoes occurs in August, sowing in September, weeding in November, and harvesting in February. Cabbage is cultivated in two seasons. In Season A, land preparation occurs in August, sowing in September, weeding in October, and harvesting in January. In Season B, land preparation occurs in February, sowing in March, weeding in April, and harvesting in July. Land preparation for taro occurs in August, sowing in September, weeding is done in December and again in March, and harvesting happens from June to July. Bananas are a perennial crop, and their harvesting continues throughout the year. Amaranth is commonly grown in the zone, whether as a shorter-term perennial or an annual crop, and the leaves are harvested for consumption and sale throughout the year.

During the rainy period, the availability of surface water and pasture for livestock improves, leading to increased reproduction and productivity. Gestation periods are 5-6 months for small ruminants (goats and sheep) and almost four months for pigs. Livestock are mostly sold in December and January, coinciding with the festive season, and in September as households prepare for the school year. Animal slaughter typically occurs in December and in January. Cow milk production is higher from September to November, and during the Rainy Season in March, when cows have an abundance of fresh green fodder. Agricultural paid labor is most intensive from August to February during Season A, and from February to March during Season B. Construction activities and labor migration primarily occur during the Dry Seasons, between June and July and between January and February. Domestic labor, petty trade, firewood sales, charcoal sales, and other self-employment activities occur throughout the entire year.

Livestock disease outbreaks typically occur in June, while human disease outbreaks generally occur from June to July. The Lean Season — the most challenging period in terms of food access — happens from August to September for Season A and from February to March for Season B. During this time, food prices are high and food stocks are depleted, particularly for poorer households.

Table 2 outlines the typical labor divisions, distinguishing between shared and non-shared tasks. Shared tasks among men, women, boys, and girls include land harvesting, petty trade, sand and stone harvesting and sales, sprout sales, and gravel sales. Men are primarily responsible for land preparation, threshing, water application, bird scaring, livestock tasks including livestock slaughter and livestock sales, construction labor, charcoal sales, and *tshukudu* and motorcycle transport. Women, on the other hand, are solely responsible for planting, weeding, winnowing, market crop sales, poultry sales, firewood collection and sales, domestic labor, wood sales, water transportation as business, and vegetable sales. Household chores, including water collection, cooking, feeding small children, laundry, and firewood collection, are also women's responsibilities.

Table 2. Typical Division of Labor

Shared Tasks	Women's Tasks	Men's Tasks
• Harvesting • Petty trade • Selling sprouts • Gravel sales • Wood sales	• Planting, weeding, and winnowing • Crop sales • Poultry sales • Firewood collection and sales • Water transportation • Vegetable sales • Household chores	• Land preparation, threshing • Water application • Bird scaring • Livestock tasks, including livestock slaughter and livestock sales, except poultry • Construction labor • Charcoal production and sales • *Tshukudu* transport • Motorcycle transport

Wealth Breakdown and Productive Assets

Table 3 summarizes the types and numbers of productive assets that typical households within each wealth group own and/or manage. Asset holdings are shown in a range that reflects the diversity of household situations within a wealth group. Figure 3 shows the percentage of households within the zone that falls in each wealth group. The socioeconomic categorization of households in the zone was conducted by the communities themselves.

Wealth distribution in the zone is determined by several key factors, including the amount of cultivable land, labor availability, the number of livestock owned, and the possession of other productive assets, such as motorcycles, wooden scooters, trees (for timber), and kiosks (for trade activities). Middle and better-off households typically own and cultivate more land, though not as much as in less densely populated livelihood zones. Wealthier households have more labor, greater numbers of livestock, and more productive assets compared to poorer households. Access to land varies significantly among wealth groups, with wealthier households owning and cultivating larger portions of land for food and cash crops. Poorer households have small plots of land and are often forced to farm on a sharecropping basis. Socioeconomic disparities also influence the types of crops produced. Only wealthier households tend to grow maize during Season B and cabbage, a main

market garden crop. Poorer households, lacking the financial means to purchase inputs, are unable to grow crops like potatoes intensively, resulting in small quantities being produced. Renting land is not a common practice among different wealth groups. Regarding land inheritance, women generally inherit land through their deceased husbands. Otherwise, women own land primarily through their male relatives, either husbands or parents.

Table 3. Wealth Breakdown

Household Size and Productive Assets	Very Poor	Poor	Middle	Better-Off	Poor Female-Headed
Household size	6-8	8-10	8-12	9-15	6-8
Land (hectares [ha])	0.1-0.3	0.25-0.75	1-2	2-3	0.3-0.5
Land cultivated (ha)	0.1-0.3	0.25-0.75	1-2	2-3	0.3-0.5
Land cultivated – food crops (ha)	0.1-0.3	0.25-0.75	1	1-2	0.3-0.5
Land cultivated – cash crops (ha)	0	0	0-1	1	0
Cattle	0	0	0-4	2-8	0
Pigs	0	1	2-4	2-8	0
Goats	0-2	0-2	3-6	5-10	0-2
Sheep	0	0	0-5	0-7	0
Poultry	5-10	5-10	10-15	10-20	3-7
Motorcycles	0	0	0-2	0-3	0
Tshukudu (wooden scooters)	0-1	0-1	0-2	0-2	0
Eucalyptus plants for sale	0	0-30	500-1,500	500-5,000	0
Kiosks	0	0	1	1	0

There are arrangements between wealth groups that impact livestock production. For instance, middle and better-off households provide small ruminants to poorer households for breeding. In return, the poorer households are allowed to keep a kid or lamb after the second birth. Women in this zone typically do not buy or inherit their own livestock; instead, ownership is generally tied to their husbands. The exceptions are poor female-headed households that own few poultry and even fewer goats.

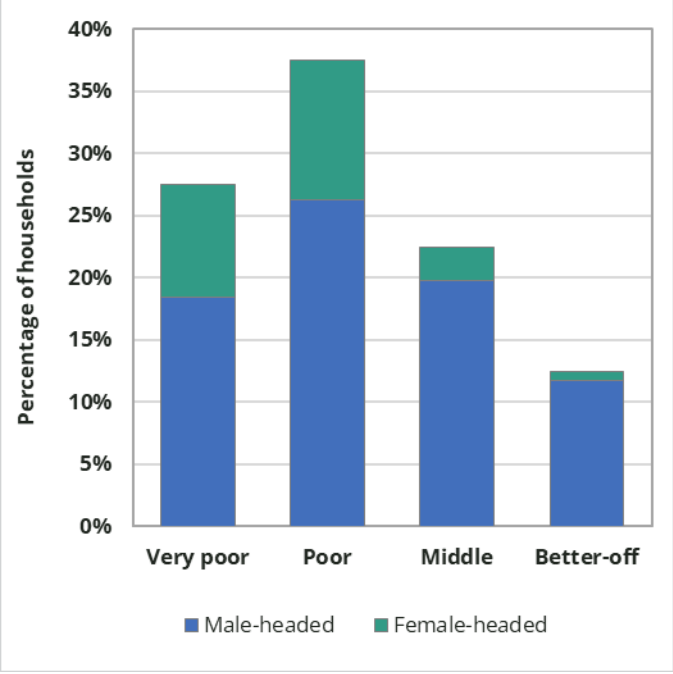
During the reference year, households from all wealth groups cultivated all the land they owned. Differences in the number of crops produced were a function of both the area cultivated and the inputs used (fertilizers, etc.). Middle and better-off households contracted labor, while very poor and poor households only use their own household members to work on their land while also working for wealthier households in exchange for food or cash.

Land areas cultivated increased with wealth. Better-off households cultivated more than 12 times the land cultivated by very poor households. On a per-capita basis, better-off households cultivated more than seven times the land cultivated by very poor households.

Livestock is a major source of income for wealthier households in this zone, serving as an important means of investing, saving, and safeguarding against difficult years. Livestock kept include cattle, pigs, goats, sheep, and poultry. For wealthier households who own cattle, milk is a substantial part of their diet as well as their income. Middle households own up to four cattle, 2-4 pigs, 3-6 goats, up to five sheep, and 10-15 poultry. Better-off households typically own 2-8 cattle, 2-8 pigs, 5-10 goats, up to seven sheep, and 10-20 poultry. In contrast, very poor households usually have a maximum of two goats and 5-10 poultry, while poor households may own one pig, up to two goats, and 5-10 poultry. Poor female-headed households are often limited to owning 3-7 poultry, although some also own 1-2 goats.

Figure 3. Wealth Breakdown

Note: All results are the mid-point of a range



In terms of other asset ownership, very poor and poor households may own up to one *tshukudu*. Middle households may own up to two wooden scooters and as many as two motorcycles. Better-off households typically own a maximum of two wooden scooters and up to three motorcycles. These scooters and motorcycles are primarily used as a source of transport income.

Poor, middle, and better-off households produce eucalyptus seedlings, ranging from 0-30 for poor households, 500-1,500 for middle households, and 500-5,000 for better-off households. After selling some of the plants, households resow and allow them to mature until they can be resold as wood, used in charcoal production, or used as planks for building houses. In addition, some wood is used by bed and chair manufacturers. Generally, the sale of timber is by wealthier households, while poorer households confine themselves to producing and selling nursery plants. Middle and better-off households may own a kiosk for trading activities.

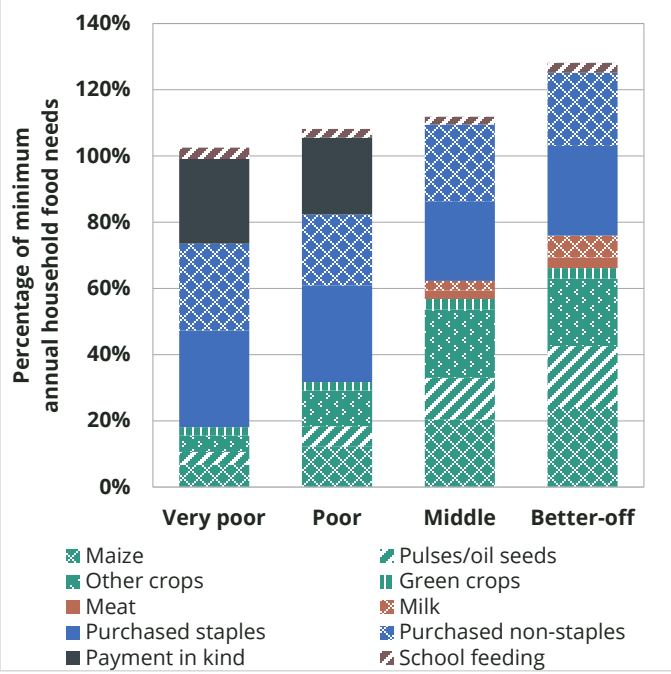
Household size increases with wealth. Very poor and poor female-headed households typically have 6-8 members, poor households have 8-10 members, middle households 8-12 members, and better-off households 9-15 members.

The proportion of households in the community is distributed as follows: very poor households make up 20-35%, poor households 30-45%, middle households 15-30%, and better-off households 10-15%. The proportion of female-headed households decreases as wealth increases. In the very poor wealth group, 25-40% of households are female-headed, 20-40% among poor households, 5-20% among middle households, and a maximum of 10% among better-off households. It is important to note that in this livelihood zone, women have their own portion of land.

Sources of Food

Figure 4 presents the food sources for households in different wealth groups in CD11 for the period December 2022 to November 2023. December represents the start of the consumption year because it is when crop consumption from the main harvest season starts. Food is presented as a percentage of the annual kilocalorie (kcal) needs of the household, based on the internationally accepted standard of 2,100 kcal per person per day.

Figure 4. Sources of Food



Self-grown crops and market purchases, as well as payment in-kind for labor among poorer households, were the main sources of food in this zone. There was a clear, progressive increase in the amount of food consumed with rising wealth. Overall, the very poor consumed between 100-105% of their minimum annual food needs, the poor consumed 105-110%, the middle 105-120%, and the better-off 115-135%.

Households' own harvest was the most important source of food for middle and better-off households, giving 50-70% of their minimum food needs. For very poor households, consumption of their own crops covered 15-25% of their minimum annual food needs, while for poor households, this figure ranged 25-35%. Maize was the main crop consumed by households from all wealth groups. Very poor households obtained 5-10% of minimum annual food needs from maize, poor households obtained 10-15%, middle households obtained 15-25%, and better-off households obtained 20-30%.

Poorer households obtained 2-3% of minimum annual food needs from “green” consumption of maize and beans, while wealthier households obtained 3-4%. The “pulses/oil seeds” category is just beans, an important source of vegetable protein for households. Very poor households obtained about 4% of minimum annual food needs from this category, poor households obtained about 6%, middle households 12-15%, and better-off households 15-20%. Other crops included sweet potato, potato, and taro. Very poor households obtained approximately 5% of minimum annual food needs from these foods; poor households 8-12%; and middle and better-off households 15-25%.

Meat and especially milk from households’ own animals were sources of animal protein, vitamins, and minerals for middle and better-off households, covering approximately 5-10% of their minimum annual food needs. Poorer households typically only consumed animal protein from purchased dried fish and possibly from killing two or three of their poultry during the year.

Purchased food was the primary source of sustenance for poorer households and the second source for wealthier households. These foods can be divided into staples and non-staples. Households across all wealth groups purchased staple foods, including maize, cassava flour, and rice, the latter being something of a luxury at nearly three times the price of maize or cassava flour. Very poor and poor households obtained 25-35% of their minimum annual food needs from staple foods, while middle households obtained 20-30% and better-off households 25-35%. Non-staple foods included sweet potatoes, beans, sugar, meat, oil, dried fish (from the lakes and from more distant sources), vegetables, and potatoes. Households across wealth groups obtained 20-30% of their minimum annual food needs from non-staple foods. Payment in-kind also served as a major source of calories for poorer households, with beans commonly received as labor payment. Very poor households obtained 20-30% of their minimum annual food needs from this source, while poor households obtained 20-25%. In addition, the school feeding program contributed 2-4% to the annual calorie intake of households.

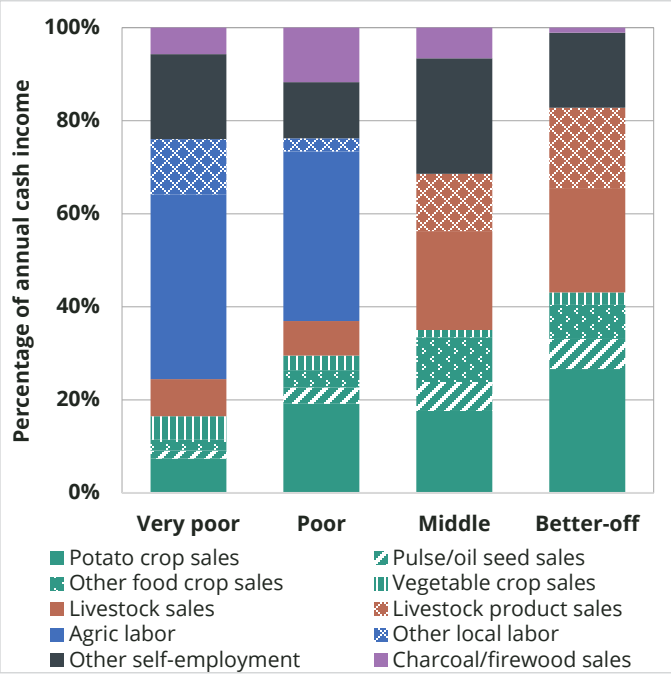
There was no food aid in the livelihood zone in the reference year.

Sources of Cash Income

Households in the different wealth groups obtained their main cash income through different means (see Figure 5). For middle and better-off households, crop sales were the top income source, followed closely by livestock and livestock product earnings. For poorer households, paid labor was overwhelmingly the single-biggest source of income, followed by self-employment, including firewood and charcoal sales and other earnings from transport with wooden scooters. Other activities included petty trade and sale of vegetables, young eucalyptus plants, and gravel.

Agricultural paid labor contributed to 35-45% of very poor households’ total income. This was followed by other self-employment, contributing 15-20%, crop sales 15-18%, other local labor 10-15%. Livestock sales contributed an additional 5-10% of total income, while the remaining approximately 6% was earned from charcoal and firewood sales.

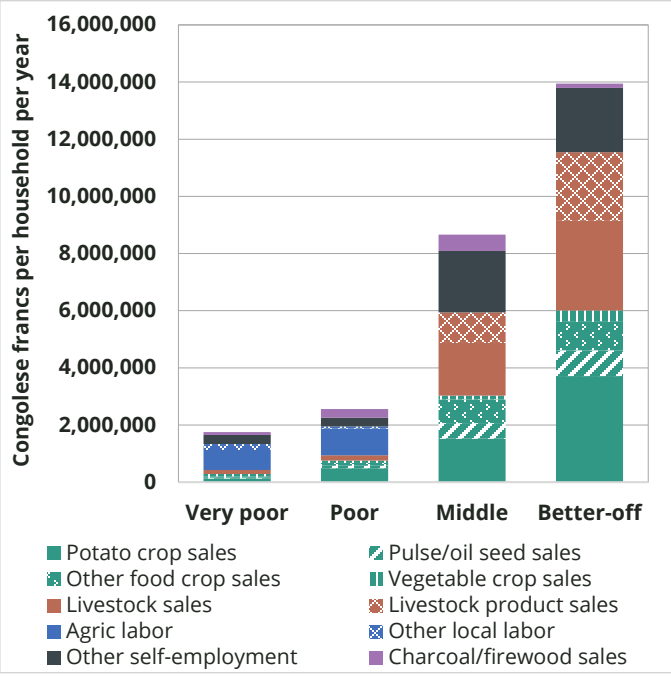
Figure 5. Sources of Cash Income as a Percentage of Annual Cash Income



Poor households generated 30-40% of their cash income from agricultural labor. In addition, they earned 25-35% of their total annual cash income from crop sales, 10-15% from charcoal and firewood sales, another 10-15% from other self-employment, 5-10% from livestock sales, and approximately 3% from other local labor.

Middle households earned 30-40% of their total annual cash income from crop sales, 15-25% from livestock sales, 10-15% from livestock product sales, and 25-40% from self-employment, including 5-10% from charcoal and firewood sales, and most of the remainder from motorcycle transport.

Figure 6. Total Annual Cash Income



Better-off households secured 40-45% of their total annual cash income from crop sales, and around 40% from livestock and livestock product sales. Self-employment contributed 15-20% of their total income, including minimal income from charcoal and firewood sales. Differences between wealth groups in the absolute amount of cash income generated during the reference year were large. This gap is illustrated in Figure 6 and Table 4.

Better-off households earned about eight times the cash income of very poor households. Given the different household sizes of the wealth groups, the differences in per capita cash income were smaller than for total household income. Better-off households earned between four and five times the annual per capita cash income of very poor households. There was a progressive increase in annual per capita cash income with increasing wealth.

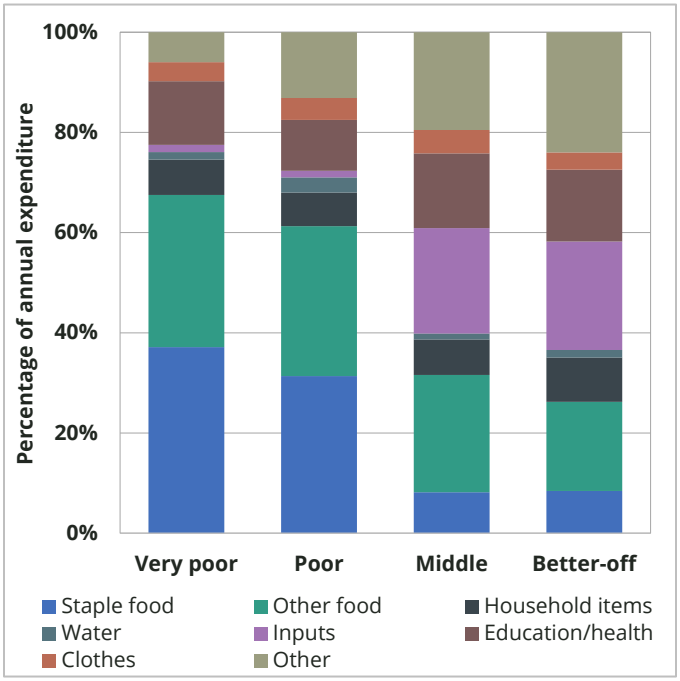
Table 4. Income Summary Table (Congolese Francs or CDF)

Wealth Group	Very Poor	Poor	Middle	Better-Off
Annual income per household[4]	1,500,000–2,000,000	2,000,000–3,000,000	7,000,000–10,000,000	12,000,000–16,000,000

Expenditure Patterns

Figure 7 presents expenditure patterns for the reference year. While absolute expenditure increases with wealth in line with total cash income, the graph's expenditure breakdown by percentage shows the *relative* amount of income spent on different categories.

Figure 7. Total Annual Cash Expenditure by Category



Households in the zone need to cover a range of essential expenditures over the year. These include purchase of staple foods (e.g., maize, cassava flour, rice, and sweet potato); non-staple foods (beans, sugar, meat, oil [mainly palm], dried fish, vegetables, and potatoes); household items/services (condiments including salt, soap, tea, coffee, lighting, milling, etc.); clothes; and productive inputs (e.g., fertilizer, field labor hire, livestock watering). There are also payments for drinking water; health and education; transport; and "other" items, such tobacco, home repairs, domestic, savings, festivals/celebrations, religious contributions, funerals, local beer, and cell phone credits. Households purchased water in the reference year.

Households from all wealth groups spent significant proportions of their annual incomes on food: poorer households spent roughly equally on staples and non-staples, while wealthier households spent much more on non-staples. As noted in the Sources of Food section, households secured between 45% and 60% of their annual food energy needs from food purchases.

For very poor households, expenditure on staple foods accounted for 35-40% of annual expenditure in the reference year. Expenditure on non-staple foods was 25-35%, household items (including lighting and milling costs) represented 5-10%, and water accounted for approximately 1%. Spending

[4] The average exchange rate from December 2022 to November 2023 was 1 USD = 2,382 CDF.

on productive inputs was also around 1%, social services (such as health and education) accounted for 10-15%, clothing and shoes were approximately 4%, and "other" items comprised 5-8%.

For poor households, expenditure on staple foods accounted for 25-35% of annual expenditure, while non-staple foods also constituted 25-35%. Household items represented 5-10%, water approximately 3%, productive inputs about 1%, social services 5-15%, clothing and shoes 3-5%, and "other" items 10-15%.

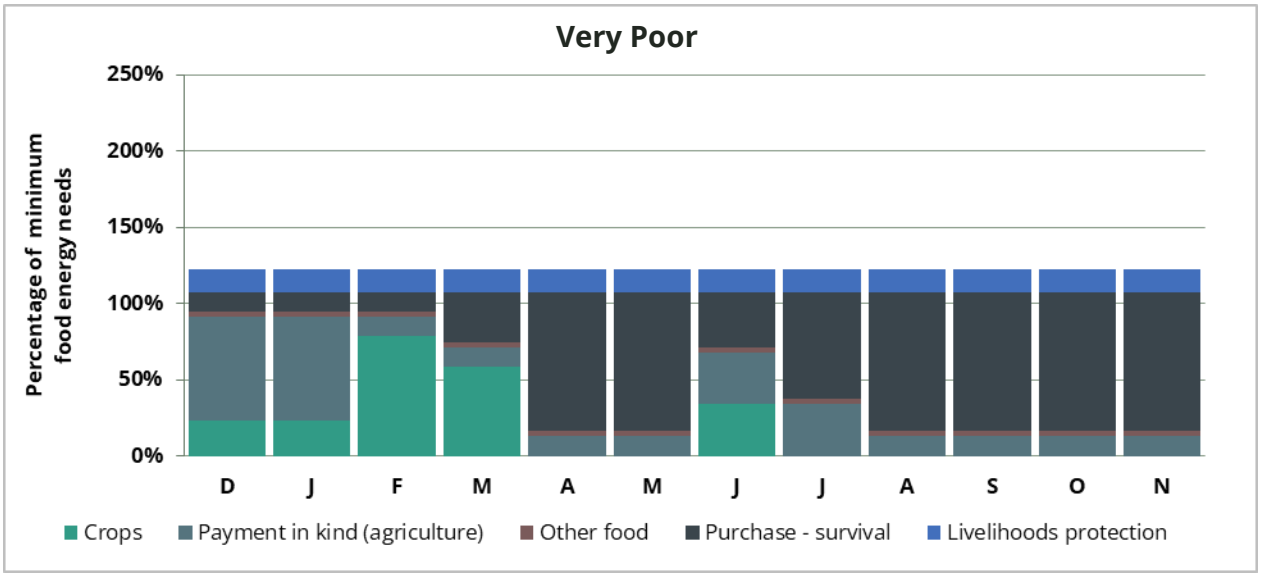
Middle households spent 5-10% of total annual expenditure on staple foods, 20-25% on non-staple foods, 5-10% on household items, and approximately 1% on water. They allocated 15-25% to productive inputs, 10-20% to social services, 2-5% to clothing and shoes, and 20-30% to "other" items. For better-off households, expenditure on staple foods was 5-10%, while non-staple foods accounted for 15-20% of annual expenditures. Household items represented 5-15%, water was about 1%, productive inputs made up 20-25%, social services 10-20%, clothing and shoes about 5%, and "other" items 5-15%.

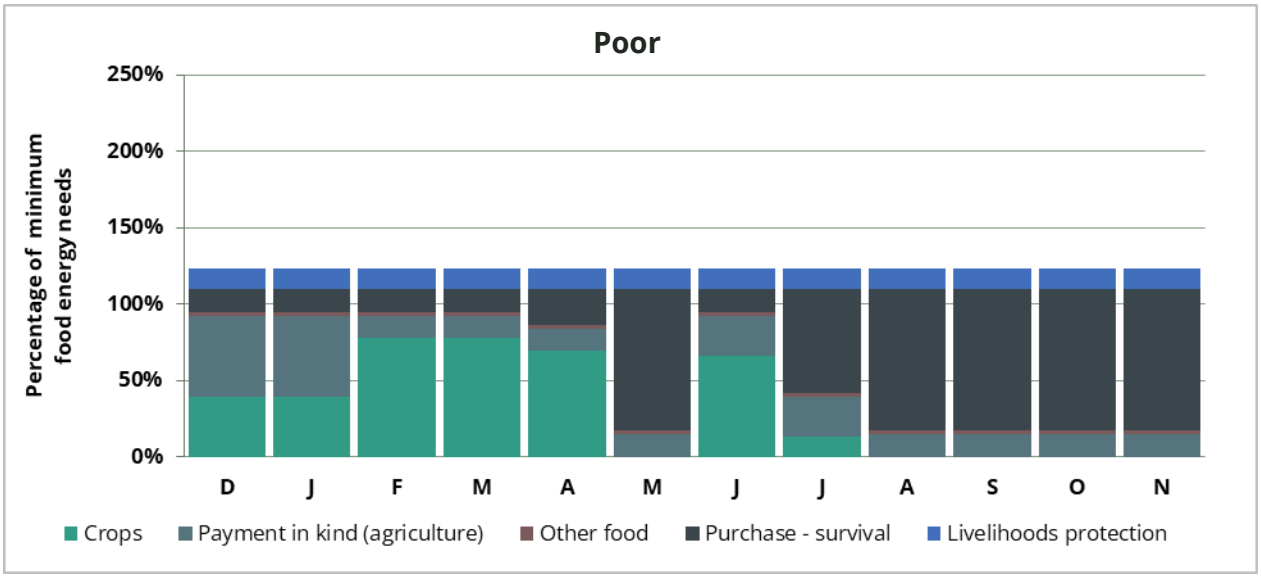
Food Access Calendars

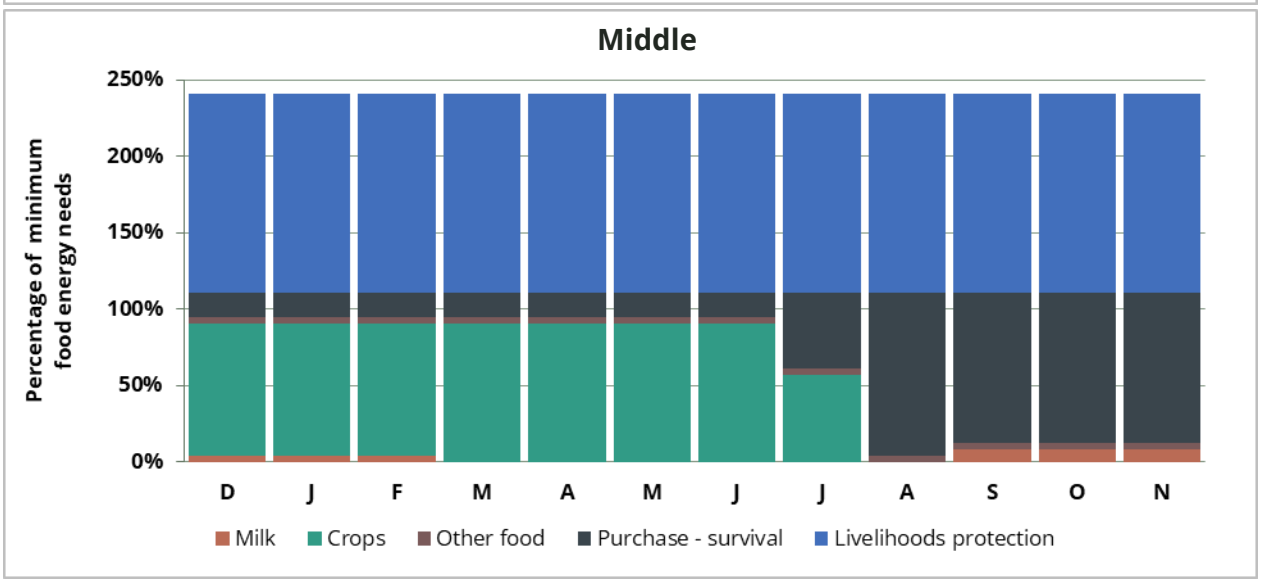
The graphs in Figure 8 present monthly food and cash access calendars for the four wealth groups.

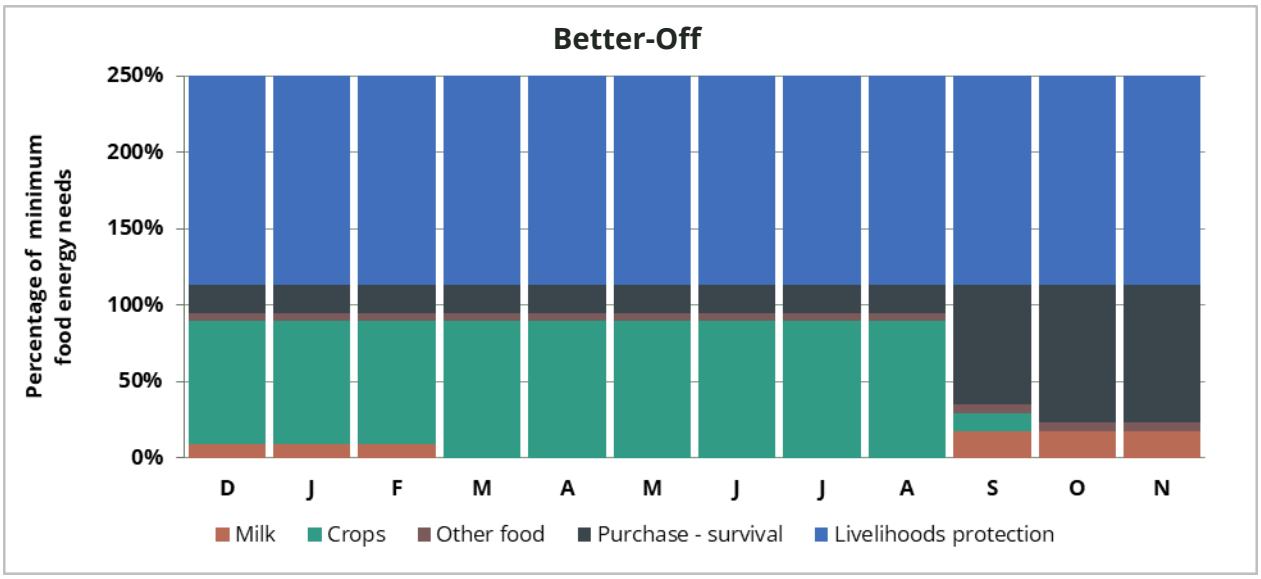
Households in all wealth groups were able to meet their minimum survival and livelihoods protection thresholds year-round in the reference year, with a peak reliance on food purchases from April to May and July to November, particularly for very poor and poor households. Season A harvest starts in December and Season B harvest starts in June. Very poor and poor households obtained some food from payment in-kind for casual agricultural labor (in teal). Middle and better off households were less reliant on food purchases and obtained a small amount of milk from their own cattle.

Figure 8. Seasonal Food and Cash Access Calendars per Wealth Group




Poor
Percentage of minimum food energy needs
250%
200%
150%
100%
50%
0%
D J F M A M J J A S O N
Crops
Payment in kind (agriculture)
Other food
Purchase - survival
Livelihoods protection


Middle
Percentage of minimum food energy needs
250%
200%
150%
100%
50%
0%
D J F M A M J J A S O N
Milk
Crops
Other food
Purchase - survival
Livelihoods protection


Better-Off
Percentage of minimum food energy needs
250%
200%
150%
100%
50%
0%
D J F M A M J J A S O N
Milk
Crops
Other food
Purchase - survival
Livelihoods protection

Poor Female-Headed Households

Female-headed households are found in the very poor and poor wealth groups, as shown in the wealth breakdown in Figure 3. During field work, in-depth interviews were conducted with poor female-headed households. In CD11, the female-headed households are widowed, have been abandoned by their husbands for more than four years, or are otherwise raising children alone. Without a male partner, female heads of household bear heavier responsibilities in managing the household and earning income to support their families. This is a group that faces similar constraints to poor male-headed households, but they are further disadvantaged by a lack of adult male labor, which leads to additional constraints on asset ownership, production, and income-generating activities.

Figure 9 shows that poor female-headed households and poor male-headed households share a similar food access pattern. In the reference year, they both met their annual minimum food energy needs from similar food sources, mainly their own crops and food purchases, but with more able-bodied members, male-headed households were able to gain more in-kind payments for labor. Poor male-headed households cultivated slightly more land than poor female-headed households and thus harvested slightly more and had slightly more calories from crop production than poor female-headed households. Other constraints faced by poor female-headed households in the reference year included a lack of land ownership, restricting their ability to use land as collateral for obtaining loans. Regarding livestock, poor female-headed households struggled with a lack of resources to purchase or maintain animals, which consisted of only a few goats (up to two) and a few poultry (3-7), while poor male-households own more animals, typically including a pig.

The income picture in Figure 10 shows that both poor male-headed households and poor female-headed households had the same sources of cash income in the reference year but in different proportions. The main sources of cash income for poor female-headed households were, in order of importance, agricultural labor payments, crop sales, charcoal and firewood sales, other local labor payments (wood sales and water transportation), and minor contributions from livestock (poultry) sales and self-employment (vegetable sales). Poor female-headed households earned about 70% of poor male-headed households' income in the reference year. However, poor female-headed households had a smaller number of members in the reference year (4-6) than male-headed households (5-9). Per capita cash income was approximately the same for poor female-headed and poor male-headed households.

Agriculture labor made up a slightly higher percentage of annual cash income for poor male-headed households, 30-40% compared to 30-35% for poor female-headed households. Other self-employment made up a higher percentage for poor male-headed households, about 10-15%, compared to 4-8% for poor female-headed households. Other local paid labor made up a higher percentage of annual cash income for poor female-headed households, about 10% compared to 2-5% for poor male-headed households. Charcoal and firewood sales made up a slightly higher percentage for poor female-headed households, about 15% compared to about 12% for poor male-

headed households. In crop sales and in livestock sales categories, both poor female-headed and male-headed households made up a similar percentage of annual cash income, 25-35% and 5-8%, respectively.

Figure 9. Sources of Food: Poor Households vs Poor Female-Headed Households

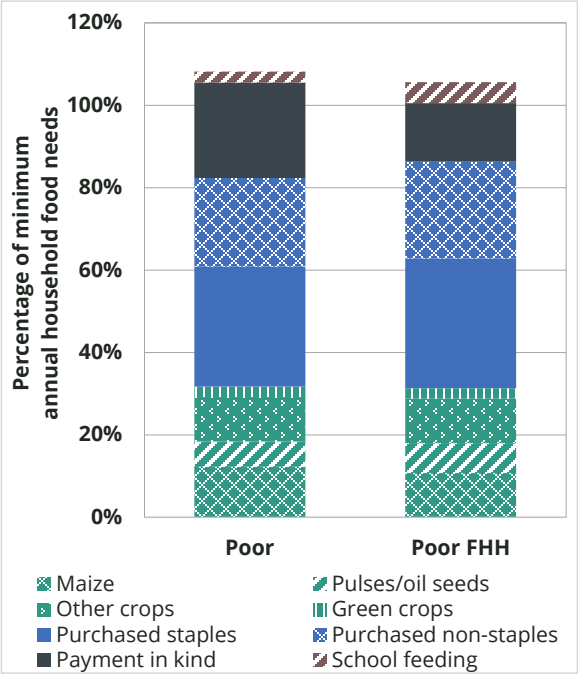
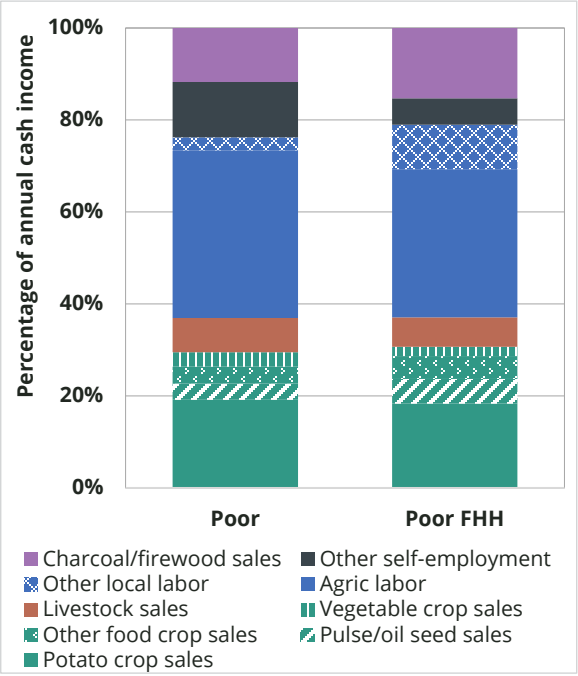


Figure 10. Sources of Cash: Poor Households vs Poor Female-Headed Households



Response Strategies

In response to hazards and years with poor production, households attempt to meet their minimum food needs and cash requirements through several strategies. Below are some common strategies employed by households.

Households from all wealth groups try to reduce expenditures on non-essential or more expensive items first, like cutting down on festival costs or not buying clothes or utensils that year. Households consume less beans and rice in favor of maize or cassava flour, which are the least expensive staple foods.

Very Poor and Poor Households

Very poor and poor households try to increase cash income by intensifying casual labor activities. However, in bad years, as increasing numbers of people enter the labor market, this option quickly loses its value because wage rates drop and jobs are harder to find, pushing households to seek labor opportunities more than they usually do in Goma or outside the zone.

Middle and Better-Off Households

Middle and better-off households cope with hazards differently. Middle and better-off households sell additional livestock to cover basic food and non-food expenses in bad years. They also increase self-employment activities, such as motorcycle transport and trade.

Key Parameters for Monitoring

The key parameters listed in Table 5 are food and income sources that substantially contribute to the household economy in the zone. These should be monitored to track potential losses or gains to local household economies through ongoing monitoring systems or periodic assessments.

Table 5. Key Parameters for Monitoring

Item	Key Parameter – Quantity	Key Parameter – Price
Crop production	• Maize Season A – quantity produced • Maize Season B – quantity produced • Beans – quantity produced • Sweet potatoes – quantity produced • Potatoes – quantity produced • Taro – quantity produced • Cabbages – quantity produced	• Maize Season A – producer price • Maize Season B – producer price • Beans – producer price • Sweet potatoes – producer price • Potatoes – producer price • Taro – producer price • Cabbages – producer price
Livestock production	• Cow milk – yields • Cattle – herd size • Pigs – herd size • Goats – herd size • Sheep – herd size • Poultry – flock size	• Cow milk – producer price • Cattle – producer price • Pigs – producer price • Goats – producer price • Sheep – producer price • Poultry – producer price
Other food and cash income	• Cultivation labor – number of days • Harvest labor – number of days • Domestic labor – number of days • Charcoal sales – quantity sold • Self-employment (transport) – demand • Petty trade – demand	• Cultivation labor – wage rates • Harvest labor – wage rates • Domestic labor – wage rates • Charcoal sales – producer price • Self-employment (transport) – daily earnings • Petty trade – daily earnings
Expenditure		• Cassava – consumer price • Maize – consumer price

CD12 Livelihood Zone

Reference Year: June 2023–May 2024

Forest Cultivation and Collected Products Livelihood Zone

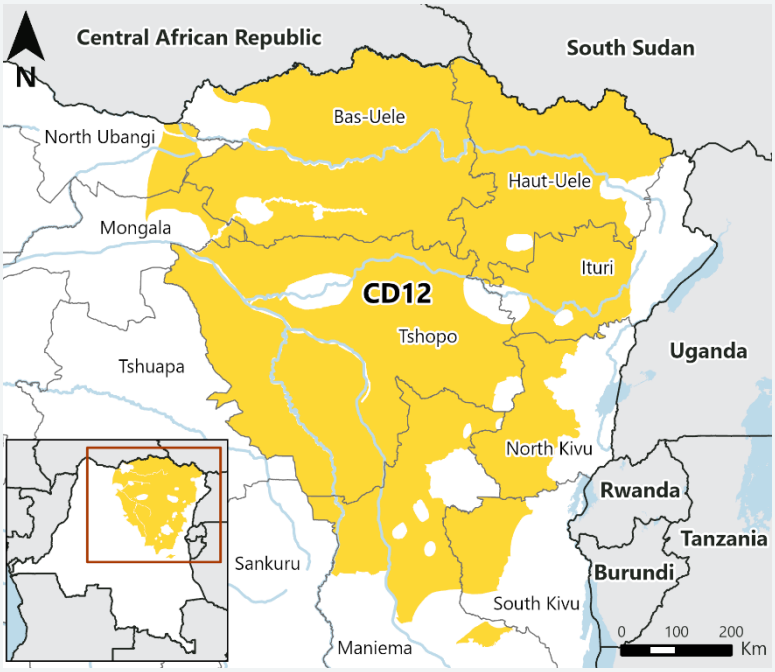


Figure 1. CD12 Livelihood Zone Map

Summary: The *Forest Cultivation and Collected Products Livelihood Zone* (CD12) encompasses a vast portion of the eastern region of the Democratic Republic of the Congo (DRC) and features a mix of low-lying areas and rolling hills. The zone is mainly dense rainforest, rich in agricultural potential and forest resources. The climate is equatorial or tropical humid, characterized by two Rainy Seasons from March to May and mid-July to mid-December. Agriculture serves as the primary economic driver, complemented by livestock and forest resource exploitation. The city of Kisangani plays a crucial role in enhancing the zone's economic activity, functioning as a key commercial and distribution hub. Many of the region's agricultural products are sold in Kisangani, which further stimulates the local economy.

FEWS NET is a United States Government-funded activity. The content of this document does not necessarily reflect the view of the United States Government.

Zone Description

The *Forest Cultivation and Collected Products Livelihood Zone* (CD12)[1] is the largest livelihood zone in the DRC. It covers nearly 1,450,400 square kilometers (km^2) in the provinces of Tshopo, Bas Uele, Haut Uele, Ituri, the western half of North Kivu, the western half of South Kivu, and the northern half of Maniema. The zone is mainly dense rainforest, rich in agricultural potential and forest resources. The population density is relatively sparse and estimated at 18 people per km^2, with a total population of 9,833,679.[2] Approximately 10% of the land is used for agriculture, mostly located along major roads and waterways and near the outskirts of larger towns. The population engages in a variety of activities for consumption and income generation, including agriculture, small-scale animal husbandry, hunting, and the gathering of non-timber forest products like palm oil, wild game, snails, mushrooms, and termites. These forest products contribute significantly to local diets and markets. Agriculture remains the dominant livelihood activity, practiced across all wealth groups. Key crops include cassava, rice, maize, plantains, and groundnuts. There are two cultivation seasons: Season A from July to November and Season B from January to July. In addition to subsistence farming, households engage in small-scale trade and livestock rearing, particularly goats, pigs, and poultry. Hunting for wild game, as well as foraging for edible forest products, remains a crucial aspect of household food and income security.

The climate is equatorial or tropical humid, characterized by two Rainy Seasons from March to May and mid-July to mid-December. Annual rainfall averages between 1,650 millimeters (mm) and 1,850 mm, with peaks of up to 2,000 mm in certain southwestern areas.[3] The average annual temperature is about 25°C, with slight seasonal variation, and the relative humidity stays high throughout the year.[4] In general, the zone features a mix of low-lying areas and rolling hills. The highest elevations are found in the Bafwasende Territory, where key hills include Mount Maganga Gumbembili and Mount Yekeke, with elevations ranging between 530 and 600 m.

The soils are ferralitic with a sandy-clay texture, which are generally fertile and well-suited for agriculture. The presence of rivers, such as the Congo and several tributaries, further shapes the landscape, with hydromorphic soils found along these waterways. The climate and the soils in the zone make agriculture highly productive for the main crops. The presence of dense river networks also provides water resources that further enhance the zone's agricultural potential. However, despite this natural potential, several constraints limit agricultural productivity. These constraints include the use of traditional farming techniques with limited mechanization, poor infrastructure that hinders market access, and political instability or localized conflicts in some areas. In more

[1] Fieldwork for the current profile was undertaken from July 15 to August 7, 2024. The information presented in this profile refers to the reference year, which was the consumption year that covered the period from June 2023 to May 2024. Provided there are no fundamental and rapid shifts in the economy, the information in this profile is expected to remain valid for approximately five to 10 years (i.e., until 2028-2033). All prices referred to in the document are for the reference year.
[2] FEWS NET Data Explorer, population data (2023), accessed 2025, https://fdw.fews.net/data-explorer/.
[3] FEWS NET Early Warning Explorer CHIRPS dataset 10-year average.
[4] FEWS NET Early Warning Explorer LST dataset 10-year average.

isolated areas with degraded soils or insufficient infrastructure, agricultural production potential is classified as moderate or marginal.

The main roads in the zone, such as RN4, which connects Kisangani to Banalia, Bafwasende, and Bunia, are largely unpaved and consist of dirt or laterite surfaces. These roads, as well as the rural tracks and paths, become nearly impassable during the Rainy Seasons, which make them muddy and difficult to navigate. This degradation of roads severely restricts the movement of goods and people, increasing transportation costs and limiting access to markets. Conversely, market access improves during the Dry Season, facilitating trade and reducing transportation costs.

In addition to farming, the collection and sale of non-timber forest products is a critical economic activity. Women and children are primarily responsible for gathering non-timber forest products like palm oil, snails, mushrooms, termites, and various edible leaves and fruits. These resources provide essential nutrition for households and are also sold in local markets. Men are more involved in hunting, but they may also collect certain forest products when they venture into the forest for extended periods. Hunting is an important activity, providing food and income for households. Wild game such as antelopes, porcupines, and monkeys are among the animals hunted. Hunting takes place in forested areas, often far from villages. Men will spend several days in the forest using a variety of methods, including traps, bows and arrows, and sometimes firearms.

Men and women in the zone engage in petty trade, selling agricultural products, forest resources, and everyday goods in local markets. These sales help supplement their earnings from farming and other activities. However, this trade is also constrained by the poor state of roads. Some mining activities occur in certain areas in CD12, though the economic impact of mining is relatively limited, especially when compared to the neighboring *Agriculture with Artisanal Mining Livelihood Zone* (CD13). Transport services are a source of income, particularly for men from middle and better-off households who transport people and goods between villages and markets. Agricultural labor is a significant source of income for poorer households, with many individuals working for wealthier households during peak farming seasons. Labor tasks include preparing land, planting, weeding, and harvesting, and workers are often paid in either cash or food (i.e., payment in-kind), depending on the type of work and the agreements between households.

A variety of hazards impact the livelihoods of households in this zone. For example, periodic damaging rain and flooding are acute hazards. However, there is also a list of annual hazards that do more long-term damage. Crop diseases and pest infestations significantly reduce agricultural productivity. Common crop diseases in the zone include cassava mosaic disease and leaf yellowing disease on rice and maize crops. Additionally, groundnut rosette disease leads to significantly reduced yields. These diseases, combined with pest infestations, take an annual toll on harvests and sometimes devastate key staple crops. Livestock diseases, such as swine fever affecting pigs, further jeopardize household income and food security. Insecurity and localized conflicts also disrupt agricultural activities and market access, particularly in remote areas. Poor road infrastructure is

hazardous — especially during the rainy season — and compounds these issues, making roads impassable and limiting households' abilities to transport goods to market.

Access to social services like healthcare, education, and clean water remains limited. The primary sources of drinking water for households across wealth groups are rivers, ponds, and wells, with some households also relying on boreholes. However, access to clean and potable water remains a challenge, especially for poorer households, who often use untreated water from natural sources. Sanitation services are also minimal. Health services are available through a few dispensaries and health centers, but more comprehensive medical care, like hospitals, is concentrated in urban centers such as Kisangani. In terms of education, the typical level of schooling varies by wealth group. Poorer households generally have access to primary or basic education, while wealthier households may send their children to secondary schools or even higher education institutions in urban areas.

Markets

Market access is low in the *Forest Cultivation and Collected Products Livelihood Zone* (CD12). Kisangani serves as the major commercial hub for the zone, providing a market for agricultural produce, forest products, and livestock. Outside of Kisangani, many rural areas struggle with limited market connectivity. Households in more remote parts of the zone face significant challenges in transporting their goods to larger markets, particularly during the Rainy Seasons from mid-February to mid-June and mid-July to mid-December when roads become impassable. The lack of proper bridges also exacerbates the problem, as many are old, damaged, or dangerous, further limiting access to markets and essential services. Conversely, in the Dry Season, the roads become more navigable, improving market access and reducing costs. Security issues can further restrict access to markets, particularly in more remote regions, where insecurity exacerbates the challenges posed by poor infrastructure. For parts of the livelihood zone located near major waterways, households use river-based transportation to move goods around.

Key market towns within the zone besides Kisangani include Buta, Isiro, Maniema, Banalia, Bafwasendé, and Ubundu, all of which serve as central trading hubs for their localities. The zone is connected by a network of national and provincial roads facilitating the movement of goods. The RN4 is the main artery, and it zig zags across the zone from Bangassou on the border with the Central African Republic through Buta to Kisangani, to Bunia, and then south towards Butembo.

Agricultural product sales are the backbone of the local economy. The main crops sold are cassava, rice, and groundnuts. These crops, except for cassava, are sold in local markets and are also transported to larger urban centers. Instead of trading cassava outside of the livelihood zone, local households sell it at the village level or to trading hubs within the zone, like Kisangani. Rice and groundnuts are traded much further, moving from the local markets all the way to large urban centers. One trade route goes through Kisangani on to trading centers in North and South Kivu,

while another trade route flows westward from the local markets to Akéti, Bumba, and finally to Kinshasha.

Livestock, including pigs, goats, and poultry, are essential for income generation and are sold within the zone. Kisangani and local mining communities are the primary commercial routes for pigs and goats. Pigs are sold in September and December to coincide with school fees and festive seasons, respectively. Goats are traded mainly in September to help pay for school fees as well as in December for festivals and from January to March when middle and better-off households need to pay cash for agricultural labor. Poultry are sold year-round in local markets, ensuring a steady income for households.

Palm oil, made from palm nuts collected from the forests, is an important source of income. The oil is sold in the zone (in Buta and Kisangani) and beyond via multiple trade routes from Buta to Kisangani, on to North and South Kivu, and from Akéti to Bumba on to Kinshasha.

The primary foods purchased include beans, cassava, and rice. Beans are sourced from Uganda and transported through Kisangani to local markets, while cassava and rice are procured from within the zone.

The labor market provides critical employment opportunities within the zone, mostly in agriculture. About 10% of labor opportunities are found in cities and towns within the zone and about 10% are sought outside the zone by men who travel for mining work to the adjacent *Agriculture with Artisanal Mining Livelihood Zone* (CD13).

Timeline and Reference Year

The baseline assessment refers to a very specific period called the “reference year.” In the Forest *Cultivation and Collected Products Livelihood Zone* (CD12), the reference year covers the consumption period from June 2023 to May 2024. During community leader interviews, informants were asked to score the last five years in terms of seasonal performance with “1” indicating a poor season and “5” indicating an excellent season. Table 1 summarizes the response of the community leaders.

The reference year ran from June 2023 to May 2024. June marks the beginning of the seasonal calendar with major harvests for the staple foods of this area: maize, rice, groundnuts, and cassava. The reference year ends with the end of the Lean Season in May.

Despite cases of flooding in certain villages due to increasingly frequent climatic variations in the area, the year from 2023 to 2024 was classified as average. Agricultural production was average, and the prices of the main staple foods followed a normal trend but were marked by exchange rate fluctuations between the Congolese franc and the U.S. dollar. Moreover, the temporal proximity of this period to data collection helped limit the risks of inaccuracies. While births and sales of livestock were largely normal during the reference year, it was noted that there were more pig deaths than expected due to African swine fever.

Key informants ranked most of the seasons between 2019 and 2024, including the reference period, as average in terms of household food security.

Table 1. Timeline

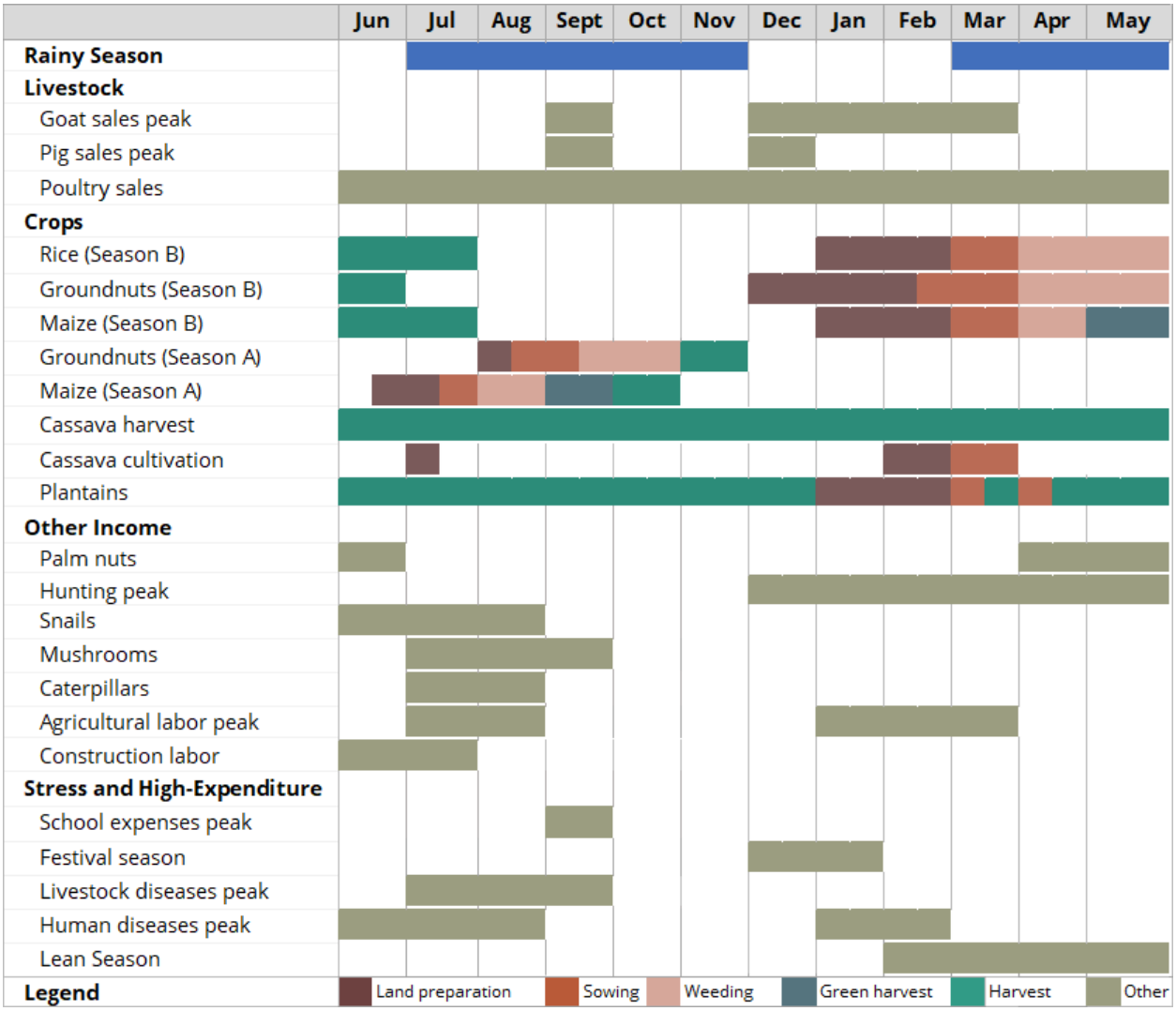
Production Year/Season	Score	Critical Events
2024/Season B 2023/Season A	3 3	Insufficient rainfall in April and May led to a slight decrease in yields and a small increase in food prices in Season B. Good distribution of rainfall and low levels of crop pest attacks led to good agricultural production, contributing to average household food security in Season A.
2023/Season B 2022/Season A	3 3	Good distribution of rainfall led to good agricultural production, contributing to average household food security in Season B. Season A had some flooding that reduced crop yields but was average overall in terms of food security.
2022/Season B 2021/Season A	4 3	Very good distribution of rainfall led to good agricultural production, contributing to above-average household food security in Season B. While the conditions were like those in Season B, food security was average in Season A.
2021/Season B 2020/Season A	3 2	Heavy rains led to a decrease in agricultural production. Agricultural production was below average in Season A due to lack of rainfall.
2020/Season B 2019/Season A	3 2	Good agricultural production due to favorable conditions led to average production in Season B. Due to poor agricultural production stemming from a lack of rainfall, food security was below average in Season A.
2019/Season B 2018/Season A	4 2	Good distribution of rainfall led to good agricultural production, contributing to above-average household food security in Season B. Due to poor agricultural production stemming from a lack of rainfall, food security was below average in Season A.

5 = Excellent season for household food security (e.g., due to good rains, good prices, good crop yields)
4 = Good season or above average season for household food security
3 = Average season for household food security
2 = Below-average season for household food security
1 = Poor season for household food security (e.g., due to drought, flooding, livestock disease, pest attack)

Seasonal Calendar for Reference Year

The seasonal calendar (Figure 2) illustrates the main economic activities and events of the reference year. It traces the rainy months, agricultural activities, wild food collection, peak labor periods, food purchasing periods, etc.

Figure 2. Seasonal Calendar



All cultivation is rainfed in CD12. Cassava, the principal crop for household diets and income, is harvested throughout the year. Rice is grown only in Season B, while maize and groundnuts are cultivated in Seasons A and B. Season B is the primary growing season for maize and groundnuts, with larger harvests beginning in May/June and complimented by Season A harvests in October to December. Plantains, like cassava, are grown and harvested throughout the year. Peak sales for cassava and maize take place from July to November, while the peak sale period for rice and groundnuts is a bit shorter, spanning only July/August.

Foraging for wild foods is a seasonal activity linked to the availability of various items. The main foraged forest product is palm nuts, which are used to make red palm oil for consumption and sale. Palm oil sales occur year-round but peak from April to June. Other foraged products include snails from June to August, caterpillars in July/August, and mushrooms from July to September. Hunting is officially permitted from December 1 to July 31, though the main hunting period is generally from December to May.

Agricultural labor is mainly performed by men and women from poorer households from July to August and from January to March and involves preparing land, weeding, and harvesting for wealthier households. Agricultural labor is paid in cash (pre-harvest) and in-kind (for work performed during the harvest). Non-agricultural labor, primarily men doing construction labor, occurs in June and July.

As noted above, livestock sales peak in September and December for pigs and in September and December through March for goats. Livestock sales correspond to periods of greatest cash needs, whether to help make ends meet prior to the main harvest, to pay for school fees in September, to pay for agricultural labor in February and March, or for extra spending around Christmas and New Year.

The Lean Season spans February to May. During this period, poorer households in the zone earn cash to purchase food mainly through agricultural labor, including preparing land and planting. The primary foods purchased include beans, cassava, and rice, with peak purchase periods typically spanning from January through May. During these months, local markets bustle with activity as households buy these staples to bridge gaps between harvests.

Table 2 shows the typical division of labor, listing the activities shared and not shared by men and women. Many tasks are shared by all household members, including agricultural labor, livestock production activities, trade/small business, and labor/self-employment activities. Only men participate in preparing land, hunting, and providing transport services, while foraging for wild foods and producing palm oil are largely the domain of women. Women are also mostly involved in domestic work, including collecting water, cooking, taking care of children, and laundering clothes.

Table 2. Typical Division of Labor

Shared Tasks	Women's Tasks	Men's Tasks
• Agricultural labor – sowing, weeding, and harvesting • Livestock care and sales • Crop sales • Petty trade • Household charcoal/ firewood collection	• Foraging for wild foods • Household water collection • Meal preparation • Laundry • Care and feeding of young children	• Agricultural labor – land preparation • Hunting • Transport services • Construction labor

Wealth Breakdown and Productive Assets

Table 3 summarizes the types and numbers of productive assets that typical households within each wealth group own and/or manage. Asset holdings are shown in a range that reflects the diversity of households' situations within a wealth group. Figure 3 shows the percentage of households within

the zone that falls in each wealth group. The communities in the zone carried out the socioeconomic categorization of households themselves.

Table 3. Wealth Breakdown

Household Size and Productive Assets	Very Poor	Poor	Middle	Better-Off	Poor Female-Headed
Household size	4-6	6-8	9-11	10-14	5-7
Land (hectares [ha])	0.75-1.25	2-4	4-6	8-12	1-3
Land cultivated (ha)	0.5-1	1-1.5	1.5-3	3-4	0.75-1.1
Land cultivated – food crops (ha)	0.5-1	1-1.5	1.5-3	3-4	0.75-1.1
Pigs	0	0	0-2	1-3	0
Goats	0	0-1	2-6	5-12	0
Poultry	2-10	3-10	5-10	5-15	2-10
Bicycles	0-1	0-1	1-2	1-3	0-1
Mobile phones	0	0-1	0-2	1-3	0
Motorcycles	0	0	1	1	0

Wealth is primarily determined by household size, land ownership and cultivation, livestock ownership, and ownership of income-generating assets like motorcycles. Household size is a key factor in determining the availability of labor in each wealth group. Larger households, particularly among the middle and better-off groups, can leverage their greater labor capacity to manage more land and livestock, contributing to their higher levels of wealth. Conversely, smaller households among the very poor and poor mean they have limited labor availability, restricting their economic activities and access to resources.

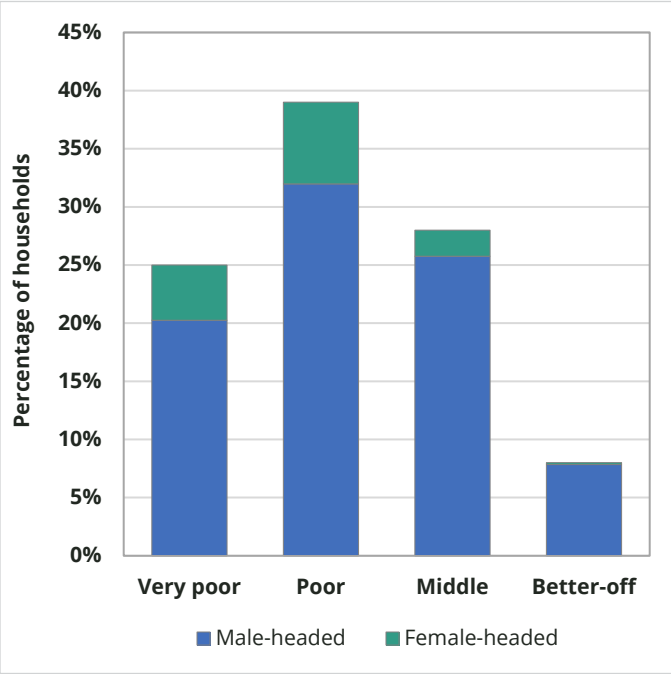
The amount of land owned and cultivated is the second most important determinant of wealth. Middle and better-off wealth groups produce a surplus of crops for sale; very poor households grow enough food to cover their minimum consumption needs but a sell significant amounts post-harvest and purchase more later in the year. There is a progressive increase in the area cultivated with increasing wealth. Better-off households typically cultivate four to five times the area cultivated by very poor households, although given the different sizes of households in the wealth groups, the differential is reduced per capita.

Ownership of livestock is the third determinant of wealth in the zone. The most important types of animals are pigs and goats. Pigs are owned by the middle and better-off wealth groups, with middle

households owning 0-2 and better-off households owning 1-3 pigs. Goats are owned by the poor, middle, and better-off wealth groups. For these groups, there is a progressive increase in number of goats owned with increasing wealth. Poor households generated enough cash from this source to purchase close to 10% of their minimum annual food needs. The corresponding figure for better-off households was over 100% of the cost of households' minimum annual food needs.

Figure 3. Wealth Breakdown

Note: All results are the mid-point of a range



Households in the middle and better-off wealth groups have more savings/capital than other wealth groups, which they use to engage in petty trade and transport services. The assets most typically owned by middle and better-off households and used for small businesses are bicycles, motorcycles, and mobile phones.

Female-headed households make up a portion of all wealth groups, including the better-off, but the highest percentage is found in the poor wealth group (see Figure 3). In terms of land, poor female-headed households have an asset profile comparable to poor male-headed households. The main difference is the amount of land cultivated by poor female-headed households: 0.75-1.1 ha compared to 1-1.5 ha for poor male-headed households. Additionally, poor female-headed households do not typically own any goats.

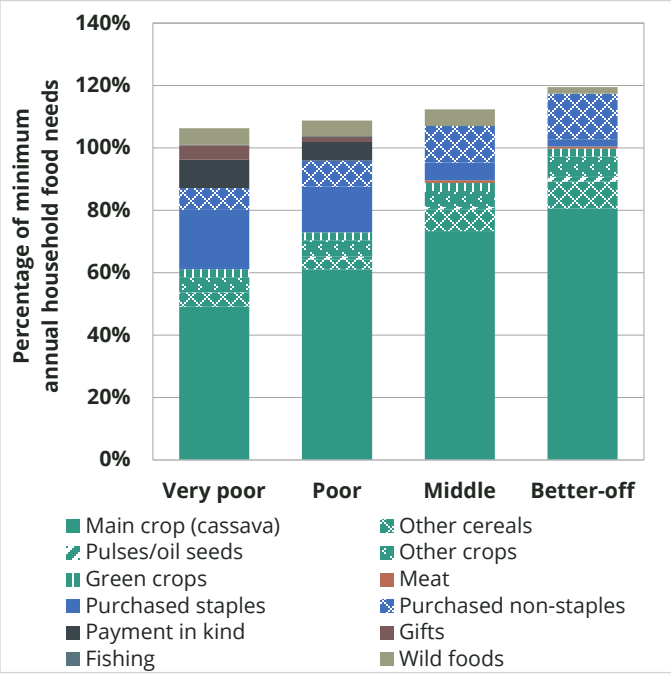
Sources of Food

Figure 4 presents the sources of food for households in different wealth groups in CD12 for the period from June 2023 to May 2024. June represents the start of the consumption year because it is when the main harvest season begins for rice, maize, and groundnuts. Food is presented as a percentage of the annual kilocalorie (kcal) needs of the household, based on the internationally accepted standard of 2,100 kcal per person per day.

Beginning with total food consumption, there was a progressive increase in the amount of food consumed with increasing wealth. Overall, very poor households consumed roughly 105% of minimum annual food needs and better-off households roughly 120%. Households' own crops and market purchases were the two main sources of food in the zone. Payments in-kind were a

significant third source for poorer households, as well as food donations, especially for the very poor. Wild foods made some contribution to all wealth groups.

Figure 4. Sources of Food



Crop production — specifically cassava production — was the most important source of food in the livelihood zone. Poor, middle, and better-off households grew enough crops to cover their minimum consumption needs as well as a substantial surplus for sale, notably in cassava, rice, and plantains. In contrast, very poor households consumed roughly 60% of minimum annual food needs from their own crops. Immature maize taken before the main harvest made a small contribution across the board. Cassava leaves were the main cultivated vegetables in the zone, and groundnuts were essentially a cash crop.

Purchases were the second most important sources of food in the livelihood zone. These foods are divided into staples and non-staples. All wealth groups purchased staple foods. The most important were cassava and rice. Of these foods, the very poor purchased roughly 20% of minimum annual food needs and the better-off less than 5%. All wealth groups purchased non-staple foods. The most important were oil, sugar, beans, and other items. Of these foods, the very poor purchased 5-10% of minimum annual food needs and the better-off roughly 15%.

Payments in-kind contributed roughly 10% of minimum annual food needs to very poor households and roughly 5% to poor households. Very poor households consumed roughly 5% of minimum food needs from wild foods, while better-off households consumed less from this source. In the wild foods category, palm oil from foraged palm nuts contributed the most to annual caloric needs.

The very poor and poor wealth groups respectively received 2% and 5% of minimum food needs through food donations. There was no food aid in the livelihood zone in the reference year.

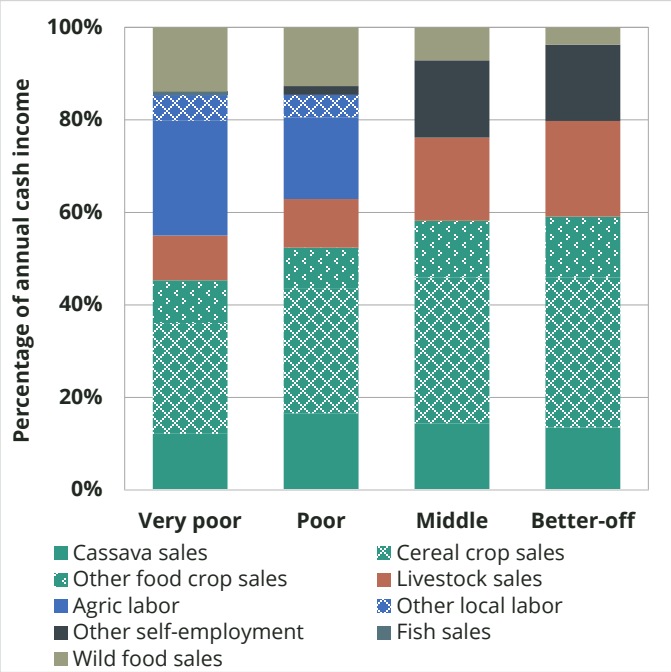
Overall, the reference year was average in terms of food security, with households from all wealth groups meeting or exceeding their minimum annual food energy requirements.

Sources of Cash Income

The means of obtaining cash income in this zone varied by wealth group (see Figure 5). Households from all wealth groups depended on crop sales as the biggest single contribution: roughly 45% of

total cash income for very poor households and 60% for better-off. Rice was by far the biggest single earner across all crops, contributing 30% of better-off households' total annual income and 22% for very poor households. Beyond rice, most of poorer households' remaining crop income was from cassava, while the wealthier households earned income from a greater variety of crops.

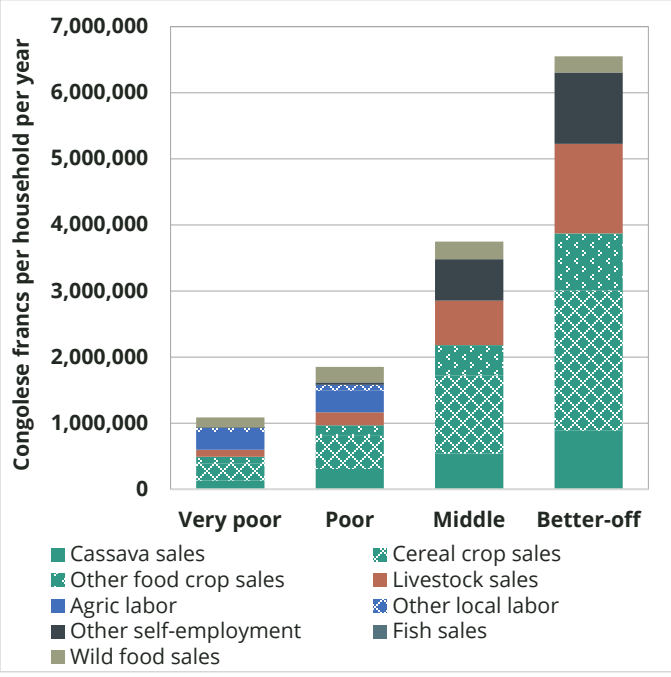
Figure 5. Sources of Cash Income as a Percentage of Annual Cash Income



Poorer households depended more heavily on paid labor earnings (30% of total cash income for the very poor and 20-25% for the poor) and sales of wild foods, including sales of palm oil from foraged palm nuts, caterpillars, and snails, generating roughly 15% of total cash income for the very poor and poor, less than 10% for the middle, and less than 5% of for the better-off.

Wealthier households depended heavily on livestock sales (as much as 20% of total income for the better-off) and on small business income (15-20% for the middle and better-off). The middle and better-off were the only households able to earn cash from transport services, as only they owned motorcycles. Petty trade was an income source for all households except for the very poor.

Figure 6. Total Annual Cash Income



Differences between wealth groups in the absolute amount of cash income generated by households during the reference year were large, as seen in Figure 6 and Table 4. Overall, better-off households earned close to six times the cash income of very poor households. Given the differences in household size between the wealth groups, the per capita differences were smaller, but still substantial: the better-off earned approximately three times the annual per capita cash income of the very poor, and overall there was a progressive increase in annual per capita cash income with increasing wealth.

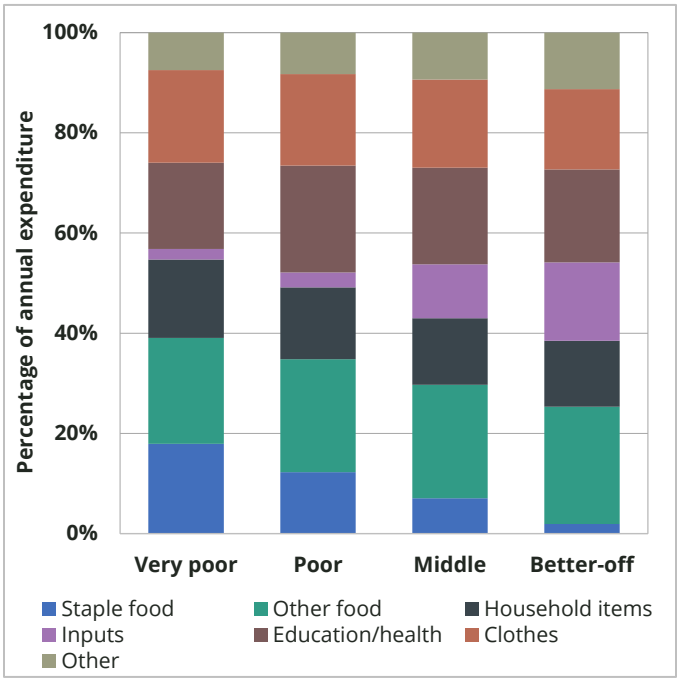
Table 4. Income Summary Table (Congolese Francs or CDF)

Wealth Group	Very Poor	Poor	Middle	Better-Off
Annual income per household[5]	900,000–1,300,000	1,600,000–2,100,000	3,500,000–4,000,000	5,000,000–8,000,000

Expenditure Patterns

Figure 7 presents expenditure patterns for the reference year of June 2023 to May 2024. While absolute expenditure increased with wealth in line with total cash income, this graph's expenditure breakdown by percentage shows the *relative* amount of income spent on different categories. Households in the zone need to cover a range of essential expenditures over the year. These expenditures include staple foods, non-staple foods, household items/services (like salt, soap, tea, lighting, milling, etc.), productive inputs, social services (which include health and education), clothing, as well as other essential and non-essential items.

Figure 7. Total Annual Cash Expenditure by Category



Absolute expenditure was in line with absolute income. In the proportions of expenditure seen in Figure 7, households in all wealth groups had a similar pattern, with non-staple foods, health/school, and clothes as the top three expenditure items. There was a progressive decrease in the share of expenditure on staple foods with increasing wealth, with staple foods accounting for less than 20% of total expenditure for very poor households and less than 5% for better-off households. The main staple foods purchased were cassava and rice.

Non-staple food expenditure was greater than staple food expenditure, even for the poorer households, and accounted for about 20-25% of total expenditure across the board. The main non-staple foods purchased were vegetable and palm oil, sugar, beans, and other purchases. Health and education also accounted for a large share of total expenditure for households in all wealth groups, roughly 15-20%. Clothes accounted for 15-20% of total expenditure across all four wealth groups.

[5] The average exchange rate from June 2023 to May 2024 was 1 USD = 2,607 CDF.

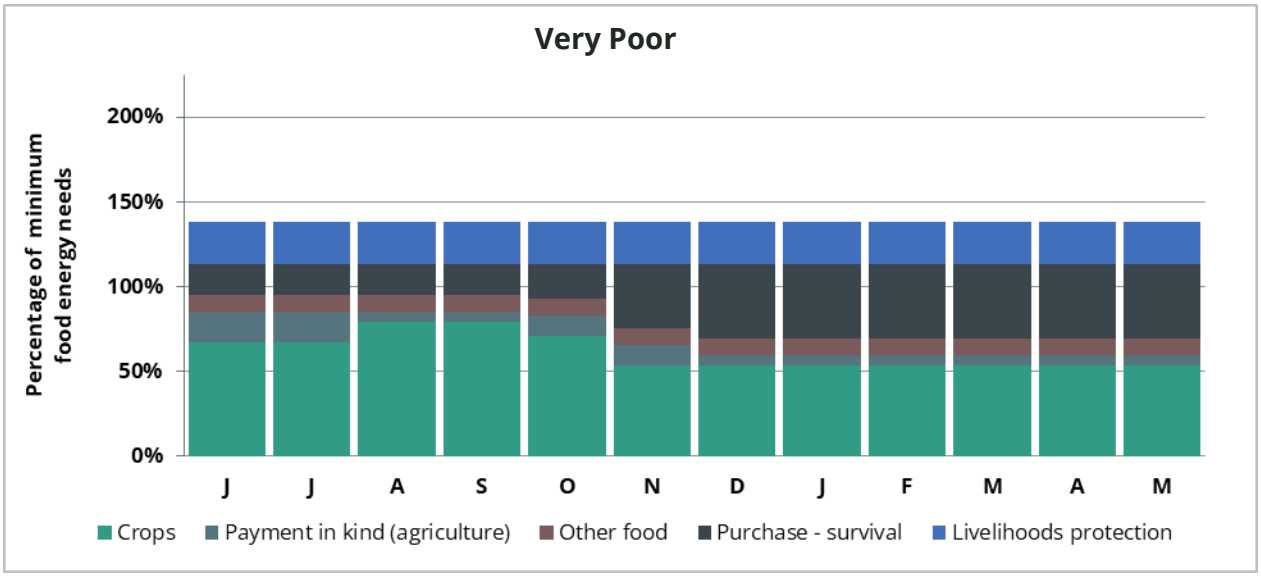
Other non-essential items were an expense for all wealth groups. There was a progressive increase in the share of expenditure with increasing wealth. Other non-essential items accounted for roughly 10% of total expenditure by very poor households and 15-20% by better-off households. Productive inputs accounted for less than 5% of total expenditure for very poor and poor households, about 10% for middle households, and about 15% for better-off households. The overwhelming item in the productive inputs category was the hire of agricultural labor by better-off and middle households, and more generally the hire of plow equipment and oxen and purchase of tools and seeds.

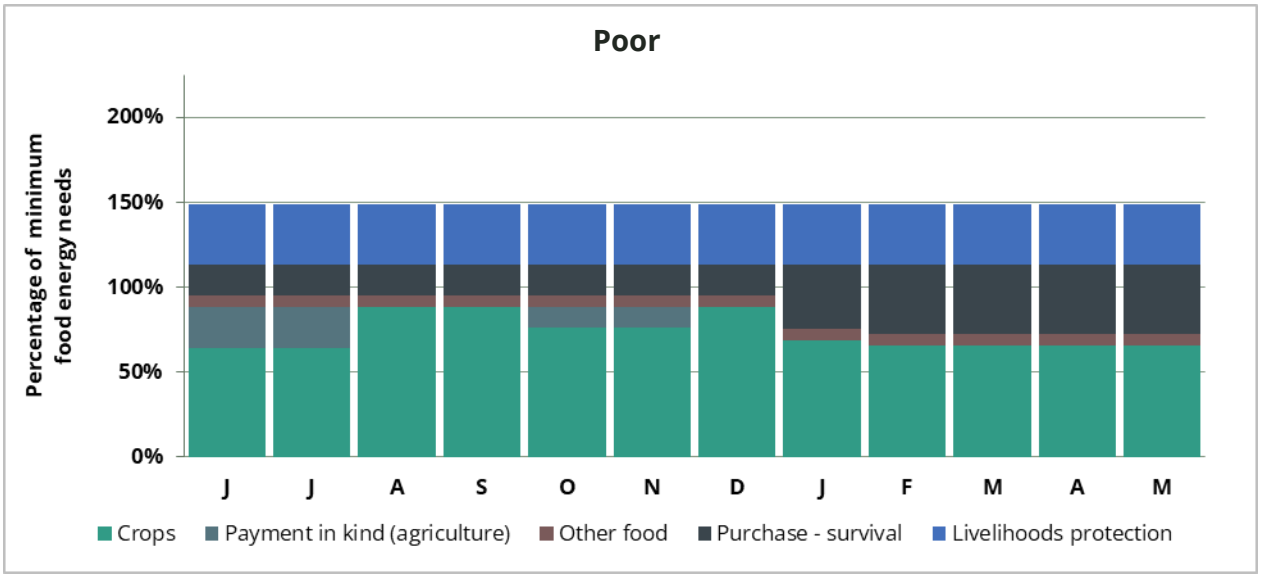
Food Access Calendars

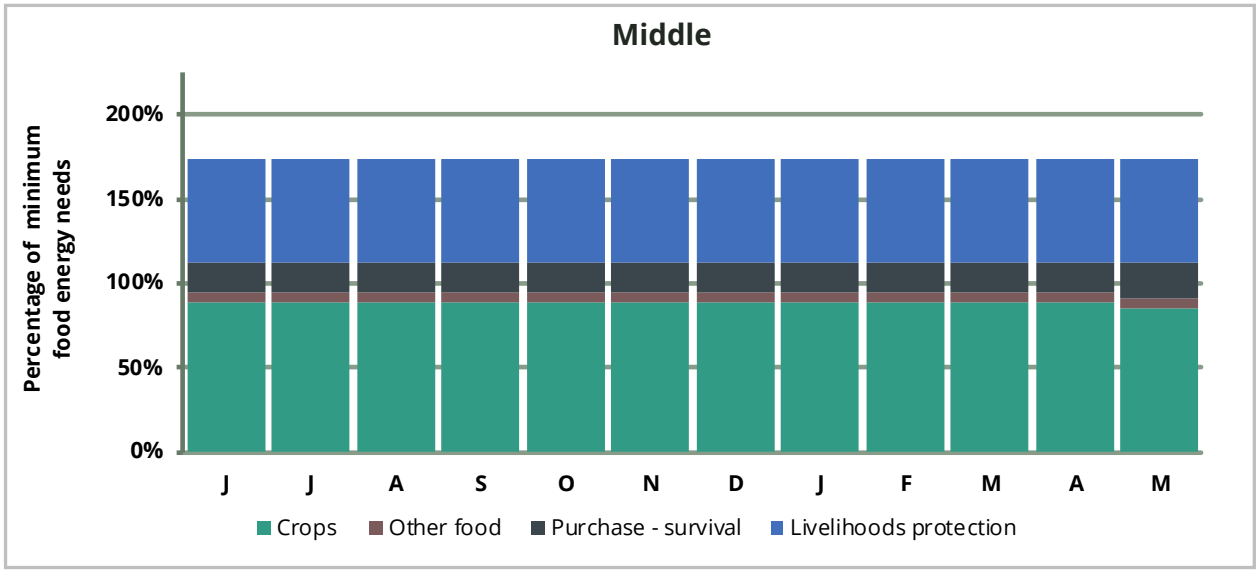
The graphs in Figure 8 present monthly food and cash access calendars for the four wealth groups.

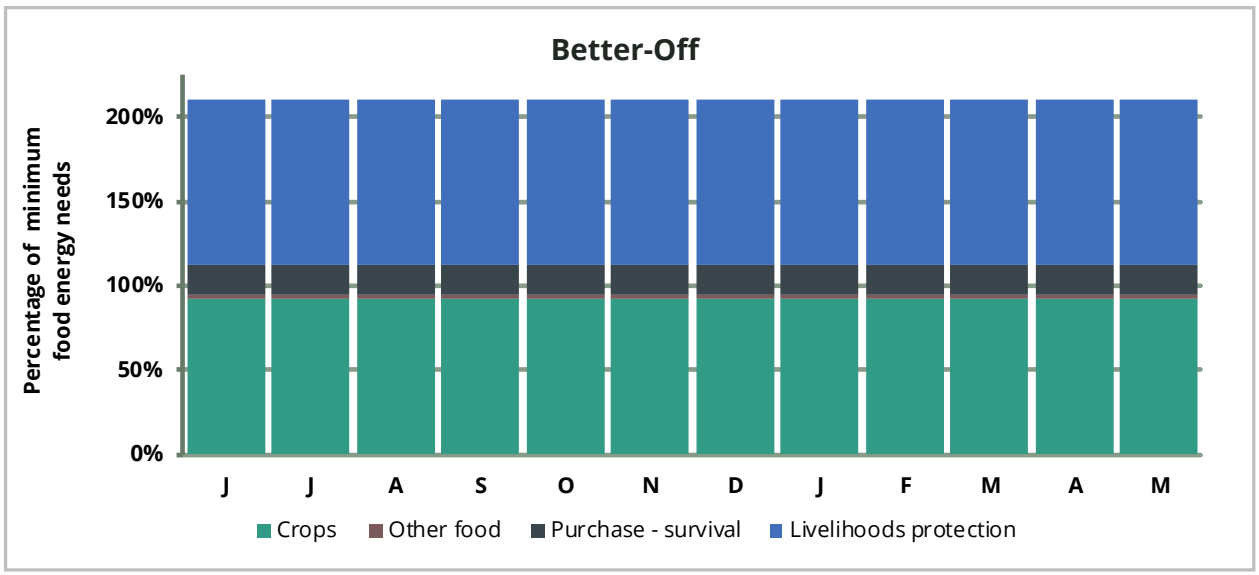
Households in all wealth groups were able to meet their survival and livelihoods protection thresholds year-round in the reference year. The contribution from households' own crop production is spread quite evenly over the year in these graphs because of the importance of cassava in this zone, which can be harvested at any time. Very poor and poor households obtained some food from payment in-kind for casual agricultural labor (in teal). The dark blue "livelihoods protection" sections of the bars increase as a proportion of the total with wealth because wealthier households spend more on productive inputs, health, and education.

Figure 8. Seasonal Food and Cash Access Calendars per Wealth Group




Poor
Percentage of minimum food energy needs
200%
150%
100%
50%
0%
J J A S O N D J F M A M
Crops
Payment in kind (agriculture)
Other food
Purchase - survival
Livelihoods protection


Middle
Percentage of minimum food energy needs
200%
150%
100%
50%
0%
J J A S O N D J F M A M
Crops
Other food
Purchase - survival
Livelihoods protection


Better-Off
Percentage of minimum food energy needs
200%
150%
100%
50%
0%
J J A S O N D J F M A M
Crops
Other food
Purchase - survival
Livelihoods protection

Poor Female-Headed Households

Poor female-headed households face several economic challenges that distinguish them from poor male-headed households. These households are generally smaller, with 5-7 members, and typically own smaller plots of land that range from 1-3 ha. Of this land, around 0.75-1.1 ha are dedicated to food crops, limiting their agricultural output for consumption and sale. Additionally, poor female-headed households own very few livestock — essentially a handful of poultry — which further constrains their ability to generate income. Another key challenge for these households is mobilizing household labor. They tend to have fewer male laborers available for physically demanding agricultural tasks among others, which affects their ability to work the land efficiently. Moreover, these households tend to have fewer productive assets, such as bicycles, motorcycles, and mobile phones, limiting their access to markets and income opportunities. These combined factors contribute to the economic vulnerability of poor female-headed households in CD12, as they struggle with limited resources and opportunities.

Figure 9 shows that poor female-headed households and poor male-headed households share a similar pattern of food access. In the reference year, these households met their annual minimum food energy needs from similar food sources, mainly market purchase and their own crop production. Poor male-headed households cultivated more land than the poor female-headed households (1-1.5 ha versus 0.75-1.1 ha) and thus harvested slightly more crops.

Figure 9. Sources of Food: Poor Households vs Poor Female-Headed Households

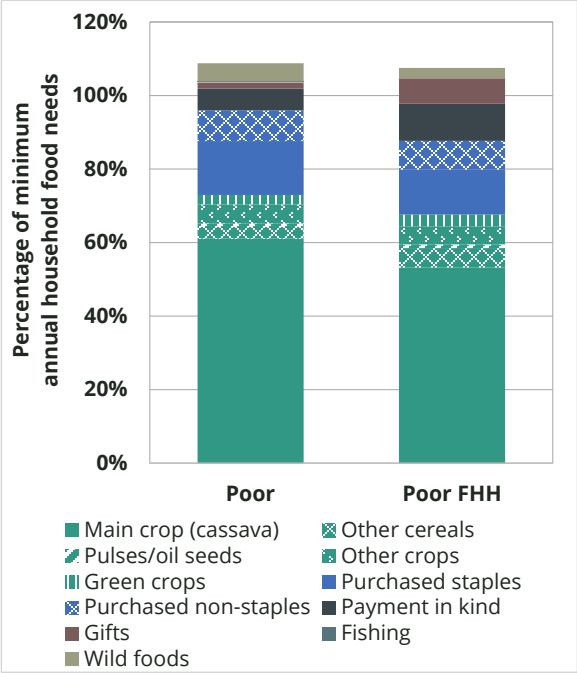
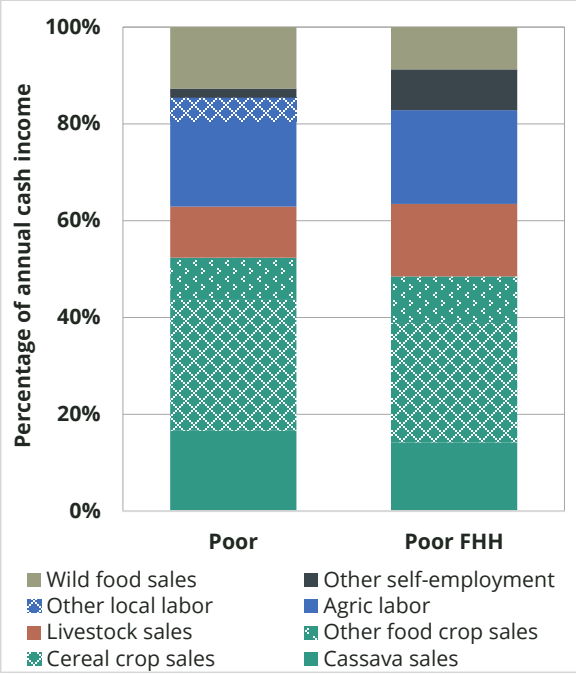


Figure 10. Sources of Cash: Poor Households vs Poor Female-Headed Households



Beginning with total food consumption, poor male-headed households and poor female-headed households consumed similar amounts, roughly 110% of minimum annual food needs. The five

main food sources for poor female-headed households were, in order of importance: their own crops, market purchases, payments in-kind, non-staple food purchases, and gifts. Of these sources, two contributed less food for poor female-headed households compared to poor male-headed households: crops and staple purchases. Households' own crop production contributed much less food for poor female-headed households, about 65% compared to about 75% for poor male-headed households. Poor female-headed households purchased slightly less staple foods, about 12% of annual kcal needs compared to roughly 15% for poor male-headed households.

Of the five main food sources, two contributed more food for poor female-headed households than poor male-headed households: gifts and in-kind payments. Gifts contributed more food for poor female-headed households, roughly 7% of kcals, compared to less than 5% for poor male-headed households. Payments in-kind contributed slightly more food for poor female-headed households, roughly 10% compared to about 5% for poor male-headed households.

Turning to cash income, poor female-headed households earned roughly 30% less cash income than poor male-headed households. However, poor female-headed households were smaller than male-headed households and earned roughly 20% less per capita cash income.

The income picture shown in Figures 10 shows that poor male-headed households and poor female-headed households had mostly similar sources of cash income in the reference year. The five main types of cash income for poor female-headed households were, in order of importance: crop sales, agricultural wage labor, livestock sales, self-employment, and petty trade. Crop sale made up a slightly smaller percentage of annual cash income for poor female-headed households, about 50% compared to about 55% for poor male-headed households. The corresponding figures for self-employment were about 10% and 15% and for roughly 20% and 25% for wage labor for poor female-headed and poor male-headed households, respectively. Of the five cash sources, two generated more cash income for poor-female headed households: small businesses and livestock sales. Small businesses made up a much larger percentage of annual cash income for poor female-headed households, about 10% compared to about 1% for poor male-headed households. The corresponding figures for livestock sales were roughly 15% and 10%.

Turning to cash expenditure, the five main types for poor female-headed households were, in order of importance: clothes, non-staple foods, health and education, household items, and staple foods. Health and education made up a much smaller percentage of annual expenditure for poor female-headed households, about 15% compared to roughly 20% for poor male-headed households. Clothes made up a much larger percentage of annual expenditure for poor female-headed households, about 25% compared to 20% for poor male-headed households.

Response Strategies

In response to hazards and years with lean production, households attempt to meet their minimum food needs and cash requirements through several strategies. Some responses implemented were

different across wealth groups, while other were similar. Below are some common strategies employed by households.

Households in all wealth groups try to reduce expenditure on non-essential or more expensive items first, such as cutting down or not buying clothes or utensils that year. Households from all wealth groups will seek job opportunities in the mining sector.

Very Poor and Poor Households

Poorer households are more likely to switch to less expensive, less preferred foods when they face food shortages or income constraints. For instance, they might reduce their consumption of more expensive items like rice and pulses and increase their reliance on cassava, the most affordable and available staple. Poorer households increase the collection of wild foods, including edible leaves and forest products, to supplement their diets when crops fail. Very poor and poor households try to increase cash income by intensifying non-agricultural labor activities. However, in lean years, as increasing numbers of people flood the labor market, this option quickly loses its value because wage rates drop and jobs are harder to find.

Middle and Better-Off Households

Middle and better-off households cope with hazards differently. Middle and better-off households sell additional livestock to cover basic food and non-food expenses in lean years. They also reduce the amount they spend on hiring agricultural workers. Middle and better-off households may also access either savings or other assets to smooth their consumption or pay for essential services.

Key Parameters for Monitoring

The key parameters listed in Table 5 are food and income sources that make a substantial contribution to the household economy in the *Forest Cultivation and Collected Products Livelihood Zone*. These parameters should be monitored to track potential losses or gains to local household economies through ongoing monitoring systems or periodic assessments.

Table 5. Key Parameters for Monitoring

Item	Key Parameter – Quantity	Key Parameter – Price
Crop production	• Maize Seasons A and B – quantity produced • Maize Season B – quantity produced • Cassava – quantity produced • Groundnuts Season B – quantity produced • Rice – quantity produced • Plantains – quantity produced • Cassava leaves – quantity produced	• Maize Season B – producer price • Cassava – producer price • Groundnuts Season B – producer price • Rice – producer price • Plantains – producer price

Item	Key Parameter – Quantity	Key Parameter – Price
Livestock production	• Pigs – herd size • Goats – herd size • Poultry – flock size	• Pigs – producer price • Goats – producer price • Poultry – producer price
Other food and cash income	• Wild foods – quantity • Cultivation labor – number of days worked • Construction labor – number of days worked • Petty trade – demand • Transport services – demand	• Wild foods – producer price • Cultivation labor – wage rates • Construction labor – wage rates • Petty trade – daily earnings • Transport services – daily earnings
Expenditure		• Cassava – consumer price

CD13 Livelihood Zone

Reference Year: June 2023–May 2024

Agriculture with Artisanal Mining Livelihood Zone

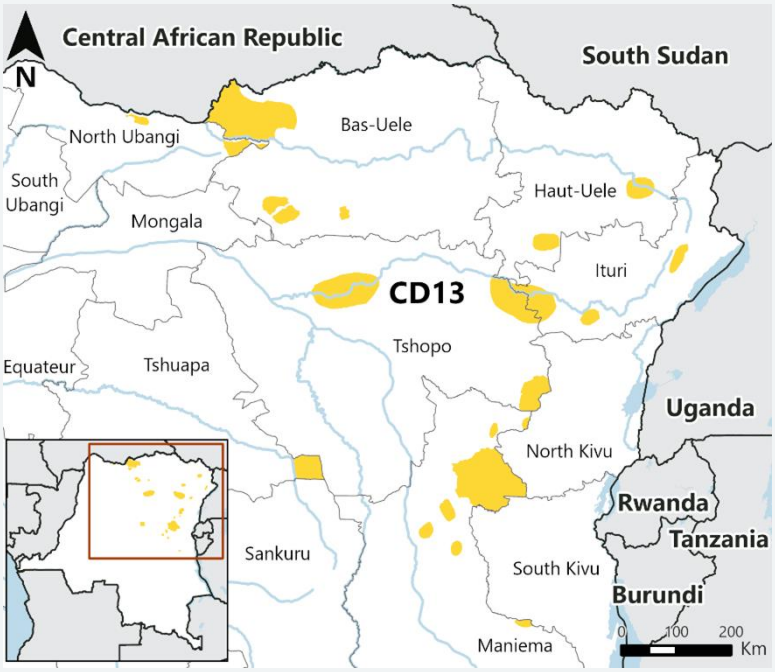


Figure 1. CD13 Livelihood Zone Map

Summary: The *Agriculture with Artisanal Mining Livelihood Zone* (CD13) is situated in a humid equatorial climate with good rainfall, averaging between 1,500 and 1,800 millimeters (mm) annually. The primary economic activity is agriculture, but nearly all households in the zone also engage in mining, primarily for gold and diamonds, as a source of income. Commerce around mining, livestock sales, and wild foods collection and sales are also important economic activities. This livelihood zone is a surplus producing area for rice and cassava.

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Zone Description

The *Agriculture with Artisanal Mining Livelihood Zone* (CD13)[1] is situated in the northeastern quadrant of the Democratic Republic of Congo in pockets scattered throughout the provinces of Bas-Uele, Tshopo, and Maniema. The zone is characterized by a mix of equatorial forest and agricultural land, featuring relatively flat, although somewhat varied, topography dotted with marshes and hills. Elevation ranges from 450 to 800 meters. The area has a humid equatorial climate with abundant rainfall, averaging between 1,500 and 1,800 mm annually and temperatures ranging from 26°C to 29°C.[2] The rainfall pattern includes two distinct Rainy Seasons from mid-February to mid-June and mid-July to mid-December.

The population density in CD13 is relatively low, with approximately 22 people per square kilometer, and a total population of 1,038,315.[3] Key settlements include Buta, Akéti, and Bondo in Bas-Uele Province, and Banalia and Bafwasendé in Tshopo Province. The communities are predominantly rural, with households dispersed across small villages. The primary language spoken is Lingala, along with various local dialects reflecting the diverse ethnic composition of the region.

Agriculture is the cornerstone of livelihoods in the zone, and households from all wealth groups practice agriculture. The main crops are cassava, rice, maize, groundnuts, and plantains. Rice, maize, and groundnuts have one major harvest per year in June/July (from the Season B cultivation season) and a second smaller harvest beginning in November/December (from the Season A cultivation season). Cassava and plantains are harvested throughout the year. The fertile, sandy-clay soils and favorable rainfall conditions support good crop production. The zone produces a small food surplus of cassava and rice, which are exported to other livelihood zones. Land is prepared manually using basic tools, such as machetes and hoes. Wealthier households often hire workers from poorer households for land preparation, weeding, and harvesting activities.

Small-scale livestock rearing of pigs, goats, and poultry supplements household incomes and food security. Livestock free graze on natural pastures and crop residues. Hunting and gathering also play a significant role in this zone. Households rely on wild game (such as antelope and porcupine) and forest products (including palm oil, snails, caterpillars, mushrooms, termites, and various wild fruits and leaves).

Market access in CD13 varies, with better-connected areas benefiting from major roads, such as RN4 from Kisangani to Buta. However, road quality is generally poor, especially during the Rainy Season, when roads become muddy and impassable. The roads are primarily dirt and have significant potholes. Many of the bridges are old and damaged. During the Rainy Season, poor road quality

[1] Fieldwork for the current profile was undertaken from June 16 to July 13, 2024. The information in this profile pertains to the reference year, which was the consumption year that covered the period of June 2023 to May 2024. If no fundamental and rapid shifts in the economy occur, the information in this profile is expected to remain valid for five to 10 years (i.e., until around 2028 to 2033). All prices in the document are for the reference year.
[2] "Democratic Republic of the Congo Climate: Climate Zone and Historical Climate Data," Weather and Climate, https://weatherandclimate.com/democratic-republic-of-the-congo.
[3] FEWS NET Data Explorer, population data (2023), accessed 2025, https://fdw.fews.net/data-explorer/.

reduces access to markets, affecting the flow of goods and leading to higher transportation costs. This isolation often results in higher prices for basic commodities in rural areas. Conversely, market access improves during the Dry Season, facilitating trade and reducing transportation costs.

Households sell agricultural produce, livestock, and mined resources in local and regional markets. Key market towns include Buta, Akéti, and Bondo. Artisanal mining, particularly for diamonds and gold, is a common economic activity — nearly all households engage in it. The region is rich in natural resources, which are exploited by most households. Related environmental concerns include deforestation and soil erosion due to extensive mining and agricultural activities.

CD13 experiences several hazards that affect its economy and livelihoods. The main hazards include swine disease, crop pests, market access issues due to poor road conditions, drought, and flooding. Swine disease occurs every other year, as do crop diseases. The main crop diseases are cassava mosaic disease and groundnut rosette; the latter is a viral disease that affects groundnut crops, characterized by stunted growth and yellowing of the leaves. Droughts occur one out of every five years, whereas flooding occurs one out of every three years. Market access is a problem every year due to the poor quality of roads and bridges, which require repair.

Access to social services, such as healthcare, education, and clean water, remains limited. Households access water from surface sources, wells, and boreholes. Local dispensaries and health centers primarily provide health services. Individuals typically reach primary or secondary school, with individuals from wealthier households attaining higher education levels. Infrastructure improvements, particularly of roads and communication networks, are crucial for improving market access and enabling households to sustain their livelihoods. Community-based organizations and NGOs play a vital role in providing essential services and supporting efforts to strengthen essential services in this zone.

Markets

Market access in CD13 is considered poor due to the condition of the roads and bridges, especially during the Rainy Season. These conditions particularly affect rural areas far from urban centers. The zone is connected by a network of national and provincial roads, with key routes such as the RN4 from Kisangani to Buta facilitating the movement of goods. These roads, however, are mostly unpaved and poorly maintained, presenting challenges especially during the Rainy Seasons from mid-February to mid-June and mid-July to mid-December. During these periods, the roads become muddy and often impassable, isolating many communities and driving up transportation costs. In the Dry Season, the roads become more navigable, improving market access and reducing costs.

Key market towns within the zone, such as Buta, Akéti, and Bondo, are central trading hubs. Agricultural products and minerals are traded in the major market center of Buta, making it a vital linkage point to larger markets in Kisangani and Kinshasa. Akéti and Bondo similarly play vital roles in the local economy, with trade routes extending to regions such as Bumba and beyond.

Agricultural products form the backbone of the local economy, with all households engaged in cultivating cassava, rice, maize, groundnuts, and plantains. These crops are sold in local markets and transported to larger urban centers. Cassava is not traded outside the livelihood zone. It is sold at the village level or to trading hubs within the zone, such as Buta, where it meets the demand of local consumers and mining communities. Rice and groundnut trading covers a wider area, moving from the local markets all the way to large urban centers. One trade route goes through Buta to Kisangani, and another trade route flows westward from the local markets to Akéti, Bumba, and Kinshasha.

Livestock, including pigs, goats, and poultry, are essential for income generation and are sold within this zone. Cities such as Buta, Akéti, and Bondo are key markets, as are the local mining communities. Pigs are sold in September and December to coincide with school fees and festive seasons. Goats are traded mainly in September to help pay school fees as well as in February and March, when middle and better-off households need to pay cash for cultivation labor. Poultry are sold all year, ensuring a steady income for households.

Palm oil, made from palm nuts collected from the forests, is an important source of income. The oil is sold in the livelihood zone (in Buta and Akéti) and beyond via multiple trade routes from Buta to Kisangani on to North and South Kivu Provinces, and from Akéti to Bumba on to Kinshasha.

The primary foods purchased include beans, cassava, and rice. Cassava and rice are procured from within the zone, whereas beans are sourced from Uganda and transported through Kisangani to local markets.

The labor market, characterized by its informality and seasonal fluctuations, provides critical employment opportunities, particularly in agriculture and artisanal mining. There is labor migration from other livelihood zones into CD13, notably men from the surrounding *Forest Cultivation and Collected Products Livelihood Zone* (CD12) who come to work in the artisanal mining sector.

Timeline and Reference Year

The baseline assessment refers to a specific period called the “reference year.” In the *Agriculture with Artisanal Mining Livelihood Zone* (CD13)*,* the reference year covers the consumption period from June 2023 to May 2024. During community leader interviews, informants were asked to score the last five years in terms of seasonal performance with “1” indicating a poor season and “5” indicating an excellent season. Table 1 summarizes the response of the community leaders.

In June 2023, the beginning of the seasonal calendar, there were major harvests for the staple foods of maize, rice, groundnuts, and cassava. The seasonal calendar ended with the lean season in May 2024.

Table 1. Timeline

Production Year/Season	Score	Critical Events
2024 Season B	2	Insufficient rainfall in April and May led to a decrease in yields and an increase in food prices in Season B. Good distribution of rainfall and Low levels of crop pest attacks led to good crop production, contributing to above average household food security in Season A.
2023 Season A	4	
2023 Season B	4	Good distribution of rainfall led to good crop production, contributing to above average household food security in Season B. Flooding reduced crop yields in Season A, but it was average in terms of food security.
2022 Season A	3	
2022 Season B	4	Good distribution of rainfall led to good crop production, contributing to above average household food security in Season B. Although the conditions were similar to those of Season A, food security was average in Season A.
2021 Season A	3	
2021 Season B	3	Heavy rains led to a decrease in crop production in Season B. Although the conditions were similar to those of Season B, food security was below average in Season A.
2020 Season A	2	
2020 Season B	3	Good crop production due to favorable conditions led to average production in Season B. Although the conditions were similar to those of Season B, food security was above average in Season A.
2019 Season A	4	
2019 Season B	4	Good distribution of rainfall led to good crop production, contributing to above average household food security in Season B. Although the conditions were similar to those of Season A, food security was average in Season A.
2018 Season A	3	

5 = Excellent season for household food security (e.g., due to good rains, good prices, good crop yields)
4 = Good season or above-average season for household food security
3 = Average season for household food security
2 = Below-average season for household food security
1 = Poor season for household food security (e.g., due to drought, flooding, livestock disease, pest attack)

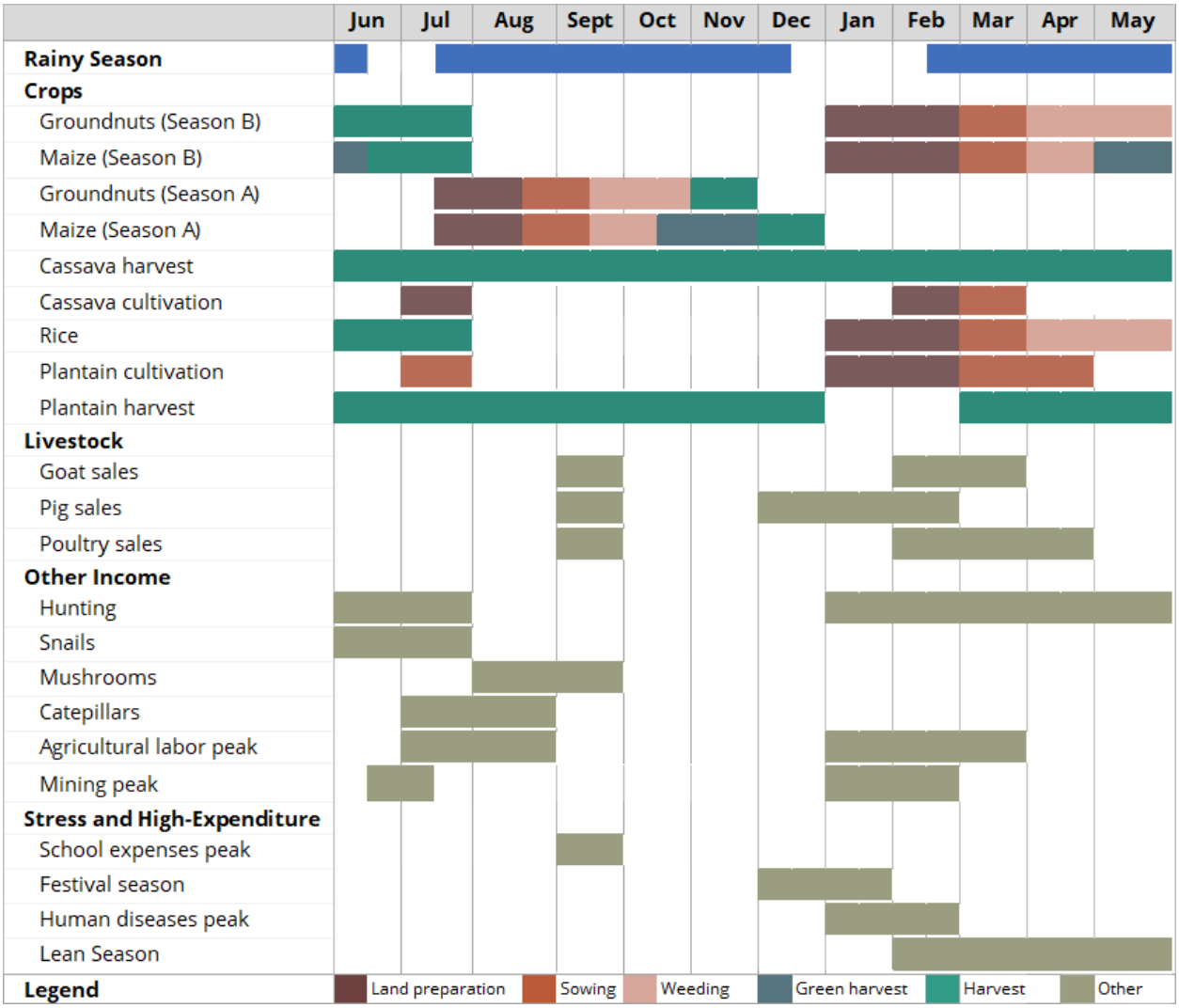
Despite flooding in certain villages, the reference year was classified as "3," close to average. Crop production was average, and the prices of the main staple foods followed a normal trend but were marked by exchange rate fluctuations between the Congolese franc and the U.S. dollar. Traditional mining activities proceeded as usual. Although livestock births and sales were largely normal during the reference year, key informants noted more pig deaths, due to African Swine Fever, than expected.

Key informants ranked most of the seasons between 2019 and 2024, including the reference period, as "3" (average) or "4" (above average) in terms of household food security.

Seasonal Calendar for Reference Year

The seasonal calendar (see Figure 2) illustrates the main economic activities and events of the reference year (June 2023 to May 2024). It traces the rainy months, agricultural activities, wild foods collection, peak labor periods, food purchasing periods, and other relevant items.

Figure 2. Seasonal Calendar



Rainfed agriculture is the primary economic activity in this livelihood zone. Cassava is the main crop, and it is almost always intercropped. Rice is usually intercropped with cassava alone, whereas the other crops are associated in diverse configurations in the same field. With adequate rains throughout most of the year, it is possible to have two growing seasons. The primary growing season for rice, maize, and groundnuts (Season B) has larger harvests beginning in June/July, but the secondary season (Season A) complements these harvests with harvests in October through December. Cassava and plantains are grown and harvested throughout the year. The peak sale

period for cassava is November and December. Rice and groundnuts are mainly sold in July and August.

Foraging for wild foods is a seasonal activity, often linked to the availability of various forest resources. The main foraged forest product is palm nuts. Palm nuts are used to make red palm oil that is consumed and sold. Palm oil sales occur throughout the year but peak from March to August. Other foraged products include snails in June/July, caterpillars in July/August, and mushrooms in August/September. Hunting is also a seasonal activity permitted from January through July. The forests officially close for hunting in August to protect against overuse.

Artisanal mining takes place throughout the year, but weather conditions may influence it. During the Rainy Season, access to mining sites may be more difficult due to muddy roads and the risks of flooding and mine collapses. As a result, the peak of mining activity corresponds with the relatively drier months of mid-June to mid-July and January through February.

Cultivation labor, mainly performed by poorer households from July through August and January through March, involves land preparation, weeding, and harvesting for wealthier households. This labor is paid in cash (pre-harvest) and in kind (for work performed during the harvest).

Livestock sales peak in September and December for pigs and in September, February, and March for goats. These sales correspond to periods when there is the greatest need for cash to help make ends meet before the main harvest, to pay for school fees in September, to pay for cultivation labor in February and March, or to cover extra expenses around Christmas and New Year.

The Lean Season spans February through May. During this period, poorer households in the zone earn cash to purchase food mainly through cultivation labor, including land preparation and planting. The primary foods purchased include beans, cassava, and rice, with peak purchase periods typically spanning from January through May. During these months, local markets bustle with activity as households buy these staples to bridge gaps between harvests.

Table 2. Typical Division of Labor

Shared Tasks	Women's Tasks	Men's Tasks
• Cultivation labor – sowing, weeding, and harvesting • Livestock care and sales • Crop sales • Petty trade • Foraging for wild foods • Brewing beer • Household charcoal/ firewood collection • Production and sale of charcoal/firewood	• Foraging for wild palm nuts and palm oil production • Prepared food sales • Household water collection • Meal preparation • Laundry • Care and feeding of young children	• Cultivation labor – land preparation • Artisanal mining • Hunting • Transport services • Construction labor

Table 2 shows the typical division of labor, listing activities men and women share and separate by gender. All household members share many tasks, including cultivation labor, livestock production activities, trade/small business, and labor/self-employment activities. Only men participate in artisanal mining. Mostly women forge for wild foods and palm oil production. Women are also mostly involved in domestic work, including collecting water, cooking, taking care of children, and doing laundry. Men engage in domestic work for firewood collection and construction activities.

Wealth Breakdown and Productive Assets

Table 3 summarizes the types and numbers of productive assets that typical households within each wealth group own or manage. Asset holdings are shown in a range that reflects the diversity of households' situations within a wealth group. Figure 3 shows the percentage of households within the zone in each wealth group. The socioeconomic categorization of households in the zone was carried out by the communities themselves.

Table 3. Wealth Breakdown

Household Size and Productive Assets	Very Poor	Poor	Middle	Better-Off	Poor Female-Headed
Household size	4-6	6-8	8-10	10-12	5-7
Land owned (hectares [ha])	1-2	1-3	3-6	5-10	0.75-1.5
Land cultivated (ha)	0.5-1	1-2	2-3	2.5-4.5	0.75-1.5
Land cultivated – food crops (ha)	0.5-1	1-2	2-3	2.5-4.5	0.75-1.45
Pigs	0	0	0-3	1-5	0
Goats	0	0-3	1-4	4-8	0
Poultry	5-7	5-10	5-10	5-15	5-10
Bicycles	0-1	0-1	1-2	1-3	0-1
Mobile phones	0-1	0-1	0-2	1-2	0-1
Motorcycles	0	0	0-1	1-2	0

Wealth is primarily determined by household size, land ownership/cultivated areas, livestock ownership, and possession of productive assets, such as motorcycles. The larger the household, the more prosperous it is, as it has more members, cultivable land, livestock, and other productive or non-productive assets. All wealth groups are involved in artisanal mining activities. Very poor households engage in digging, whereas wealthier households engage in the trade of minerals.

Nevertheless, a household can easily move from a lower to a higher class due to the unpredictable income derived from this activity. Indeed, work in the mines is very unpredictable, and luck can quickly favor someone with a few carats of diamonds, rapidly making them wealthier.

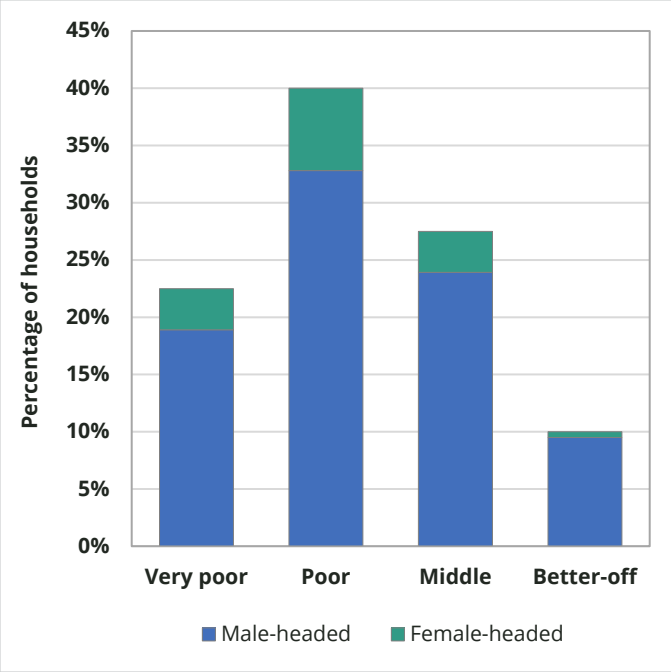
Land area cultivated is the most important determinant of wealth. Land is inherited from parents and can be passed to men or women. Household wealth progressively increases with the area the household cultivates. Overall, better-off households cultivate four to five times the area that very poor households cultivate.

The middle and better-off wealth groups produce a surplus of crops for sale. The very poor and poor wealth groups grow enough food to cover their minimum consumption needs but sell significant amounts post-harvest and purchase food later in the year. There is no production of cash crops in CD13.

Availability of household labor is another important determinant of wealth in the zone. Middle and better-off households have larger household sizes than very poor and poor households and, therefore, more labor for crop production and caring for livestock. Middle and better-off households hire additional laborers from the very poor and poor wealth groups for cultivation and harvesting, which limits the labor these poorer households can devote to their own crop and livestock production.

Figure 3. Wealth Breakdown

Note: All results are the mid-point of a range



Livestock ownership is another determinant of wealth in the zone. The most important animal types are pigs and goats. The middle and better-off wealth groups own pigs. Overall, the better-off wealth group owns twice as many pigs as the middle wealth group. The poor, middle, and better-off wealth groups own goats, with wealth progressively increasing with the number of goats. Overall, the better-off wealth group owns six times as many animals as the poor wealth group. The poor, middle, and better-off wealth groups sell live animals. The poor wealth group generates enough cash from this source to purchase 5-10% of their minimum annual food needs. The corresponding figure for the better-off wealth group is close to 75% of households' minimum annual food needs.

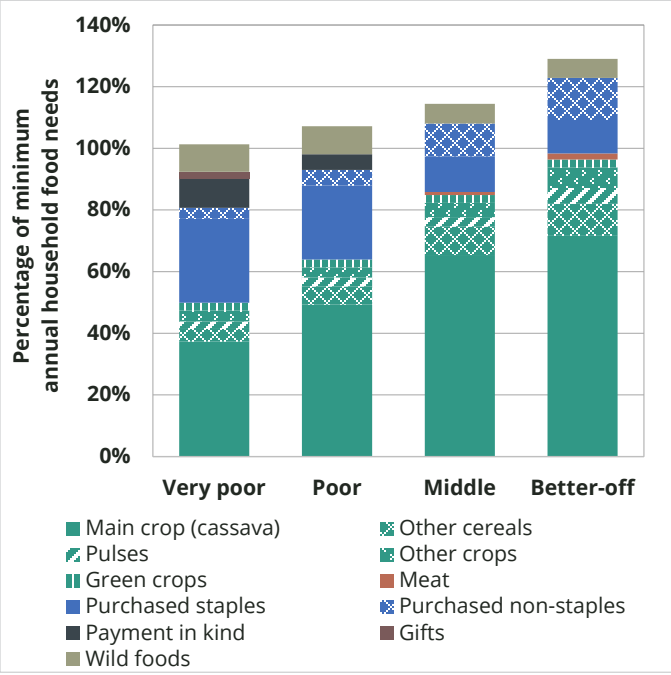
The middle and better-off wealth groups have more savings/capital than other wealth groups, which they use to engage in petty trade and taxi services.

Female-headed households make up a portion of households in all wealth groups, including the better-off, with the highest percentage in the poor wealth group (see Figure 3). In terms of land, poor female-headed households have an asset profile similar to the asset profile of poor male-headed households. The main difference is the amount of land cultivated by poor female-headed households: 0.75-1.5 ha compared to 1-2 ha for poor male-headed households.

Sources of Food

Figure 4 presents the sources of food for households in different wealth groups in the livelihood zone for the reference year (June 2023 to May 2024). June is the start of the consumption year because the main harvest season for rice, maize, and groundnuts starts in June. Food is presented as a percentage of the annual kilocalorie (kcal) needs of a household based on the internationally accepted estimate of 2,100 kcal per person per day.

Figure 4. Sources of Food



Beginning with total food consumption, food consumed progressively increased with wealth. Overall, very poor households consumed roughly 100% of minimum annual food needs and better-off households roughly 130%. There were two main and four minor food sources in this zone in the reference year. The main sources were households' own crops and market purchases. The four minor sources were wild foods, payment in-kind, households' own meat, and gifts.

Crop production, and more specifically cassava production, was the most important source of food in the livelihood zone. Middle and better-off households grew enough crops to cover their minimum consumption needs. In contrast, very poor households consumed roughly half of minimum annual food needs from their own crops. The most important crops grown for households' own consumption were fresh cassava followed by cassava flour, rice, and groundnuts from Season B. Green maize, available before the main harvest, had a small but important contribution. Plantains and cassava leaves were also important food crops, although they contributed less to meeting food needs.

Purchased food was the second most important source of food in the livelihood zone. Purchased foods can be divided into staple and non-staple. All wealth groups purchased staple foods, the most important types being fresh cassava, cassava flour, and rice. Of these foods, very poor households purchased 25-30% of minimum annual food needs and better-off households roughly 10%. All wealth groups purchased non-staple foods. The most important were oil, sugar, beans, and other items. Of these foods, the very poor purchased less than 5% of minimum annual food needs, and the better-off purchased roughly 15%.

Wild foods were a minor source of food in the livelihood zone. All wealth groups consumed wild foods. Overall, the poor consumed roughly 10% of minimum annual food needs from wild foods, and the better-off purchased roughly 5%. Palm oil from foraged palm nuts contributed the most to meeting annual caloric needs in the wild foods category; meat from hunting also contributed a small amount.

Payment in-kind was a minor source of food in the livelihood zone in the reference year. The very poor and poor wealth groups received payment in-kind for agricultural work performed during harvest. Overall, the very poor received roughly 10% of minimum annual food needs, and the poor received roughly 5%.

Gifts were another minor source of food in the livelihood zone. The very poor wealth group received less than 5% of minimum annual food needs from gifts. There was no food aid in the livelihood zone in the reference year.

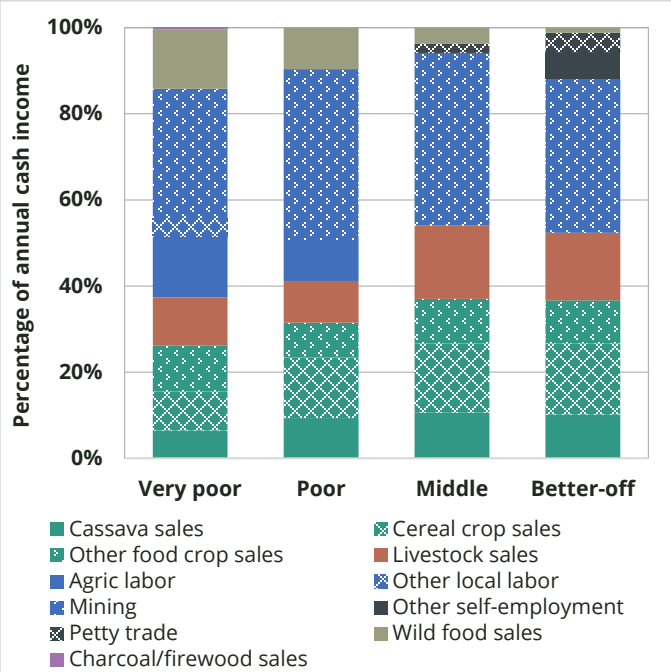
The reference year was average in terms of food security, with all households meeting their minimum annual food energy requirements.

Sources of Cash Income

Agriculture and mining were the main livelihood activities in the *Agriculture with Artisanal Mining Livelihood Zone* in the reference year (June 2023 to May 2024). However, the primary means of obtaining cash income in this zone varied by wealth group (see Figure 5). Differences between wealth groups in the absolute amount of cash income generated during the reference year were large. Overall, the better-off wealth group earned six to seven times the cash income than the very poor earned. Differences between wealth groups in per capita cash income were also large but smaller than for total income. Overall, the better-off earned approximately three times the annual per capita cash income than the very poor earned. Annual capita cash income progressively increased with wealth.

The wealth groups can be split into two in relation to income profile. The very poor and poor wealth groups had a similar income profile, with mining, crop sales, and agricultural wage labor among the top four sources of cash. The middle and better-off wealth groups also had a similar income profile, with mining, crop sales, and livestock sales as the top three sources of cash.

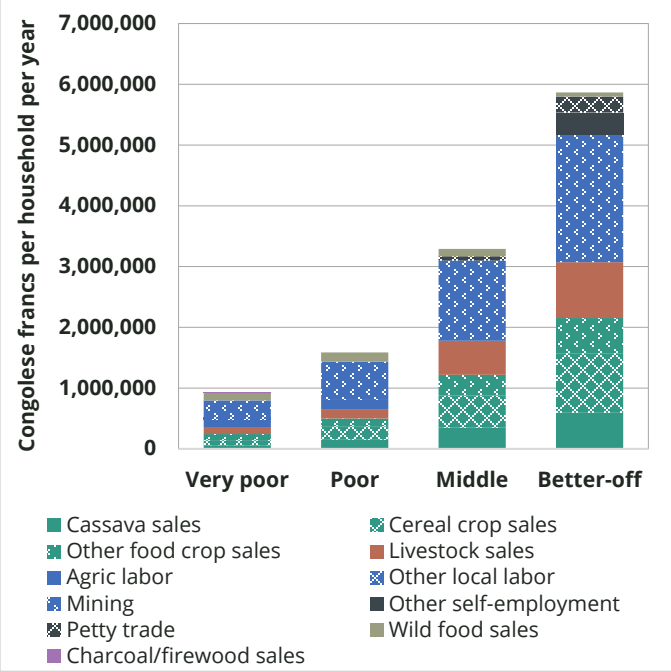
Figure 5. Sources of Cash Income as a Percentage of Annual Cash Income



Mining was an important source of cash for households from all wealth groups, providing 25-45% of annual cash income. Crop sales were also an important source of cash for households from all wealth groups. These sales generated roughly 25% of total cash income for very poor households and 35-40% for middle and better-off households. The main food crops sold were rice, followed by fresh cassava, groundnuts from Season B, and plantains. All wealth groups sold the same kinds of crops but in differing proportions.

Sales of wild foods, primarily palm oil made from foraged wild palm nuts, generated income for households in all wealth groups. Only very poor households sold firewood and charcoal and earned cash from other local labor (e.g., construction). Middle and better-off households engaged in petty trade, whereas poorer households did not.

Figure 6. Total Annual Cash Income



Wage labor was an important source of cash for the poorer wealth groups, generating 15-20% of total cash income for the very poor and roughly 10% for the poor. The main types of wage labor were cultivation, harvesting, and construction.

Livestock sales constituted the third most important source of cash for better-off households, generating roughly 15% of their total cash income. But livestock sales were an income source for all wealth groups, generating roughly 10% of total cash income for very poor and poor households and 15-20% for middle households. The main types of livestock sold were pigs and goats. Only middle and better-off households sold pigs. All households except very poor households sold goats, and all households sold poultry.

There is a large difference in wealth between very poor and better-off households. In the reference year, better-off households earned more than six times what very poor households earned and more than three times what poor households earned, as Figure 6 and Table 4 illustrate.

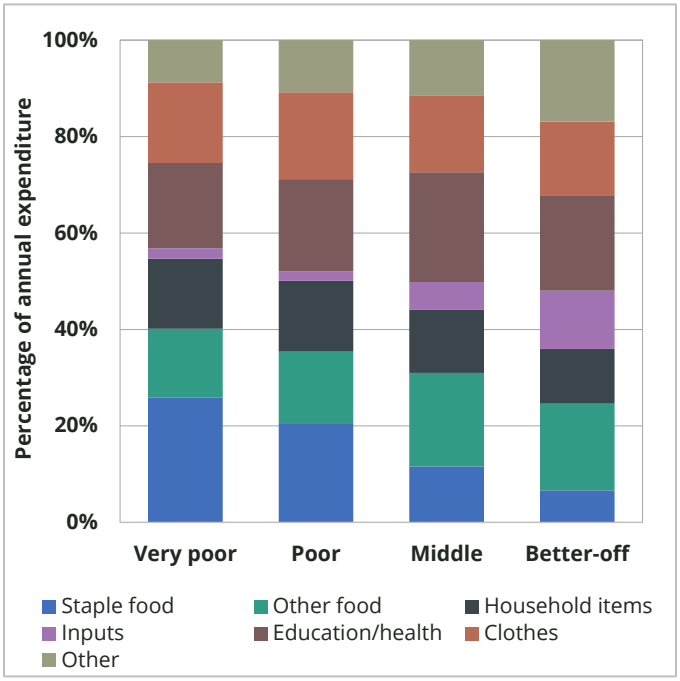
Table 4. Income Summary Table (Congolese Francs or CDF)

Wealth Group	Very Poor	Poor	Middle	Better-Off
Annual Income per Household[4]	800,000-1,000,000	1,400,000-1,800,000	3,000,000-4,000,000	5,500,000-6,500,000

Expenditure Patterns

Figure 7 presents expenditure patterns for the reference year (June 2023 to May 2024). Although absolute expenditure increased with wealth in line with total cash income, this graph's expenditure breakdown by percentage shows the *relative* amount of income spent on different categories. Households in the zone needed to cover a range of essential expenditures over the year, including staple foods, non-staple foods, household items/services (like salt, soap, tea, lighting, and milling), productive inputs, social services (e.g., health and education), clothing, and other essential and non-essential items.

Figure 7. Total Annual Cash Expenditure by Category



Staple food was an expenditure item for all wealth groups and accounted for the largest share of total expenditure for very poor households. The share of expenditure on staple foods progressively decreased as wealth increased, accounting for roughly 25% of total expenditure for very poor households and 5-10% for better-off households. The main staple foods purchased were fresh cassava, cassava flour, and rice.

Non-staple food was an expenditure item for households from all wealth groups and accounted for 15-20% of the total expenditure. The main non-staple foods purchased were vegetable and palm oil, sugar, and beans. Health and education also accounted for a large share of the total expenditure for

[4] The average exchange rate from June 2023 to May 2024 was 1 USD = 2,607 CDF.

all households (roughly 20-25%). Clothes accounted for 15-20% of total expenditure across households in all wealth groups.

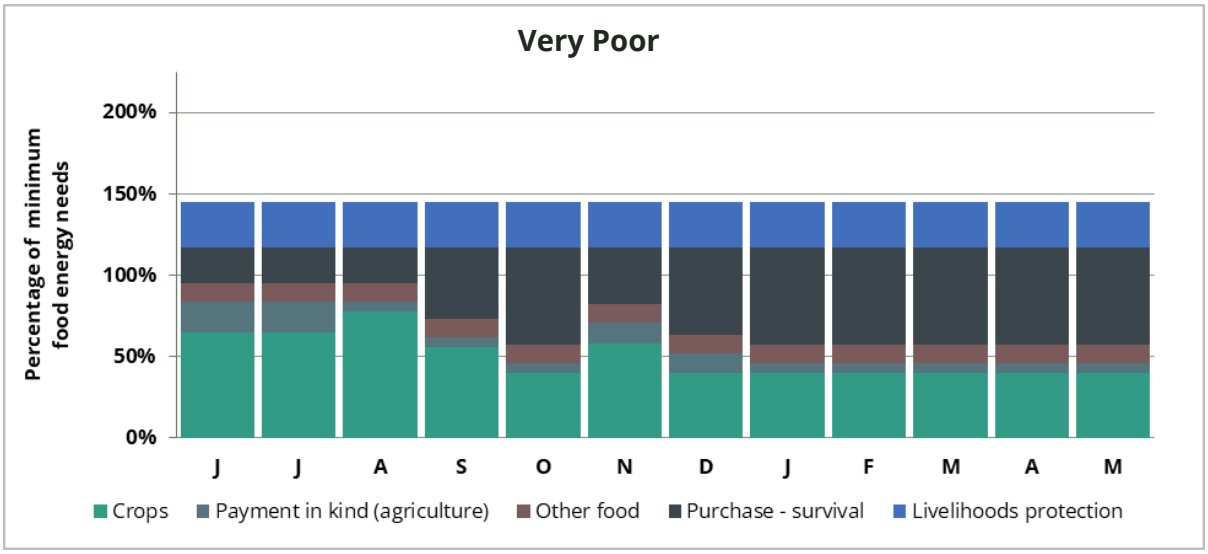
Households in all wealth groups had some level of expenditure on other non-essential items, with the proportion increasing as wealth rose. These items represented about 10% of total expenditure for the very poor and 15-20% for the better-off. Productive inputs accounted for less than 5% of total expenditure for very poor and poor households, 5-10% for middle households, and 10-15% for better-off households. The main items in this category were labor and equipment for cultivation and mining.

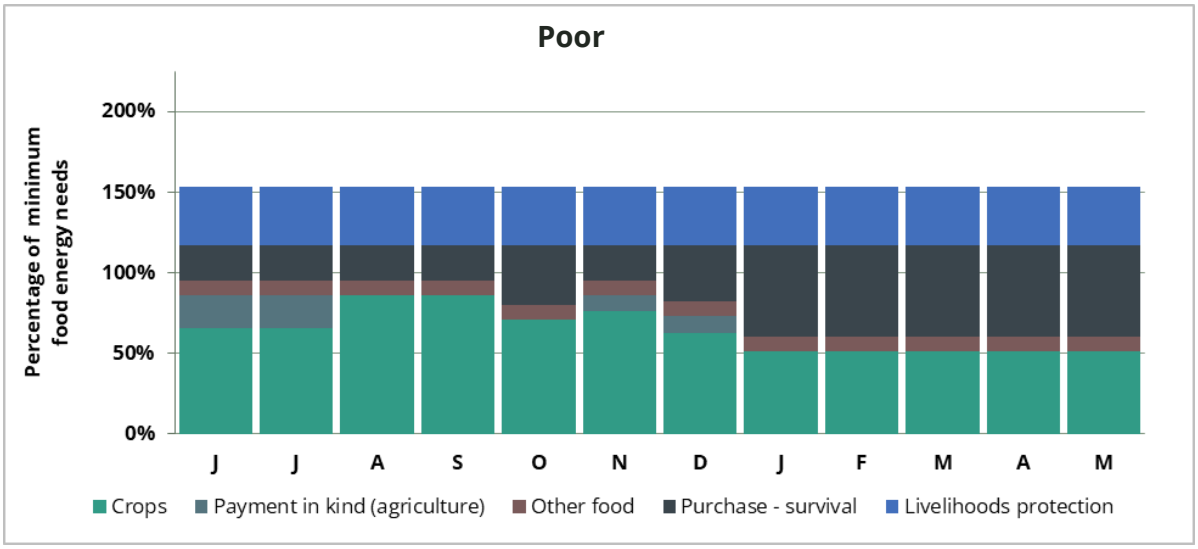
Food Access Calendars

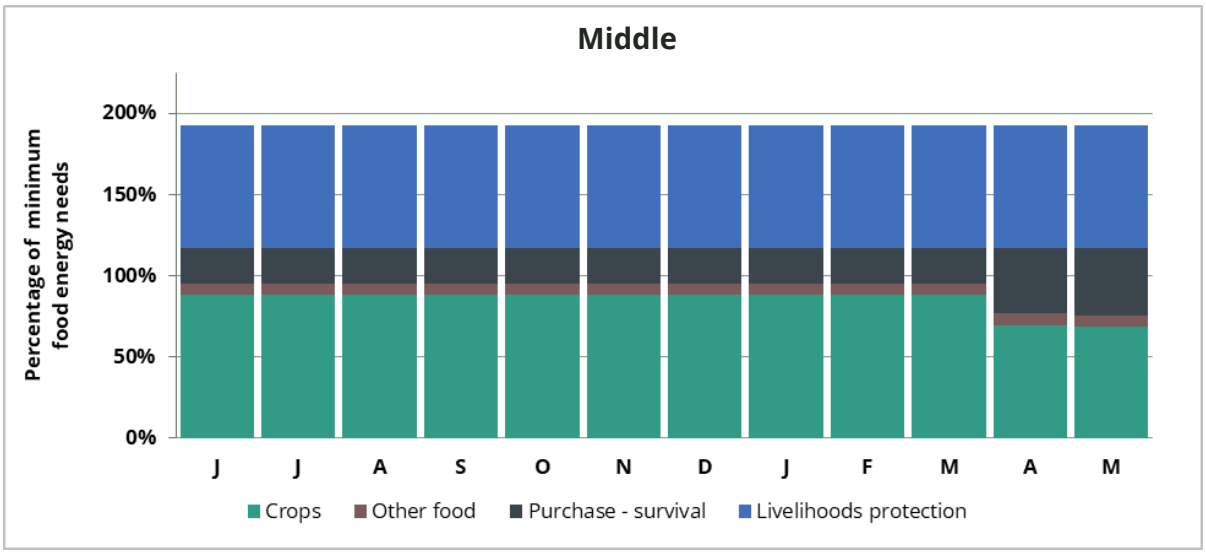
The graphs in Figure 8 present monthly food and cash access calendars for the four wealth groups.

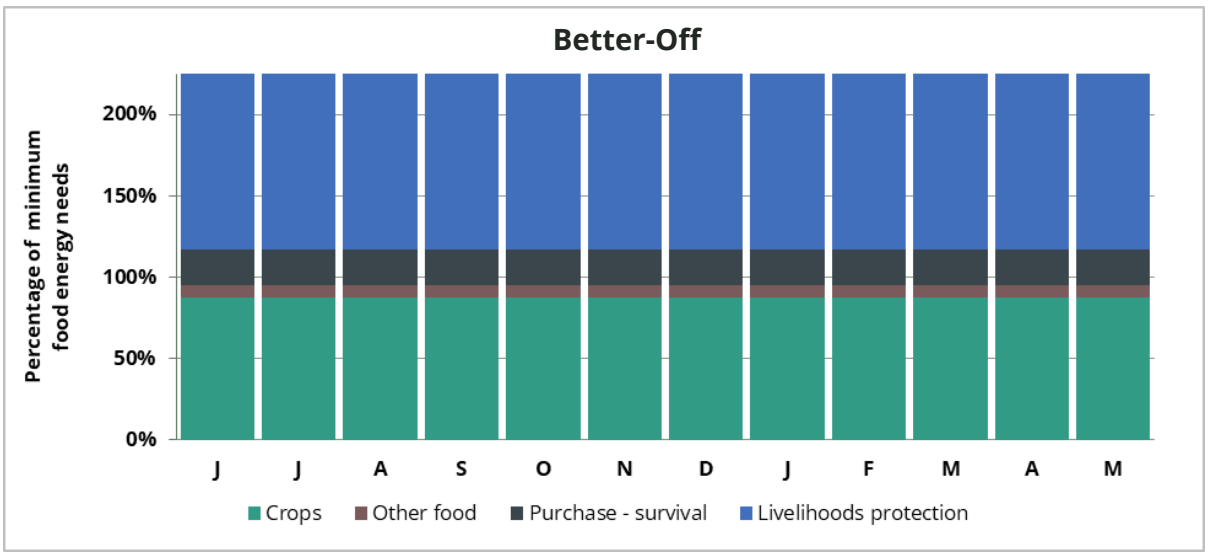
Households in all wealth groups were able to meet their survival and livelihoods protection threshold year-round in the reference year. The contribution from households' own crop production is spread quite evenly over the year in these graphs because of the importance of cassava in CD13, which can be harvested at any time. Very poor and poor households obtained some food from payment in kind for casual agricultural labor (in teal). The dark blue "livelihoods protection" sections of the bars increase as a proportion of the total with wealth because wealthier households spend more on productive inputs, health, and education.

Figure 8. Seasonal Food and Cash Access Calendars per Wealth Group




Poor
Percentage of minimum food energy needs
200%
150%
100%
50%
0%
J J A S O N D J F M A M
Crops
Payment in kind (agriculture)
Other food
Purchase - survival
Livelihoods protection


Middle
Percentage of minimum food energy needs
200%
150%
100%
50%
0%
J J A S O N D J F M A M
Crops
Other food
Purchase - survival
Livelihoods protection


Better-Off
Percentage of minimum food energy needs
200%
150%
100%
50%
0%
J J A S O N D J F M A M
Crops
Other food
Purchase - survival
Livelihoods protection

Poor Female-Headed Households

Households headed by women exhibited characteristics similar to households headed by men. However, the size of female-headed households was often smaller than the size of male-headed households. Poor female-headed households sometimes included (in addition to the head of the household) children and other close relatives, such as grandparents or siblings. A smaller household size meant there were fewer people from the household available to work the land. Another main difference between poor male- and female-headed households was participation in artisanal mining. Women did not work directly in the quarries — considered men's work. Therefore, poor female-headed households had to find other means of making ends meet.

In the *Agriculture with Artisanal Mining Livelihood Zone*, female-headed households were as involved in agricultural activities — whether in their own fields or as day laborers — as male-headed households. Access to land was not a major issue; the female heads of these households often inherited plots from their deceased husbands. Crop production was insufficient to meet poor female-headed households' needs throughout the year, and in this respect, they were similar to poor male-headed households. As a result, a significant portion of their income was spent on purchasing basic food items, such as cassava, rice, and palm oil.

Figure 9 shows that poor female-headed households and poor male-headed households had a similar pattern of food access. In the reference year, they both met their annual minimum food energy needs from similar food sources, mainly market purchases and their own crop production. Poor male-headed households cultivated slightly more land than poor female-headed households and, thus, harvested slightly more and consumed slightly more calories from crop production. Beginning with total food consumption, both male- and female-headed households consumed similar amounts: 105-110% of minimum annual food needs.

The five main food sources for poor female-headed households were, in order of importance, their own crops, market purchases, payments in-kind, gifts/remittances, and wild foods. Of these food sources, two contributed less food for poor female-headed households compared to poor male-headed households: crops and wild foods. Households' own crop production contributed roughly 10% less for poor female-headed households than for poor male-headed households. Poor female-headed households also consumed slightly from wild foods collection. Of the five main food sources, two contributed more food for poor female-headed households than poor male-headed households: gifts/remittances and payments in-kind. Gifts of food (usually cassava and rice) contributed roughly 5% of the minimum calories needed for poor female-headed households. In contrast, gifts of food did not contribute to calories for poor male-headed households. Payments in-kind contributed slightly more food for poor female-headed households, roughly 10% compared to about 5% for poor male-headed households.

Turning to cash income, poor female-headed households earned roughly 30% less in cash income than poor male-headed households. Poor female-headed households were, however, smaller than poor male-headed households, and per capita cash income was roughly 20% less.

Figure 9. Sources of Food: Poor Households vs. Poor Female-Headed Households

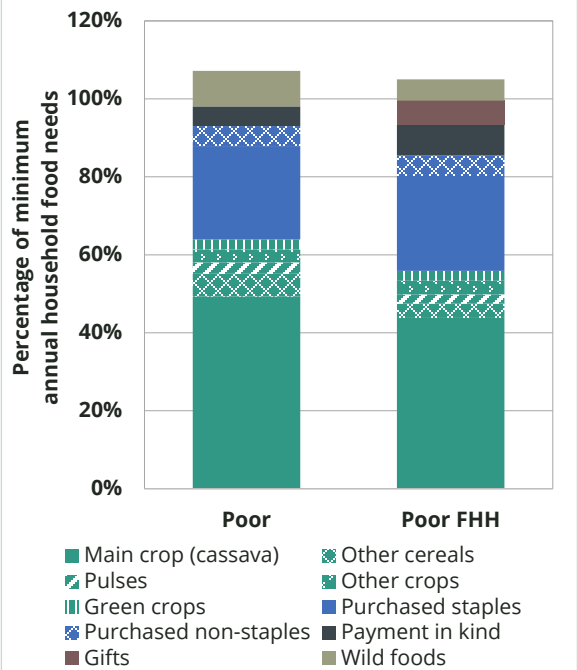


Figure 10. Sources of Cash: Poor Households vs. Poor Female-Headed Households

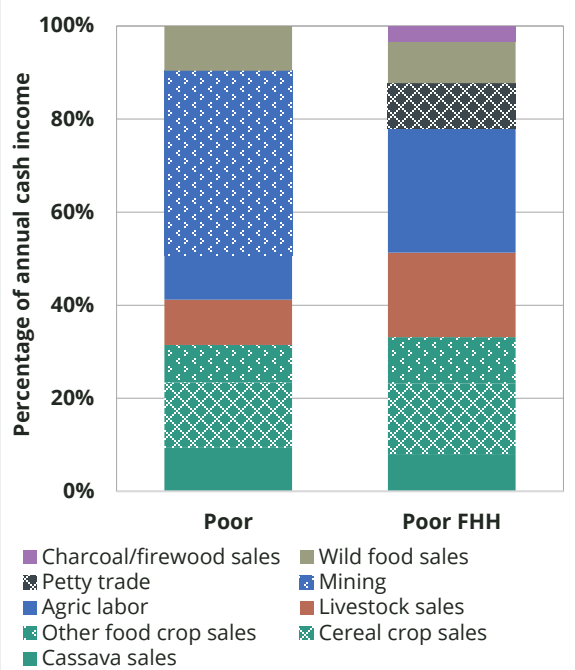


Figure 10 shows that poor male-headed households and poor female-headed households had dissimilar sources of cash income in the reference year. The absence of income from mining activities for poor female-headed households is notable. In contrast, mining provided roughly 40% of the total income for poor male-headed households. The five main types of cash income for poor female-headed households were, in order of importance, crop sales, agricultural wage labor, livestock sales, sale of firewood, and petty trade. Wage labor made up a much larger percentage of annual cash income for poor female-headed households, nearly 30% compared to about 10% for poor male-headed households. Poor female-headed households also pursued petty trade, typical for middle and better-off households. The pursuit of petty trade further differentiated poor female-headed households from poor male-headed households, which typically do not engage in it.

Response Strategies

In response to hazards and years with bad production, households attempt to meet their minimum food needs and cash requirements through several strategies. Some responses implemented were different across wealth groups, while others were similar. Below are some common strategies employed by households.

All households try to reduce expenditure on non-essential or more expensive items first, such as cutting down or not buying clothes or utensils that year.

Very Poor and Poor Households

Very poor and poor households consume cheaper staple foods, such as cassava, instead of purchasing more expensive rice and maize in bad years. They also increase foraging efforts for wild foods to fill the gaps. Very poor and poor households try to increase cash income through the intensification of non-cultivation labor activities to earn more cash. However, in bad years, as increasing numbers of people flood the labor market, this option quickly loses its value because wage rates drop, and jobs are harder to find.

Middle and Better-Off Households

Middle and better-off households cope with hazards differently. Middle and better-off households sell additional livestock to cover basic food and non-food expenses in bad years. They also reduce the amount they spend on hiring paid agricultural workers.

Key Parameters for Monitoring

The key parameters listed in Table 5 are food and income sources that substantially contribute to the household economy in CD13. These sources should be monitored to track potential losses or gains in local household economies through ongoing monitoring systems or periodic assessments.

Table 5. Key Parameters for Monitoring

Item	Key Parameter – Quantity	Key Parameter – Price
Crop Production	• Green maize Seasons A and B – number of weeks • Maize Season B – quantity produced • Cassava – quantity produced • Groundnuts Season B – quantity produced • Rice – quantity produced • Plantains – quantity produced	• Maize Season B – producer price • Cassava – producer price • Groundnuts Season B – producer price • Rice – producer price • Plantains – producer price
Livestock Production	• Pigs – herd size • Goats – herd size • Poultry – flock size	• Pigs – producer price • Goats – producer price • Poultry – producer price
Other Food and Cash Income	• Palm oil sales – quantity • Cultivation labor – number of days worked • Mining labor – number of days worked • Petty trade – demand • Transport services – demand	• Palm oil sales – producer price • Cultivation labor – wage rates • Mining labor – wage rates • Petty trade – daily earnings • Transport services – daily earnings
Expenditure		• Cassava – consumer price

CD14 Livelihood Zone

Reference Year: December 2022–November 2023

Northeast Highlands Agriculture Livelihood Zone

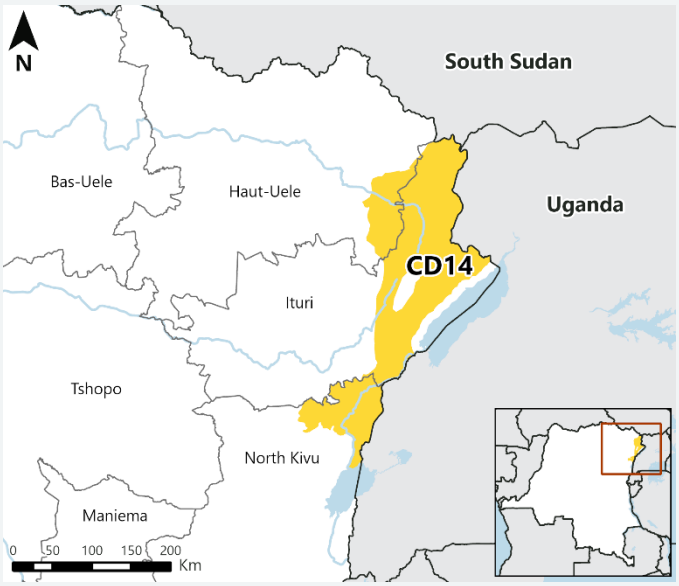


Figure 1. CD14 Livelihood Zone Map

Summary: The *Northeast Highlands Agriculture Livelihood Zone* (CD14) is a highly populous agricultural zone in northeastern Democratic Republic of the Congo (DRC) that covers the hills and high plains that rise from Lake Albert in the southeastern part of Beni Territory. Agricultural land is located at an average of 1,500 meters elevation and benefits from a relatively temperate climate and moderately fertile soils made up of a combination of clay, sand, and laterite. Average annual rainfall totals in this zone are moderate to high, ranging between 1,300 and 1,800 millimeters (mm) per year. Crop production is the main livelihood strategy, supplemented by livestock rearing, trading activities, local labor, and migratory labor. The zone is relatively self-sufficient, producing surplus crops that are sold both locally and in neighboring towns. Households' own crop production is complemented by market purchases, particularly of staple foods by poorer households or of non-staple foods not grown in the zone by wealthier households. Food deficits are rare, but during years of poor crop production, households rely on imported staple and non-staple foods. Market access is relatively good due to the major roads that link the zone to local towns and to bigger cities both near the zone and in neighboring countries. The security situation is stable.

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Zone Description

The *Northeast Highlands Agriculture Livelihood Zone* (CD14)[1] is an agricultural zone that covers the northeastern part of the DRC. This livelihood zone comprises several administrative territories, including Aru, Mahagi, Djugu, and Irumu in Oriental Province and Beni in North Kivu Province. It borders Uganda to the east, South Sudan to the north, and *Forest Cultivation and Collected Products Livelihood Zon*e (CD12) to the west. The urban centers within the zone include Beni and Butembo in the south and Bunia, Kamanda, Djugu, Aru, and Mahagi to the north.

The zone is situated in a tropical climate with average annual temperatures ranging from 16°C to 17°C in the Cold Season (March to September) and 22°C to 25°C during the Hot Season (January to April). The average annual rainfall is between 1,300 and 1,800 mm, supporting the agricultural activities that are central to the livelihoods of the households in this area.[2] The topography is largely undulating plain and valley, providing a mix of farmland and marshland. Mountains such as St. Stanley and Blue Mountain are found in the zone, as is Lake Albert and rivers such as the Kibali, Ituri, and Semliki Rivers. This topography, combined with the climate and the predominant degraded clay soils, creates a moderately productive agricultural environment. The overexploitation of the soil renders it less fertile, and poor access to fertilizers reduces agricultural potential in the zone. Deforestation for charcoal production and traditional agricultural practices (including seasonal bush fires) contribute to the degradation of the land. Vegetation is dominated by tropical forests and farmland, reflecting the agricultural focus of the region. The population of the zone is 5,809,179, with high population density of 189 people per square kilometer.[3]

The *Northeast Highlands Agriculture Livelihood Zone* (CD14) is known for its diverse agricultural production, particularly of cassava, beans, maize, sweet potatoes, potatoes, bananas, coffee, and onions. Most crops are grown for subsistence, though some, like coffee and potatoes, are cultivated for sale. Cassava is cultivated year-round, while maize, groundnuts, and other crops are predominantly grown in two main seasons: the first, more crucial, season running seven months from July to February (Season A), and a minor second season for seven months from January to August (Season B). Households rely on traditional methods such as hand digging for land preparation, and there is no significant use of agricultural inputs like fertilizers. Crops are typically stored within homes, and there are no farmer cooperatives to support agricultural activities. The zone is food sufficient and rarely faces food deficit.

Livestock production in this zone is primarily practiced by middle and better-off households who keep pigs, cattle, sheep, and goats. Poor households only keep a few goats and poultry. Livestock ownership represents a form of savings, but large holdings are difficult due to the terrain. Livestock

[1] Fieldwork for the current profile was undertaken from June 12 to July 15, 2024. The information presented in this profile refers to the reference year, which was the consumption year that covered the period December 2022 to November 2023. Provided there are no fundamental and rapid shifts in the economy, the information in this profile is expected to remain valid for approximately five to 10 years (i.e., until 2028-2033). All prices referred to in the document are for the reference year.
[2] EWX Next Generation Viewer, https://earlywarning.usgs.gov/fews/ewx/index.html.
[3] FEWS NET Data Explorer, population data (2023), accessed 2025, https://fdw.fews.net/data-explorer/.

are generally raised on open pasture and fed on grass and crop residues. Water sources for livestock include main and secondary rivers, which serve the animals throughout the year. Wealthier households participate in livestock trade, selling live animals in the surrounding towns and even trading further with neighboring Uganda and South Sudan. Livestock sales peak between September and January, driven by back-to-school demands, coffee input requirements, and holiday seasons. Very poor and poor households are less involved in livestock production, primarily engaging in agricultural labor or small-scale trade to supplement their income.

Aside from agriculture and livestock, households engage in other significant income-generating activities, such as firewood/charcoal sales, petty trade, migrant labor, and handicraft production. These activities are typically conducted within the village or through seasonal migration, particularly to mining regions like Durba and to neighboring Uganda for migrant labor. The sale of firewood/charcoal and handicrafts is crucial for the local economy, and these activities are carried out by men, women, and children from very poor and poor households throughout the year. Farm labor, often performed by men, women, and children from poorer households, is a common source of income. Additionally, there are some traditional practices like the gathering of wild foods, which is exploited by very poor, poor, and middle households.

CD14 experiences several hazards that impact the economic activities and food security of households. The most prevalent hazard is rainfall irregularity, which occurs in approximately three out of every five years. This frequent occurrence undermines agricultural productivity, leading to poor harvests and periodic scarcity of water for both crops and livestock. The resulting reduction in crop yields diminishes food availability and income from the sale of surplus produce, directly affecting the livelihoods of households across all wealth groups. Crop diseases are another critical hazard, occurring about two out of every five years. These diseases can decrease the production of staple crops. Similarly, livestock diseases, especially those affecting cattle, are a significant concern, with outbreaks happening in three out of every five years. Diseases such as digestive tract infections and seasonal insect-related issues lead to high mortality rates and reduced productivity in livestock. Market access issues further compound the challenges faced by households. Poor infrastructure and seasonal difficulties periodically disrupt access to markets, leading to lower prices for agricultural products and livestock, reduced income, and higher costs for essential goods. Lastly, conflicts and threats from wild animals, though less frequent, pose additional risks to livelihoods. Conflicts can displace communities, disrupt agricultural activities, and result in the loss of assets.

Access to essential services is limited in the livelihood zone. Springs and rivers are the primary sources of drinking water, livestock, and other water needs. Payment is not required to access water. Sanitation is rudimentary, with most households using simple pit latrines and the bush. Healthcare access varies, with dispensaries and health centers being the most common facilities, though middle and better-off households may access hospitals. Education levels are generally low, and most of the population receives only primary education, while a few individuals from wealthier households attain secondary or higher education. Lighting is primarily obtained from flashlights, kerosene, and firewood by the very poor and poor wealth groups, with limited use of batteries and

solar panels by the middle and better-off wealth groups. Firewood and charcoal are the main sources of cooking fuel for all wealth groups. Mobile phone usage is common, with poorer households using basic mobile phones and wealthier households using smartphones. Financial services are scarce but may be accessed from informal sources.

Markets

CD14 has a modest but functional market infrastructure, with access primarily facilitated by dirt roads and informal tracks. Market access within the zone is typically achieved on foot or motorcycle, both during the Rainy and Dry Seasons. The road conditions, although not optimal, are passable and regularly maintained, contributing to relatively good market access in this otherwise disadvantaged area due to its hilly topography. Permanent wooden bridges exist within the zone, aiding movement and trade, especially during the Rainy Season when conditions can deteriorate. The combination of tarmac roads like National Route 27 and unpaved rural tracks service the zone, linking to main markets such as Bunia and Butembo and further to Goma.

The primary crops traded in the zone follow well-defined trade routes, moving from local markets to larger regional and national markets. Typically, agricultural products such as maize, cassava, beans, and sweet potatoes are first sold in village markets. From there, they are transported to central rural markets, where they are either consumed locally or moved further to urban centers, such as Beni and Butembo in the south and Bunia, Kamanda, Djugu, Aru, and Mahagi to the north of the zone. Some products from local towns are further sold to Goma in the south as well as traded with Uganda and South Sudan. The peak sales periods for these crops vary: beans and maize are primarily sold in July, cassava reaches its sales peak in December, and sweet potatoes in November. The simplicity of the trade routes and the proximity to rural markets support the efficiency of agricultural trade, ensuring that produce reaches larger markets quickly.

In addition to crop trade, livestock, including cattle, goats, pigs, and poultry, are sold. These animals follow the same trade routes as crops. Livestock trade traditionally consists of transporting live animals on foot to market centers or towns/cities, either for local consumption or for further export to neighboring countries, such as Uganda and South Sudan. Trades peak from September to January, aligning with festive seasons and periods of increased expenditure on agricultural inputs.

The labor market is a critical aspect of the local economy, with a considerable portion of the population dependent on seeking employment both within and outside the zone to sustain their livelihoods. Approximately 70% of casual labor is performed within the local rural area, while about 20% of laborers work in local towns. The remaining 10% migrates to areas outside the zone, particularly to Uganda and the mining region of Durba. Migration in search of work is carried out by men and occurs annually, especially during the months of August and November. The movement of labor out of the zone contributes to household incomes, though prolonged absences can impact local agricultural productivity during peak seasons.

Households complement their food production by purchasing staple foods when their crop stocks deplete, as well as purchasing non-staple foods throughout the year. The main food items purchased include cassava, maize, rice, beans, groundnuts, sugar, fish, and cooking oil. Imported food commodities (rice, cooking oil, fish, and beans) follow the reverse of the established trade routes, coming from larger markets such as Goma, Bunia, and Butembo and distributed back into local markets. Some of the commodities are sourced in Uganda and South Sudan.

Timeline and Reference Year

The baseline assessment refers to a specific period called the "reference year." In CD14, the reference year covers the consumption period from December 2022 to November 2023. During community leader interviews, the field team asked key informants to score the last five years in terms of seasonal performance with "1" indicating a poor season and "5" indicating an excellent season. Table 1 summarizes the response of the community leaders.

Table 1. Timeline

Production Year/Season	Score	Critical Events
2023/Season B	2	Prolonged drought, crop pests, livestock epidemics and diseases, crop diseases.
2022-2023/Season A	2	Prolonged drought, crop pests, livestock epidemics and diseases, crop diseases.
2022/Season B	2	Prolonged drought, crop pests, livestock epidemics and diseases, crop diseases.
2021-2022/Season A	2	Drought, pests, average production.
2021/Season B	3	Good rain, good production, stable prices.
2020-2021/Season A	3	Good rain, good production, stable prices.
2020/Season B	3	Good rain, good production, stable prices.
2019-2020/Season A	3	Good rain, good production, stable prices.
2019/Season B	3	Good rain, good production, stable prices.
2018-2019/Season A	3	Good rain, good production, stable prices.

5 = Excellent season for household food security (e.g., due to good rains, good prices, good crop yields)
4 = Good season or above average season for household food security
3 = Average season for household food security
2 = Below-average season for household food security
1 = Poor season for household food security (e.g., due to drought, flooding, livestock disease, pest attack)

Note: Production year refers to the outcome of the livestock reproduction cycle that peaked during that year's Rainy Season and events that impacted livelihoods until the end of the Lean Season the following year.

Overall, the informants characterized most of the previous five years in the zone as having average to below average climatic conditions along with agricultural production and market stability affected by conflict, which contributed to relatively lower food security conditions than normal. This characterization was particularly prominent for the most recent two years. Key informants ranked the reference year seasons as "2" (below average) in terms of household food security. Season B of 2022 was particularly challenging, with a mix of prolonged drought, crop pests and diseases, and livestock diseases leading to below average production. These conditions forced households to adapt through labor migration and various coping strategies, including production and sale of more charcoal, wild foods gathering, and intensification of trade and livestock sales.

Seasonal Calendar for Reference Year

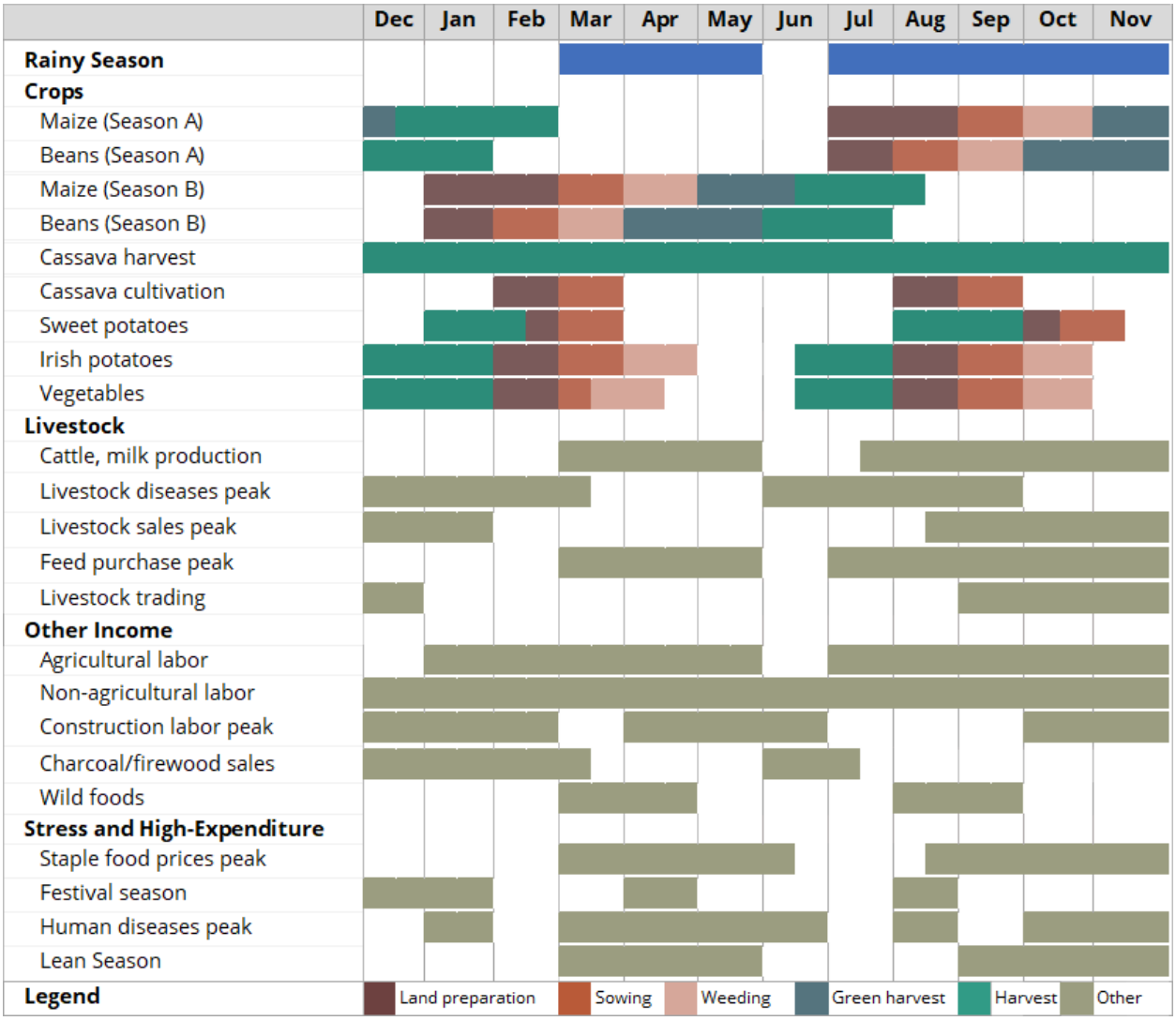
The seasonal calendar (see Figure 2) illustrates the main economic activities and events of the reference year. It traces the rainy months, pastoral activities, movement of people and livestock, food purchasing periods, etc.

The seasonal calendar for CD14 reveals a well-defined cycle of agricultural, livestock, and economic activities that sustain the livelihoods of households throughout the year. There are two Rainy Seasons: one from July to November (which corresponds with the Season A production period) and the other from March to May (which corresponds with the Season B production period). These seasons dictate the timing of critical agricultural activities, such as land preparation, planting, and harvesting.

In the first season, households focus on land preparation and planting between July and September. Land preparation is done at the start of the Rainy Season in July. In the second season, land preparation is done during the Dry Season in January and February with planting in March, as the rains start providing the necessary conditions for crop growth. The harvesting of crops, particularly maize, beans, sweet potatoes, vegetables, and Irish potatoes, is concentrated from December to February for the first season and from June to August for the second season, when the Dry Season provides optimal conditions for drying and storing produce. Cassava, a staple crop in the zone, is harvested year-round, reflecting its importance in the local diet and the fact that it can be stored in the ground. These crops, along with others, are often combined during planting and harvesting, such as maize with beans or groundnuts.

Livestock activities are aligned with the agricultural calendar. The success or failure of livestock-keeping depends largely on the outcome of the Rainy Season. During the Rainy Season, surface water and pasture availability for livestock production improves, thereby increasing reproduction and productivity. Sales of livestock are highest from September to January, driven by demand for cash for inputs at the start of the agricultural season, for the holidays, and for national school exams. The risk of livestock diseases increases during the December to February Dry Period and from June to September. During these periods, there is an increased expenditure on livestock drugs.

Figure 2. Seasonal Calendar



Labor demand fluctuates with the seasons. The need for agricultural labor is highest from July to November and between January and May, driven by the intensive activities of land preparation, planting, and harvesting. In contrast, the demand for non-agricultural labor remains steady throughout the year, providing critical income opportunities during the Dry Season when agricultural work diminishes. Households engage in various other seasonal activities, such as the year-round sale of firewood and charcoal, and mushroom and fruit-picking during the Rainy Seasons.

Like livestock diseases, human diseases can occur at any time of the year. However, diseases such as malaria and diarrhea peak during the Rainy Seasons from August to November and March to May.

The Lean Seasons — the most difficult time in terms of access to food for poorer households due to depletion of food stocks and high food prices — mainly occur from September to November and from March to May. These months precede harvests. Food prices peak during the Lean Season

when household food stocks are low. Prices are lowest in December, January, and June, corresponding to the harvest periods when food is most abundant.

Table 2 shows the typical division of labor, listing the activities shared — and not shared — by men and women. Men and boys are largely responsible for livestock production activities, trade/small business, and most labor/self-employment activities. Women are mostly involved in domestic work, including cooking, childcare, and laundry. Agricultural labor is generally done by all household members, but women also separately thresh crops. Men also engage in domestic work, including water collection.

Table 2. Typical Division of Labor

Shared Tasks	Women's Tasks	Men's Tasks
• Agricultural labor • Charcoal production and sales • Crop sales • Trade business • Handicrafts • Livestock herding (sheep and goats) • Sale of livestock (sheep and goats)	• Harvest labor – threshing • Collection and sale of firewood • Household chores • Caring for young children • Wild foods collection and sale • Brewing	• Construction labor • Sand and stone harvesting and sales • Livestock herding • Sale of cattle • Slaughter of animals • Fencing and building animal shelter • Migratory labor

Wealth Breakdown and Productive Assets

Table 3 summarizes the types and numbers of productive assets that typical households within each wealth group own and/or manage. Asset holdings are shown in a range that reflects the diversity of households' situations within a wealth group. Figure 3 shows the percentage of households within the zone that falls in each wealth group. The wealth breakdown of households in the zone was carried out by the communities themselves.

The main determinant of wealth in this zone is the size of land owned and cultivated, number of people in the household as it relates to adults able to work, and types and numbers of livestock. Other wealth determinants include the ability to engage in commerce/small business and ownership of productive assets, such as motorcycles, mills, mobile phones, and solar panels.

Crops are a significant source of income and access to and control over land are significant wealth indicators. All households in the *Northeast Highlands Agriculture Livelihood Zone* own land, with a progressive increase in area cultivated with increasing wealth. Overall, better-off households own and cultivate larger areas of land, almost eight times the area cultivated by very poor households. In agricultural areas, the ability to cultivate larger plots, especially for food and cash crops, directly

impacts food security and income levels. The more land a household owns and cultivates, the greater their access to food and cash.

Table 3. Wealth Breakdown

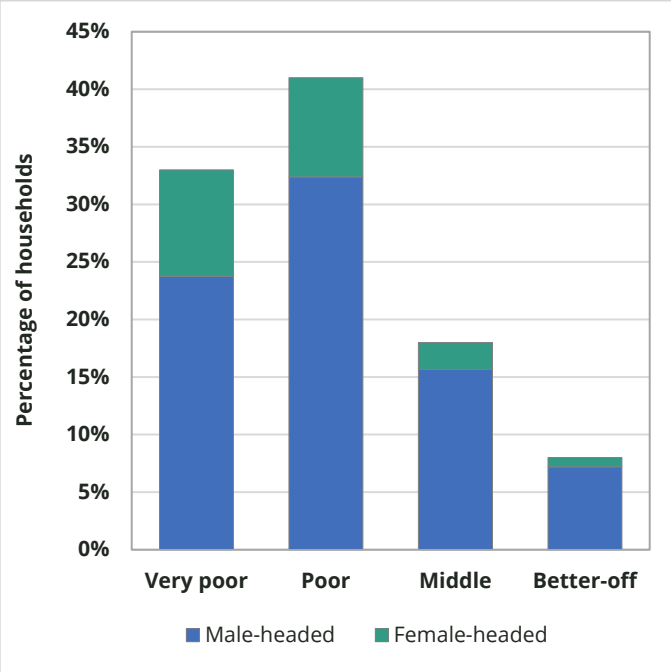
Household Size and Productive Assets	Very Poor	Poor	Middle	Better-Off	Poor Female-Headed
Household size	6-8	7-10	7-10	8-10	7-9
Land owned (hectares [ha])	0.1-0.5	0.3-1	1-2	2-4	0.2-0.6
Land cultivated (ha)	0.1-0.4	0.2-0.6	0.5-1.5	1.5-3	0.2-0.5
Land cultivated – food crops (ha)	0.1-0.3	0.2-0.5	0.2-1	1-1.5	0.1-0.4
Land cultivated – cash crops (ha)	0-0.1	0-0.2	0.3-0.5	0.5-1.5	0-0.2
Pigs	0	0-1	1-3	2-6	0
Rabbits	0	0	0-4	0-6	0
Cattle	0	0	0-1	2-6	0
Goats	0	1-3	3-6	5-10	1-2
Sheep	0	0	0-2	0-5	0
Poultry	1-3	3-6	5-10	5-15	1-5
Motorcycles	0	0	0-1	1-2	0
Grinding mill	0	0	0-1	0-2	0
Solar panels	0	0	0-1	1-2	0
Mobile phones	0	0-1	0-1	1-3	0

Labor availability at the household level and the ability to hire additional labor determine the ability to cultivate land, manage livestock, and engage in other income-generating activities. Typical household size tends to increase with wealth. The more adult members who can work, the more income a household can generate from agriculture and other self-employment activities. The ability to generate more income also enables wealthier households to pay for additional labor. The middle and better-off hire laborers from the very poor and poor wealth groups, for both cultivation and harvest labor, which enhances their productivity while inversely limiting the amount of labor that poorer households can devote to their own crop and livestock production.

Ownership of livestock is another important determinant of wealth in the zone. The most important types of livestock are pigs, cattle, sheep, and goats. Livestock play a crucial role in the livelihoods of households in the zone as a source of income and a form of savings that are used for coping in difficult years. The more livestock a household owns, the better their access to food and cash. Livestock directly contribute to food security by providing milk while also being a source of cash income through the sale of live animals and milk. Very poor households typically only own poultry. Pigs and goats are owned by the poor, middle, and better-off wealth groups. For these groups, there is a progressive increase in the number of livestock owned with increasing wealth. Wealthier households have larger herds, further enhancing their economic stability.

Figure 3. Wealth Breakdown

Note: All results are the mid-point of a range



Commerce/small business is an important economic activity in CD14, mostly done by middle and better-off households who had the resources required for this kind of activity. Wealthier (middle and better-off) households owned 1-2 motorcycles, mobile phones, mills, and solar energy equipment. Poorer households, on the other hand, had limited productive assets, mostly agricultural hand tools and their own labor.

The proportion of households in the community was as follows: very poor households 25-40%, poor households 30-50%, middle households 15-20%, and better-off households 5-10%.

Sources of Food

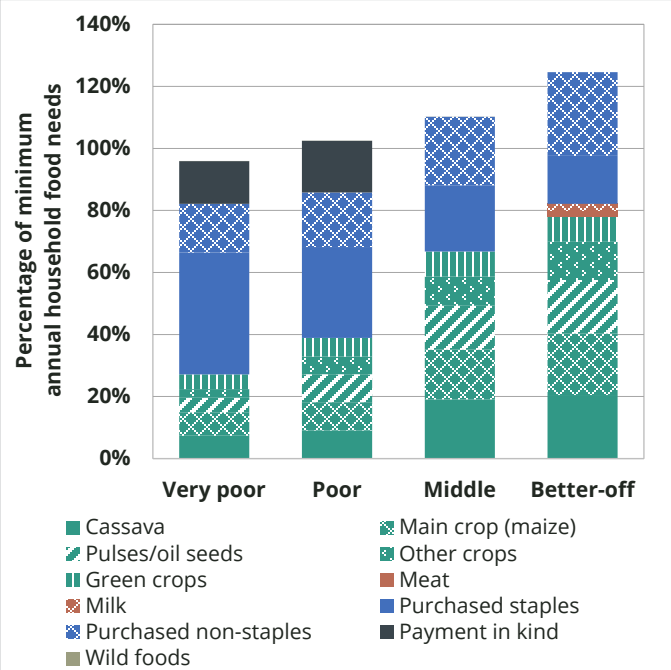
Figure 4 presents the sources of food for households in different wealth groups in CD14 for the period from December 2022 to November 2023. December represents the start of the consumption year because it is when the main harvest starts and food availability improves, marking the end of the Lean Season. Food is presented as a percentage of the annual kilocalorie (kcal) needs of the household, based on the internationally accepted 2,100 kcal per person per day.

There were two main sources of food in this zone and three minor sources. The main sources for households from all wealth groups were crop production and market purchases.

The reference year was ranked as below average for crop production, which explains the high contribution of food purchases. Very poor and poor households barely met half of their food needs from production, leaving them to depend mainly on markets to complement their food. All wealth

groups purchased staple foods, with cassava flour, maize, beans, and rice being the most important. All wealth groups also purchased non-staple foods, such as oil, groundnuts, dried fish, and soybeans. The very poor purchased roughly 50-60% of their minimum annual food needs, while the middle and better-off purchased 40-45%.

Figure 4. Sources of Food



All wealth groups produced and consumed crops. Middle and better-off households owned and cultivated more land, hence obtaining more calories from their own crop production. Maize and cassava were the major food crops. Other food crops included pulses, sorghum, sweet and Irish potatoes, plantains, bananas, and vegetables. For very poor and poor households, crops accounted for 25-40% of their annual needs, while for middle and better-off households, crops accounted for 65-80%.

Payment in-kind was another important source of food in the livelihood zone. The very poor and poor wealth groups received payment in-kind in return for agricultural labor. Overall, very poor households received 10-15% of their minimum annual food needs from this source in the reference year, and the poor received 10-20%. There was no food aid in the livelihood zone in the reference year. Minor food sources included livestock products (milk, accessed by better-off households) and wild foods (accessed by very poor, poor, and middle households).

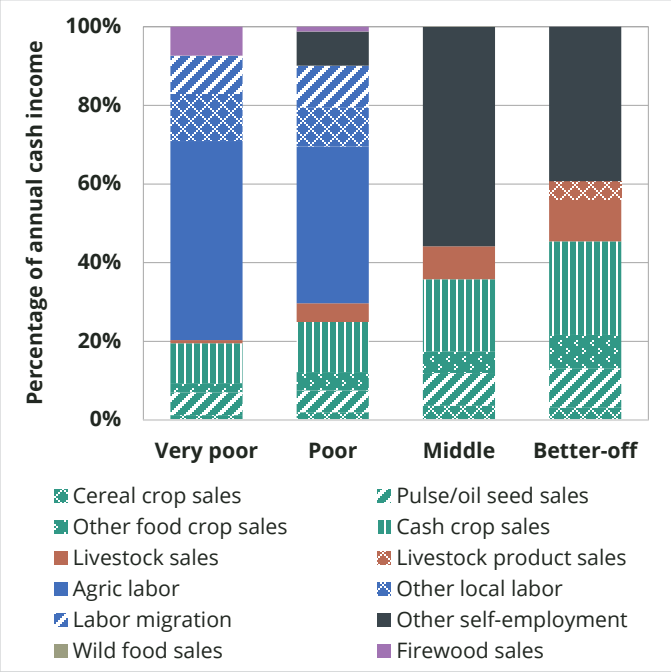
Overall, the reference year was below average in terms of food security, but all wealth groups except the very poor met their minimum annual food energy needs.

Sources of Cash Income

The primary means of obtaining cash income in the *Northeast Highlands Agriculture Livelihood Zone* varied by wealth group, showing clear distinctions in both type and scale (see Figure 5).

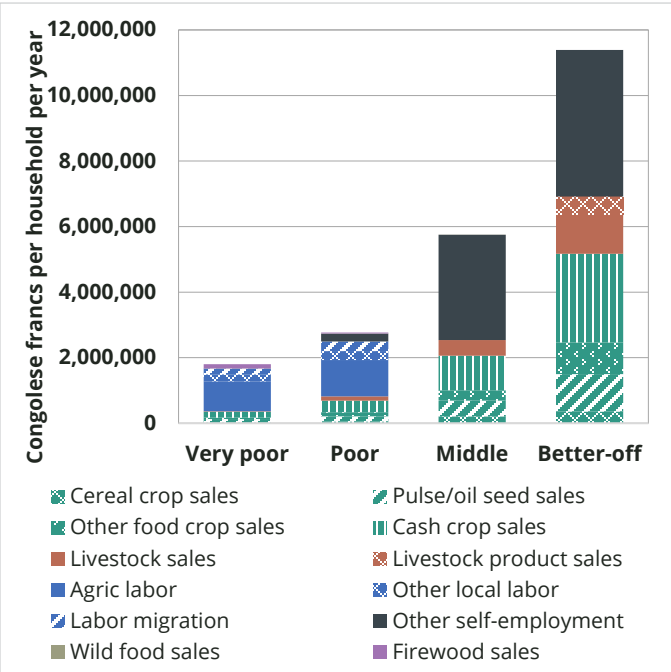
Very poor and poor households had a similar income profile and relied heavily on labor, with agricultural labor being their primary income source, followed by crop sales, firewood sales, and self-employment, while middle and better-off households relied more on self-employment, crop sales, and livestock-related income as their primary income sources.

Figure 5. Sources of Cash Income as a Percentage of Annual Cash Income



Crop sales contributed 20-25% of income for very poor and poor households and increased with wealth, accounting for 35-45% of income for middle and better-off households. Livestock income generated roughly 15% of total cash income for better-off households and 5-10% for middle households. Livestock income contributed less than 5% of the annual total income for very poor and poor households. This variation was mostly due to differences in livestock ownership, where wealthier households could sell high-value cattle and more goats and pigs, while very poor households only sold poultry and poor households only sold a few goats and poultry.

Figure 6. Total Annual Cash Income



Wage labor was the most important source of cash for very poor households. This was an income source for the poorer wealth groups, generating roughly 70% of total cash income for the very poor and 55-65% for the poor. The main types of labor were cultivation, harvesting, migration, and construction.

Self-employment generated 5-15% of total cash income for the poor and 40-60% for the middle and better-off. The main types of self-employment were petty trade, livestock trading, and small businesses.

Firewood sales were an income source accessed by very poor and poor wealth groups, with relative importance for the very poor, accounting for 5-10% of their annual income compared to less than 2% for poor households.

Differences between wealth groups in the absolute amount of cash income generated during the reference year were large. Overall, better-off households earned six to seven times the cash income of very poor households. Differences between wealth groups in per capita cash income were large,

but smaller than for total income. Overall, the better-off earned close to five times the annual per capita cash income of the very poor. There was a progressive increase in annual per capita cash income with increasing wealth. This gap is illustrated in Figure 6 and Table 4.

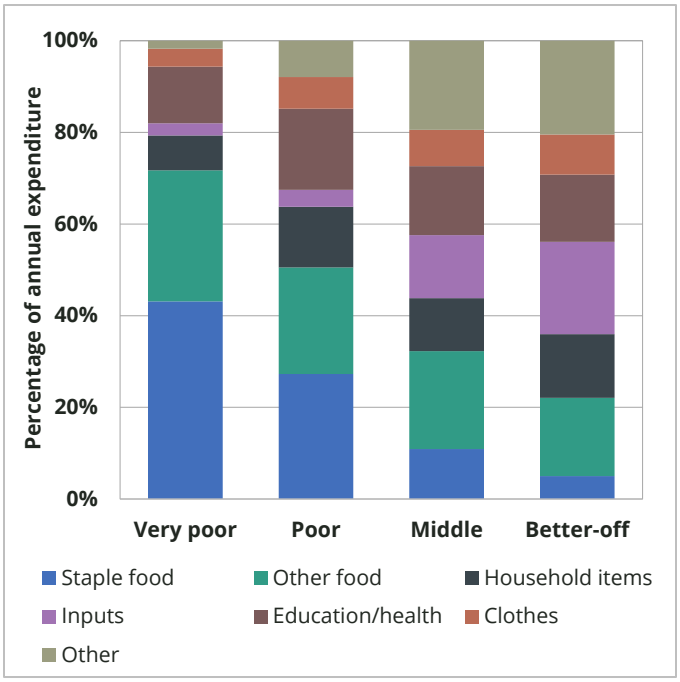
Table 4. Income Summary Table (Congolese Francs or CDF)

Wealth Group	Very Poor	Poor	Middle	Better-Off
Annual income per household[4]	1,300,000-2,300,000	2,300,000-3,300,000	5,000,000-6,500,000	9,000,000-14,000,000

Expenditure Patterns

Figure 7 presents expenditure patterns for the reference year December 2022 to November 2023. While absolute expenditure increases with wealth in line with total cash income, this graph's expenditure breakdown by percentage shows the *relative* amount of income spent on different categories. Households in the zone need to cover a range of essential expenditures over the year. These include staple foods, non-staple foods, household items/services (salt, soap, tea, lighting, milling, etc.), productive inputs, social services (which include health and education), clothing, as well as other essential and non-essential items.

Figure 7. Total Annual Cash Expenditure by Category



Very poor and poor households had a similar expenditure pattern, with staple foods, non-staple foods, and education/ health being the top three expenditure items. For the middle and better-off, "other" items, inputs, and non-staple foods were the top three expenditure categories.

Households from all wealth groups spent significant proportions of their annual incomes on staple and non-staple foods. As noted in the Sources of Food section, households in CD14 secured a large part of their food needs through market purchases, as production was low in the reference year. Staple foods accounted for the largest share of total expenditure for very poor households, representing 40-45% of their total expenditure, compared to 25-30% for poor and 5-15% for middle and better-off households. There was a progressive decrease in the share of

[4] The average exchange rate from December 2022 to November 2023 was 1 USD = 2,257 CDF.

expenditure on staples with increasing wealth. The main staple foods purchased were cassava flour, maize, beans, and rice.

Non-staple foods were an expenditure item for all wealth groups. There was a progressive decrease in the share of expenditure with increasing wealth. Non-staple foods accounted for roughly 30% of total expenditure by the very poor and 15-20% by the better-off. In terms of cash per capita, on the other hand, expenditure on non-staples by better-off households was close to three times that of very poor households. The main non-staple foods purchased were vegetable oil, groundnuts, dried fish, and soybeans.

Health and education accounted for 10-15% of total expenditure for the very poor and 10-20% for the better-off. In terms of cash per capita, on the other hand, the expenditure by the better-off was six times more than that of the very poor.

Other items accounted for less than 5% of total expenditure for the very poor and 5-10% for the poor, while they accounted for 20-25% for the middle and better-off. The main items in this category were other non-essential items, savings, festivals, phone credit, and transportation.

Inputs were an expenditure item for all wealth groups. There was a progressive increase in the share of expenditure with increasing wealth. Inputs accounted for less than 5% of total expenditure for the very poor and poor and 10-20% for the middle and better-off. The main items in this category included hiring farm workers, seeds, tools, and livestock purchases.

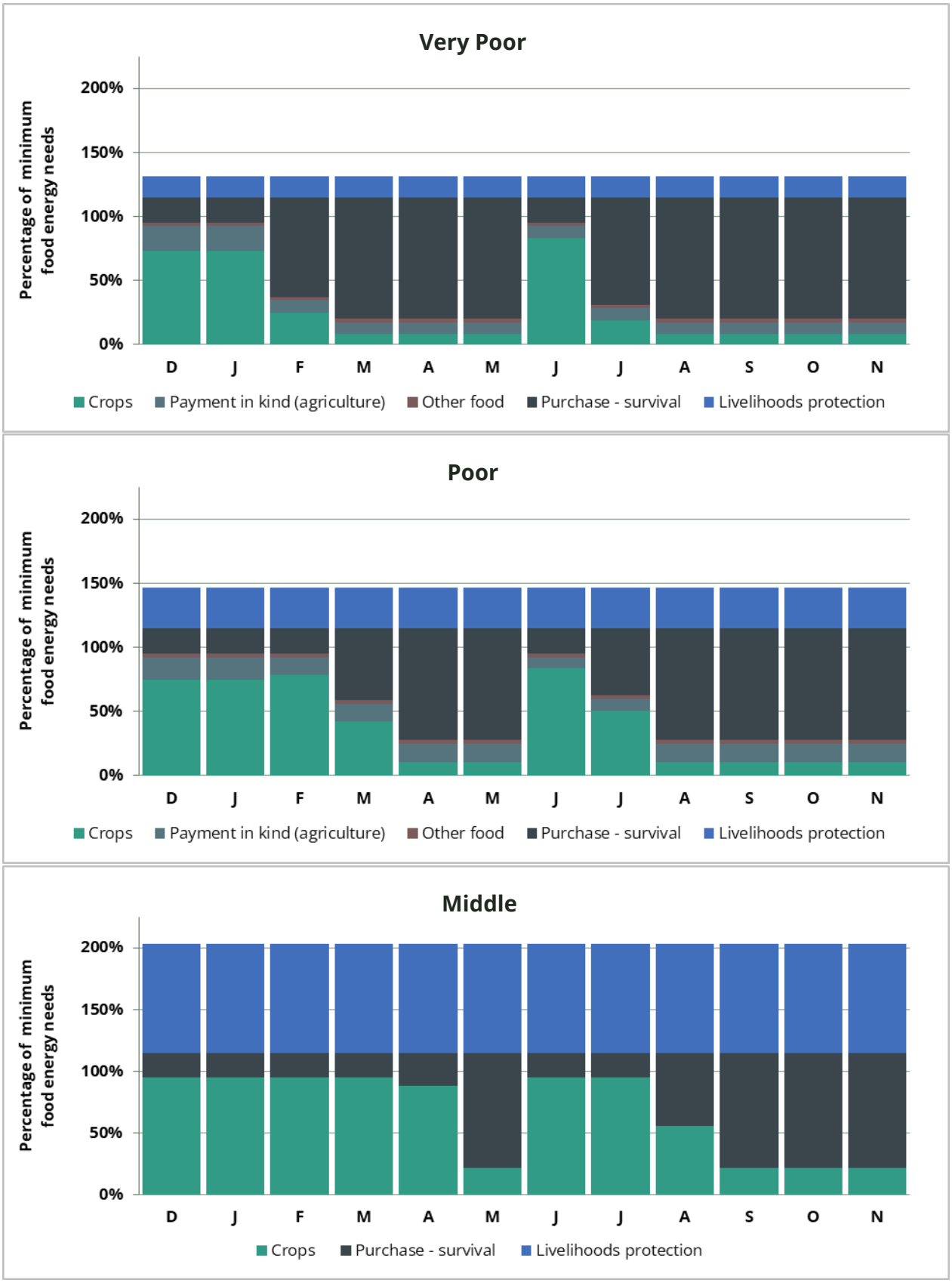
Expenditure patterns in CD14 were heavily influenced by wealth. While better-off households enjoyed greater food security, more diverse income streams, and a broader range of expenditure, very poor and poor households faced significant challenges in securing food and income, leading to a focus on subsistence and survival.

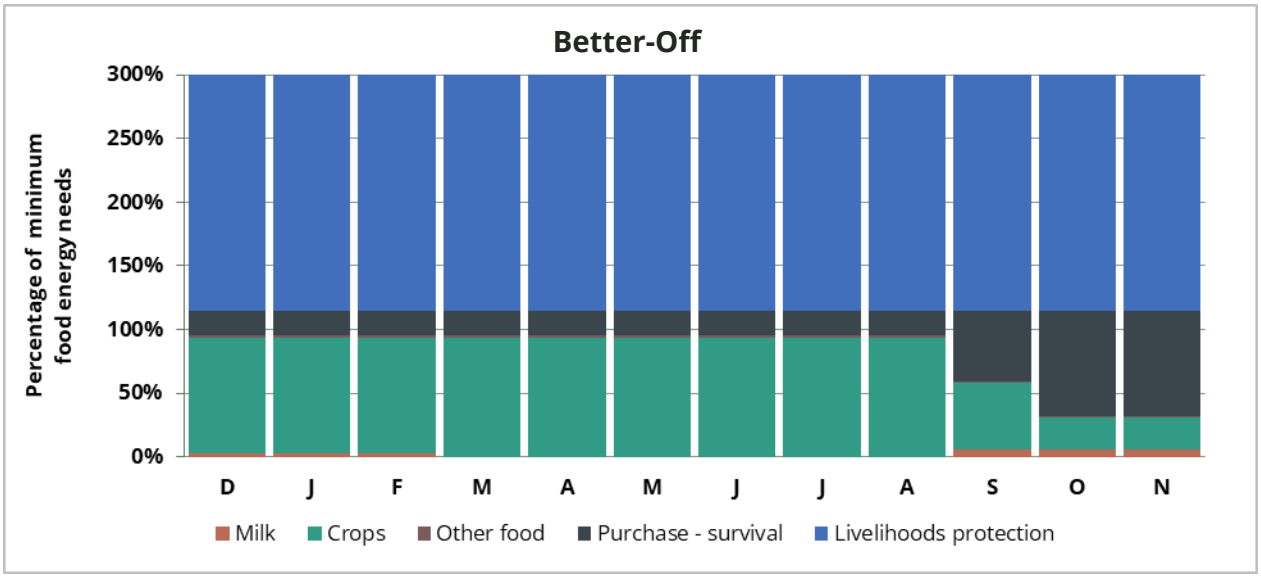
Food Access Calendars

The graphs in Figure 8 present monthly food and cash access calendars for the four wealth groups.

Households in all wealth groups were able to meet their minimum survival and livelihoods protection thresholds year-round in the reference year, with a peak reliance on food purchases from March to May and August to November, particularly for very poor and poor households. The Season A harvest starts in December and the Season B harvest starts in June. The dark blue “livelihoods protection” sections of the bars increase as a proportion of the total with wealth because wealthier households can afford to spend more on productive inputs, health and education.

Figure 8. Seasonal Food and Cash Access Calendars per Wealth Group





Poor Female-Headed Households

Female-headed households are found in each of the wealth groups, as shown in the wealth breakdown (Figure 3). During fieldwork, data collectors conducted in-depth interviews with poor female-headed households. In these households, the women are responsible for making decisions related to both daily activities and financial expenditure. This is a group that faces similar constraints and characteristics as male-headed households in the same wealth group, but they are further disadvantaged by a lack of adult male labor, which potentially leads to additional constraints on certain types of asset ownership, productive work, or income-generating activities. It is important to note that women in this livelihood zone have the right to inherit and own land. They also have the right to buy, inherit, and receive gifts of livestock.

Figure 9 shows that poor female-headed households and poor male-headed households share a similar pattern of food access, mainly relying on their own crop production and market purchases. In the reference year, poor female-headed households did not quite meet their annual minimum food energy needs, while poor male-headed households did. Poor male-headed households cultivated slightly more land than the poor female-headed households and thus harvested slightly more and had slightly more calories from their own crop production than the poor female-headed households.

The income picture in Figure 10 shows that both poor male-headed households and poor female-headed households had similar sources of cash income in the reference year except for labor migration and construction, which only concerned poor male-headed households. Poor female-headed households earned roughly 20% less than the poor male-headed households in the reference year; poor female-headed households also sold slightly fewer crops and livestock. Poor male-headed households had more income from agricultural labor and labor migration, as they have more working adults compared to female-headed households.

While both poor female and male-headed households faced considerable challenges, female-headed households were generally more vulnerable due to their compounded disadvantages. Male-headed households, even when poor, often have slightly better access to land and livestock and have more opportunities to engage in wage labor or other income-generating activities.

Figure 9. Sources of Food: Poor Households vs Poor Female-Headed Households

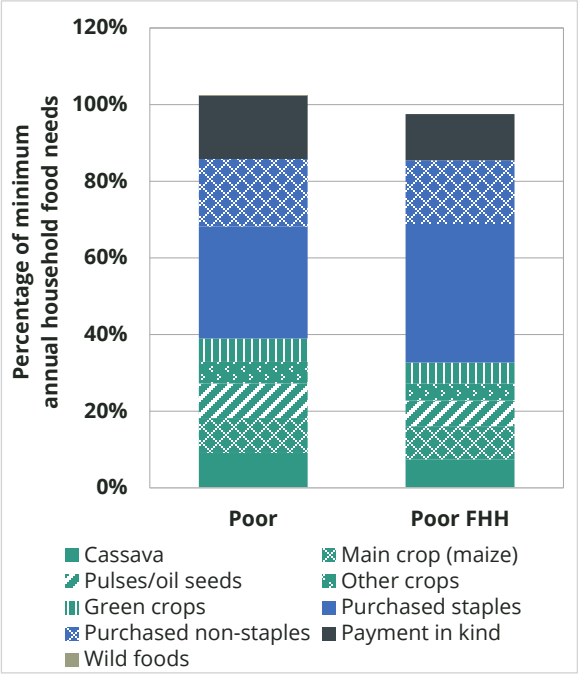
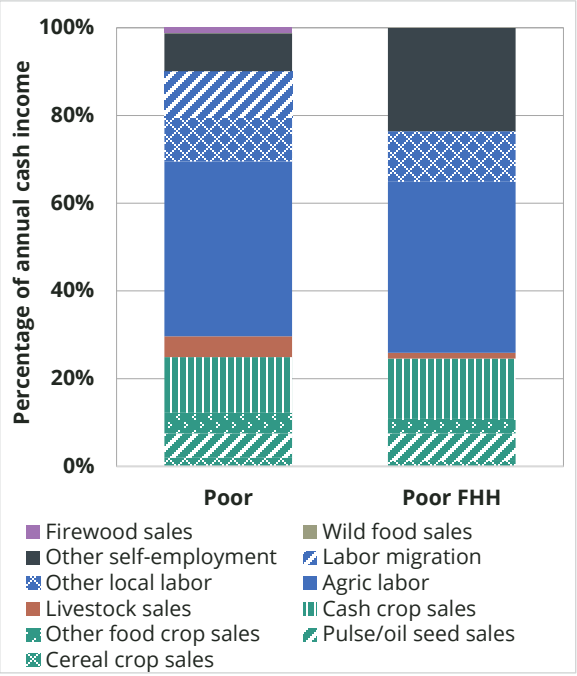


Figure 10. Sources of Cash: Poor Households vs Poor Female-Headed Households



Response Strategies

In response to hazards and years with bad production, households attempt to meet their minimum food needs and cash requirements through several strategies. Below are some common strategies employed by households.

All households try to reduce expenditure on non-essential or more expensive items first, such as cutting down on festival costs or not buying clothes or utensils that year. Households consume less rice in favor of cassava or maize, which are the cheapest staples.

Very Poor and Poor Households

Very poor and poor households try to increase cash income through the intensification of casual labor activities to earn more cash. However, in bad years, as increasing numbers of people flood the labor market, this option quickly loses its value because wage rates drop and jobs are harder to find. These households often resort to migration in search of work to earn income elsewhere when local opportunities are insufficient. Additionally, they engage in wild foods collection to supplement their

diets when crops fail or are insufficient. Poorer households also intensify self-employment activities, such as the sale of firewood and charcoal.

Middle and Better-Off Households

Middle and better-off households cope with hazards differently and are generally better equipped to cope with hazards. Middle and better-off households sell additional livestock to generate income during tough times, utilizing their larger herds as a financial buffer. These households are also more likely to consume their reserves, having stored surplus food or resources during better seasons.

Key Parameters for Monitoring

The key parameters listed in Table 5 are food and income sources that make a substantial contribution to the household economy in CD14. These should be monitored to track potential losses or gains to local household economies through ongoing monitoring systems or periodic assessments.

Table 5. Key Parameters for Monitoring

Item	Key Parameter – Quantity	Key Parameter – Price
Crop production	• Maize Season A and B • Cassava • Groundnuts Seasons A and B • Cowpeas/beans Season A • Irish potatoes • Sweet potatoes • Soybeans • Vegetables/fruit • Coffee	• Maize Season A – producer price • Cassava – producer price • Groundnuts Seasons A and B – producer price • Cowpeas/beans Season A – producer price • Sweet potatoes – producer price • Vegetables/fruit – producer price • Coffee – producer price
Livestock production	• Pigs – herd size • Cattle – herd size • Goats – herd size • Cow milk – yields	• Pigs – price per animal • Cattle – price per animal • Goats – price per animal • Cow milk – producer price
Other food and cash income	• Cultivation labor – number of days worked • Harvest labor – number of days worked • Construction labor – number of days worked • Domestic labor – number of days worked • Migration labor – number of days worked • Firewood/charcoal sales – quantity sold • Petty trade – demand	• Cultivation labor – wage rates • Harvest labor – wage rates • Construction labor – wage rates • Domestic work – wage rates • Labor migration – wage rates • Firewood/charcoal – producer price • Petty trade – demand
Expenditure		• Cassava – consumer price • Maize – consumer price

CD15 Livelihood Zone Reference Year: December 2021–November 2022

Orientale Agriculture with Fishing Livelihood Zone

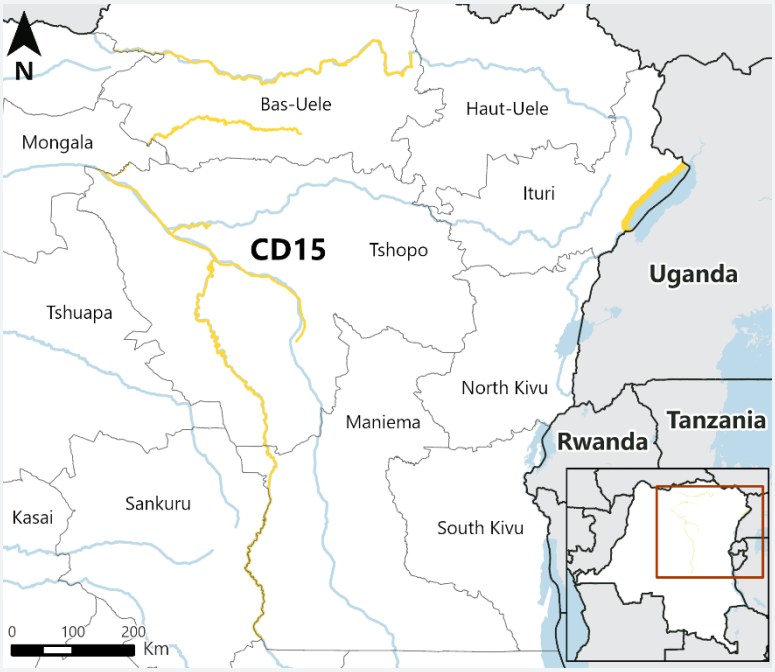


Figure 1. CD15 Livelihood Zone Map

Summary: The *Orientale Agriculture with Fishing Livelihood Zone* (CD15) covers various riverine areas in the provinces of Tshopo and Bas-Uele in the Democratic Republic of the Congo. Agriculture, fishing, livestock rearing, labor, gathering, and trading are the primary livelihood activities. The zone has a high agricultural potential and produces a surplus of food, indicating consistent and reliable crop yields with no need for food aid. Fishing has declined in recent years due to pollution.

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Zone Description

The *Orientale Agriculture with Fishing Livelihood Zone*[1] (CD15) encompasses riverine areas in parts of Tshopo and Bas-Uele Provinces. Specifically, in Tshopo, the zone includes Banalia Territory, while Bas-Uele Province includes Buta Territory. An equatorial tropical climate characterizes the zone, with high temperatures throughout the year and sub-humid conditions. Rainfall spreads across several months, from March to October, peaking in April to June and September to November. The topography includes riverine areas around the main rivers, such as the Aruwimi, Bale, Lindi, Uele, Tshopo, Rubi, Makala, Tele, and Koteli Rivers. Vegetation primarily comprises equatorial forests (tropical rainforests). The major roads traversing this zone are National Route 4 and Route 25. The Rubi-Tele Nature Reserve also borders the zone, contributing to its ecological diversity. CD15 is rich in natural resources, including fish, game, timber, bamboo, and minerals, such as gold and diamonds. Most households in the zone extensively exploit resources, such as *magungu,*[2] crop stubble (used for fodder), rubble, sand, gravel, and firewood. The population of the zone is 952,699, with an average population density of 65 people per square kilometer.[3]

Rural households within this zone engage in diversified economic activities, including agriculture, fishing, livestock rearing, labor, gathering, and trading. Agriculture is the dominant activity, supplemented by fishing and livestock. However, mining has also become a significant economic activity, especially in certain parts of the zone.

The agricultural landscape of CD15 includes sandy-clay soils, which contribute to its high agricultural potential. The zone produces a surplus of food, indicating consistent and reliable crop yields without the need for food aid. Key crops cultivated include cassava, rice, groundnuts, cowpeas, maize, plantains, and oil palm, all cultivated by traditional rainfed means. Cassava, plantain bananas, and oil palm are available year-round, while rice, groundnuts, and maize are harvested in two periods (December to January for Season A and June to July for Season B). Agricultural practices primarily involve hand-digging for land preparation, a method uniformly applied across households in all wealth groups. The labor-intensive activities in crop production include land preparation, weeding, and harvesting. Wealthier (middle and better-off) households often hire labor for land preparation, weeding, and harvesting, compensating workers in cash for land preparation and weeding and compensating harvest labor in kind. Generally, men prepare land, whereas women weed and harvest. Hired labor for agricultural activities is usually local, and there is no significant use of migration labor. Households do not use modern agricultural inputs and rely on traditional storage

[1] Fieldwork for the current profile was undertaken from June 9 to July 6, 2024. All relevant areas were thoroughly assessed to provide comprehensive data for the zone description. The information presented in this profile refers to the reference year, which was the consumption year that covered the period December 2021 to November 2022. Provided there are no fundamental and rapid shifts in the economy, the information in this profile is expected to remain valid for approximately five to 10 years (i.e., until 2029-2034). All prices referred to in the document are for the reference year.
[2] Wild leaves resembling banana leaves used for roofing.
[3] FEWS NET Data Explorer, population data (2023), accessed 2025, https://fdw.fews.net/data-explorer/.

methods for their crops, including open-air drying on the roofs of houses and hanging from the kitchen ceiling. The region lacks farmer cooperatives.

Artisanal fishing occurs in the main and secondary rivers in the zone, using lines, nets, traps, canoes of different sizes, and even small boats or larger motorized canoes. Men and boys fish throughout the year, with the primary fishing season spanning from November to February when there is less demand for agricultural labor and river water levels are lower. In some stretches of rivers, overfishing — including the use of tight mesh nets and even poison — has considerably reduced fish stocks. Also, trawling nets are destroying fish reproduction areas and threatening livelihoods.

Livestock rearing is a significant component of livelihoods in the zone. The main livestock reared includes goats, sheep, and pigs, primarily raised on open pastures, feeding on grass, brush, and crop residues. Households freely source water for livestock from secondary rivers and seasonal pools and rarely purchase supplementary livestock feed. The peak livestock sales occur in September, December, and January, driven by the need to cover school fees in September as the school year starts and expenses during festive periods in December and January. Wealthier (middle and better-off) households frequently buy more animals, reflecting their higher financial capacity. Livestock sales typically involve goats and pigs, coinciding with the start of the school year (when households need cash) and festive months (when demand for meat and prices are high). Men construct shelters and fences for livestock and manage goats, sheep, and pigs, while women manage poultry. There is no livestock migration in the zone.

Apart from crop production, fishing, and livestock rearing, several other economic activities contribute to the livelihoods of the households in the zone. These include agricultural labor, self-employment, and commerce. Men and women from poorer households perform critical agricultural labor year-round with hand tools. Self-employment activities, such as selling thatch, charcoal, and firewood, also involve all household members, mostly from poorer (very poor and poor) households throughout the year. Wealthier households dominate commerce, including petty trade, as these households have the capital to invest. Additional sources of income include hunting and brewing.

Various hazards affect livelihoods in the *Orientale Agriculture with Fishing Livelihood Zone*, posing continual challenges to households' economic stability and food security. These hazards range from animal diseases to environmental and climatic disturbances, each affecting the community with varying frequencies. Annual livestock diseases consistently affect the zone. Epizootic diseases severely affect livestock health, leading to high mortality rates and reduced productivity in goats, sheep, and poultry. Common diseases include swine fever and poultry fever, which reduce income from livestock sales.

Periods of irregular rainfall are relatively frequent, affecting the zone in three years out of five. These disturbances include irregular rainfall patterns, prolonged dry spells, and unseasonal weather changes that affect crop growth and yields. The unpredictability of weather patterns makes it challenging for farmers to effectively plan and manage their agricultural activities, reducing crop production and increasing food insecurity. Flooding is a less frequent but impactful hazard,

occurring once every five years. Although infrequent, flooding can cause widespread destruction of crops, displacement of communities, and damage to infrastructure. Floods lead to immediate and severe disruptions in agricultural production and can have long-lasting effects on the community's ability to recover economically.

River water pollution is a constant problem in some locations because of industrial activities and improper waste disposal, which lead to contamination of water sources vital for both household use and agricultural irrigation. Polluted water negatively impacts crop health and fish populations, which are crucial food and income sources for the community.

Crop pests, such as insects and rodents, are a constant threat, with yearly infestations. They cause significant damage to crops like cassava, rice, and groundnuts. Cassava rot is a notable disease that significantly affects the yield and quality of cassava, a critical staple in the zone.

Regarding service provision, access to essential services varies slightly between very poor and poor households and middle and better-off households, although overall accessibility remains limited. Households in all wealth groups primarily rely on natural water sources, including streams, rivers, and unprotected wells, for drinking and other uses, with no associated costs for any wealth group. Sanitation facilities across the zone comprise straw latrines without slabs or platforms, which are uniformly used by households in all wealth groups. Healthcare services are accessible through traditional healers and health centers, which cater to the medical needs of poorer and wealthier households. For lighting, most poorer households use battery-operated flashlights, palm oil, and wick lamps, as well as light from firewood. Wealthier households use battery-operated flashlights, solar panels, and bulbs. Firewood remains the primary source of cooking fuel for households in all wealth groups. However, some wealthier households also use locally produced charcoal. Mobile phone service and use is widespread in this zone, with communication predominantly via voice calls through cell phones for all wealth groups. As for education, poorer households usually send their children through primary school, with few reaching the secondary level. Wealthier households send their children mostly through secondary school, with a few reaching college/university. There are no formal credit sources in the zone, such as banks or microfinance institutions, nor are there savings plans available to the households. However, households in all wealth groups in CD15 borrow money informally from family members, neighbors, and friends. Loans come without stringent conditions, and interest payments and repayment terms are flexible.

Markets

Market access in CD15 is very challenging, especially during the Rainy Season, and access improves during the Dry Season. The road infrastructure comprises primarily dirt tracks, which are in poor condition. Despite some bridges, overall accessibility remains suboptimal, significantly hindering market activities. The zone is far from urban centers, exacerbating the difficulty in reaching markets and contributing to poor market access.

The primary crops sold in CD15 include rice, groundnuts, and plantain bananas. The flow of crops sold is from the villages to Buta or Bondo towns (within the livelihood zone), on to Kisangani for rice and groundnuts, and from villages to Banalia to Kisangani for plantain bananas.

Goats and sheep are the key livestock sold in the zone. The flow of livestock sold is from the villages to Buta to Banalia to Kisangani.

Besides crops and livestock, other significant products sold in the zone include salted fish, firewood, and caterpillars. Salted fish follow the Buta to Isiro route, firewood is transported from Banalia to Kisangani, and caterpillars follow the Buta to Bondo and Buta to Kisangani routes.

Beans are the most common food purchased by households in the CD15. They are sourced from Kisangani and transported to Banalia.

Labor sales occur within the livelihood zone. Approximately 50% of the casual labor occurs within the local rural area, and around 20% of the labor sold is for work conducted in towns within the zone. Around 30% of the labor is completed outside the zone in other parts of the country, including in Bondo, Bae, Mangi, and Bodilo. Labor sales occur annually, with primarily able-bodied men traveling out of the zone to seek employment opportunities, including in mining. The movement pattern remains consistent even during adverse years. There is no labor migration into the zone.

Timeline and Reference Year

The baseline assessment refers to a specific period called the “reference year.” In the *Orientale Agriculture with Fishing Livelihood Zone,* the reference year covers the consumption period from December 2021 to November 2022. During community leader interviews, informants scored the last five years in terms of seasonal performance, with “1” indicating a poor season and “5” indicating an excellent season. Table 1 summarizes the responses of the community leaders.

Overall, most of the years and seasons in the zone in the last five years between 2019 and 2023 ranked as “2” to “3” (below average to average) or “3” (average) in terms of household food security, except for 2023, which was ranked as below average in terms of household food security in both seasons. Good agricultural yields characterized the reference year despite minor droughts. In 2022, the food security situation in the zone was average. Despite a drought in March that adversely affected rice and maize production, other crops had good yields, sustaining most of the population. Fishing activities adapted to increased pollution from mining through migratory fishing and pond creation, mitigating some effects of the reduced agricultural output, especially in Banalia Territory. The zone faced no major shocks to fishing or livestock. There were no reported conflicts in the reference year, and historically, violent conflict is not common in the zone.

Table 1. Timeline

Production Year/ Season	Score	Critical Events
2023/Season B	2	Insect pests, floods, and pollution of the Aruwimi River (as well as the Rubi, Bale, and Uele Rivers) by toxic materials, such as mining pollution. Households coped by increasing small trade, importing foodstuffs, and developing fish farming
2022-2023/Season A	2	Floods, cassava rot, epizootics (pigs, small ruminants), and water-borne diseases. Households coped by increasing petty trade, importing foodstuffs, and fishing
2022 Season B	3	Two weeks of drought around March resulted in reduced rice and maize production
2021-2022/Season A	3	Good agricultural production
2021/Season B	2-3	Good agricultural production; damage to fish populations from dredging
2020-2021/Season A	2-3	Epizootic, irregular rainfall, bird pests
2020/Season B	2-3	Average crop production
2019-2020/Season A	2-3	Average agricultural and fishing production
2019/Season B	2-3	Insect pests
2018-2019/Season A	2-3	Water pollution in the Aruwimi River

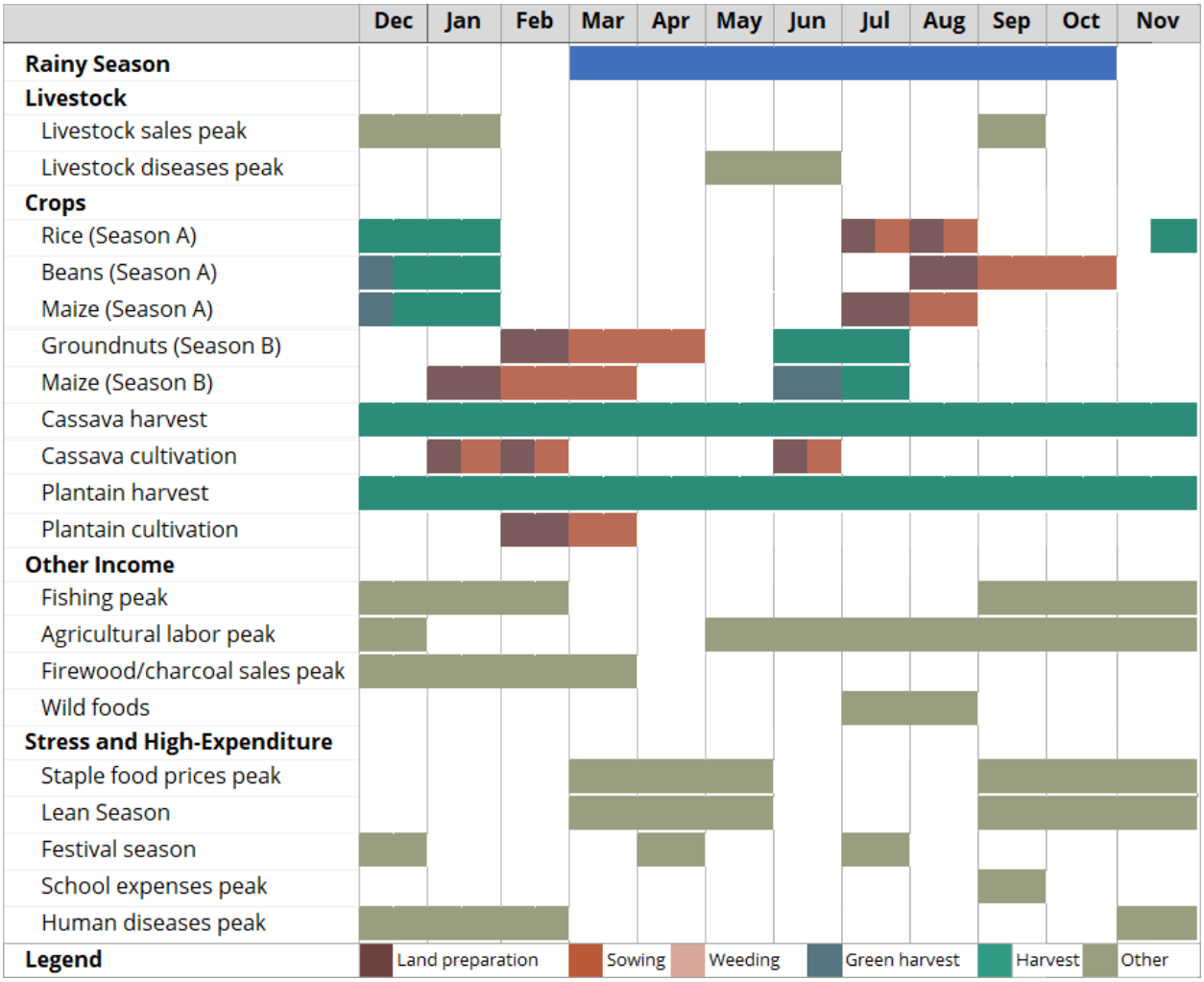
5 = Excellent season for household food security (e.g., due to good rains, good prices, good crop yields)
4 = Good season or above-average season for household food security
3 = Average season for household food security
2 = Below-average season for household food security
1 = Poor season for household food security (e.g., due to drought, flooding, livestock disease, pest attack)

Seasonal Calendar for Reference Year

The seasonal calendar (see Figure 2) illustrates the main economic activities and events of the reference year. The calendar traces the rainy months, agricultural and nonagricultural activities, food-purchasing periods, etc.

The Rainy Season of the *Orientale Agriculture with Fishing Livelihood Zone* extends from March to October, marking the prime period for agricultural activities, including land preparation, planting, and harvesting of various crops. The Dry Season occurs from November to February. This season is associated with reduced agricultural activity and an increased focus on non-farm income sources like fishing (line fishing is easier when water levels are lower and fish concentrations are higher) and firewood sales.

Figure 2. Seasonal Calendar



The long rains experienced in the zone allow for two cropping seasons for agricultural production — Season A (the main season) and Season B. Crops cultivated include cassava, rice, maize, groundnuts, beans, and banana plantain. The planting and harvesting times for the crops vary in both Seasons A and B. Land preparation and planting of Season A rice takes place in July and August, with harvests occurring from November to January. Maize Season A land preparation occurs in July, planting in August, and harvesting in December. Season B land preparation occurs in January, with planting in February to March, green harvest in June, and dry harvest from July. Groundnuts and beans follow similar cycles to maize. However, households more commonly plant groundnuts in Season B and beans in Season A. Cassava is cultivated year-round, with land preparation occurring in January to February and June. Planting follows these periods, with harvesting stretching throughout the year. Households plant banana plantains in March following land preparation in February, with the harvest taking place year-round after 15 months of maturation.

Livestock are an important source of protein in the zone, mainly through small-scale household production of goats, sheep, pigs, and poultry. Households sell livestock throughout the year, with

peak periods in January, September, and December because of the start of schools in September, when cash is required for school fees and other school-related expenses, and in December and January because of end-of-year festivities. Although livestock diseases can occur at any time of the year, the peak period is during the Rainy Season in May and June. During this period, households increased expenditure on livestock drugs.

Agricultural labor demand is highest from May to December, coinciding with the major farming activities — fishing peaks during the Dry Season, from September to February. Firewood/charcoal sales are most intense from December to March, aligning with the need for cash during the festive periods. Households mostly gather wild foods from July to August, providing additional income and food.

Human diseases can also occur at any time of the year. However, unlike livestock diseases, human diseases peak during the Dry Season, particularly from November to February, when water scarcity and poor sanitation conditions are more common.

Table 2 shows the typical division of labor, listing the activities shared and not shared by men and women. Men and women usually do all agricultural production activities, except land preparation and threshing (men's work). Men and women also carry out agricultural labor (for cash and in-kind payment). Men and boys handle livestock production, except for rearing poultry, which women usually perform. Fishing, construction labor, and charcoal production and sale are predominantly men's activities. Women predominantly handle household chores, such as firewood and water collection for domestic use, cooking, laundry, and childcare.

Table 2. Typical Division of Labor

Shared Tasks	Women's Tasks	Men's Tasks
• Crop planting, weeding, harvesting, sales • Paid agricultural labor – pre-harvest • Paid agricultural labor – harvest • Fish processing and sales • Wild foods collection • Firewood collection and sales • Self-employment (crafts and vegetable trading) • Petty trade • Palm oil sales • Brewing	• Poultry rearing and sales • Household chores	• Land preparation • Threshing • Bird scaring • Pig and goat rearing, slaughter, and sales • Fishing • Construction labor • Charcoal production and sales

Wealth Breakdown and Productive Assets

Table 3 summarizes the types and numbers of productive assets that typical households within each wealth group own and/or manage. Asset holdings are shown in a range that reflects the diversity of household situations within a wealth group. Figure 3 shows the percentage of households within the zone that falls in each wealth group. The communities themselves carried out the wealth breakdown of households in the zone.

Table 3. Wealth Breakdown

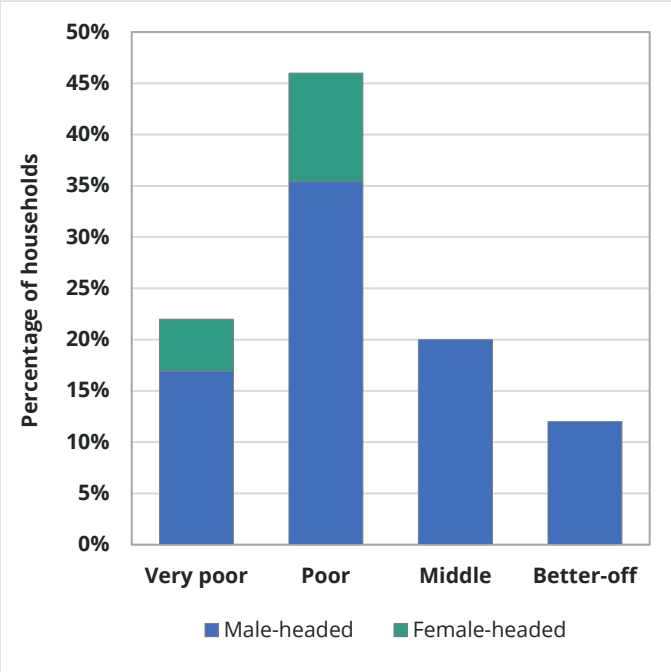
Household Size and Productive Assets	Very Poor	Poor	Middle	Better-Off	Poor Female-Headed
Household size	5-7	6-8	8-10	10-12	5-7
Land owned (hectares [ha])	0.2-0.5	0.25-0.75	1.5-2	2-2.5	0.2-0.5
Land cultivated (ha)	0.2-0.5	0.25-0.75	1.5-2	2-2.5	0.2-0.5
Land cultivated – food crops (ha)	0.2-0.5	0.25-0.75	1-1.5	1-2	0.2-0.5
Pigs	0	0	0	0-10	0
Goats	0	1-3	3-5	4-10	0
Poultry	5-10	10-15	10-20	20-30	7-15
Canoes	0	0	1-2	1-3	0
Nets	0	1-2	2-4	3-5	0
Hooks	100-200	200-400	300-500	300-700	100-150
Motorcycles	0	0	1	1	0
Bicycles	0	1	1-2	2	0
Grinding mill	0	0	0-1	0-1	0

Several key factors determine wealth distribution in this zone, primarily land ownership, livestock holdings, and access to productive assets. These factors create significant disparities among the various socioeconomic groups, ranging from very poor households to better-off households, including poor female-headed households.

Land owned and cultivated is the main determinant of wealth in this zone, with better-off households having significantly larger landholdings. Very poor households own and cultivate 0.2-0.5 ha, poor households 0.2-0.75 ha, middle households 1.5 to 2 ha, and better-off households 2-2.5 ha. Households cultivate most with food crops.

Figure 3. Wealth Breakdown

Note: All results are the mid-point of a range



Livestock ownership is a significant wealth determinant, especially for middle and better-off households with more substantial livestock holdings, which serve as both a source of income and a buffer against economic shocks. Very poor households have very limited livestock ownership — generally none except for 5-10 poultry. Poor households own 1-3 goats and 10-15 poultry. Middle households own 3-5 goats and 10-20 poultry, with some ownership of pigs. Better-off households have significant livestock holdings, including 4-10 goats, up to 10 pigs, and 20-30 poultry.

Ownership of productive assets like canoes, nets, hooks, motorcycles, bicycles, and mills also distinguishes wealthier households from poorer ones. Very poor households have no ownership of such assets. Poor households may own bicycles and basic fishing tools but lack more substantial assets like motorcycles. Middle households typically own a motorcycle and possibly a cassava leaf mill, indicating better access to transport and processing capabilities. Better-off households possess a range of productive assets, including motorcycles, canoes, and cassava mills, which enhance their economic opportunities and ability to sustain their livelihoods.

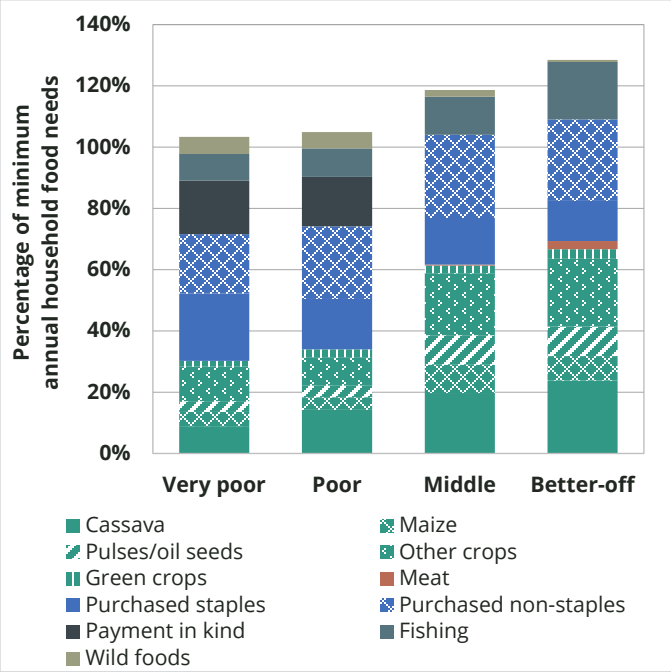
Household size increases with wealth. The very poor have a household size of approximately 5-7, 6-8 for poor households, 8-10 for middle, and 10-12 for better-off. The wealthier the household, the larger it is, with more land, livestock, and productive assets.

The proportion of households in the community is as follows: very poor households 20-25%, poor households 40-50%, middle households 15-25%, and better-off households 10-15%.

Sources of Food

Figure 4 presents the food sources for households in different wealth groups in the livelihood zone from December 2021 to November 2022. December represents the start of the consumption year as most foods, including rice, maize, and beans, are ready for consumption and harvest. Cassava and banana plantains, available all year, can also be harvested and consumed in December. Figure 4 presents food as a percentage of the annual kilocalorie (kcal) needs of the household, based on the internationally accepted 2,100 kcal per person per day.

Figure 4. Sources of Food



In CD15, households rely on various food sources, with distinct patterns observed across different wealth groups. The primary food sources include own production, market purchases, in-kind payments, and fishing, with minor contributions from wild foods. Market purchases and in-kind payments are crucial for poorer households, while fishing and wild foods provide additional, though smaller, contributions to their overall annual caloric needs.

Households' own crop production was the most significant food source for all households in the reference year, particularly staple crops like cassava, maize, and pulses/oil seeds. Cassava is a critical staple, contributing the most calories, especially for middle and better-off households. These groups produce a larger proportion of their food needs from their crops, with cassava accounting for 15-25% and 20-25% of the total food consumed by middle and better-off households, respectively. Maize and pulses also contributed significantly, particularly for middle and better-off households. Crops, although contributing a smaller percentage, were another food source for all wealth groups, with slightly higher reliance among better-off households, approximately 3%. Other crops, including rice, various roots/tubers, bananas, and palm oil, were also important, particularly for middle and better-off households, accounting for 25-35% of their total food intake.

Market purchases of staple and non-staple foods played a crucial role in food sourcing in the reference year, especially for very poor and poor households. Purchased staples, such as rice and maize, accounted for 20-25% of the total food consumption for very poor households and 15-20% for poor households. Better-off households relied less on purchased staples, 10-15%, due to their higher levels of their own production. Purchased non-staples, including vegetable oil and other food items, were significant for all households, contributing 15-25% for very poor households and up to 25-30% for middle and better-off households.

In-kind payments, particularly as rice and cassava, were a substantial food source for very poor and poor households, contributing 15-20% of their total food. This reflects the reliance of these groups on casual labor compensated with food rather than cash.

Fishing was another vital food source, especially for better-off households, contributing 15-20% of the total food intake. Middle households also benefited significantly from fishing, which accounted for 10-15% of total food intake. Very poor and poor households relied less on this source, accounting for 5-10% of total food intake. Fish is an important protein source in the zone.

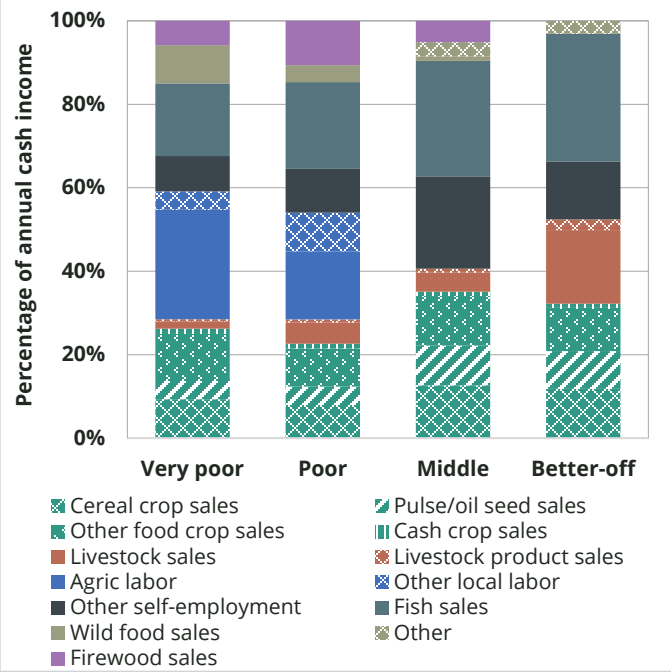
Wild foods provided a smaller but still important food source, particularly for very poor and poor households, accounting for around 5% of annual food needs. This reflects the reliance on foraging during periods of food scarcity or to supplement their diet. This category includes snails, caterpillars, mushrooms, wild yams, and game.

During the reference year, there were no food aid distributions or significant food donations in the CD15 zone, indicating a sufficiency of local food production and market systems to meet local caloric needs.

Sources of Cash Income

In the CD15 livelihood zone, households derive their cash income from a variety of sources, which differ significantly across wealth groups (see Figure 5). The primary sources of income include crop sales, livestock sales, agricultural labor, fishing, and self-employment activities. Very poor and poor households rely heavily on labor and fishing. In contrast, middle and better-off households benefit more from crop and livestock sales and diversified self-employment activities. Households rarely receive significant financial support from other households or family members, indicating a low reliance on gifts.

Figure 5. Sources of Cash Income as a Percentage of Annual Cash Income



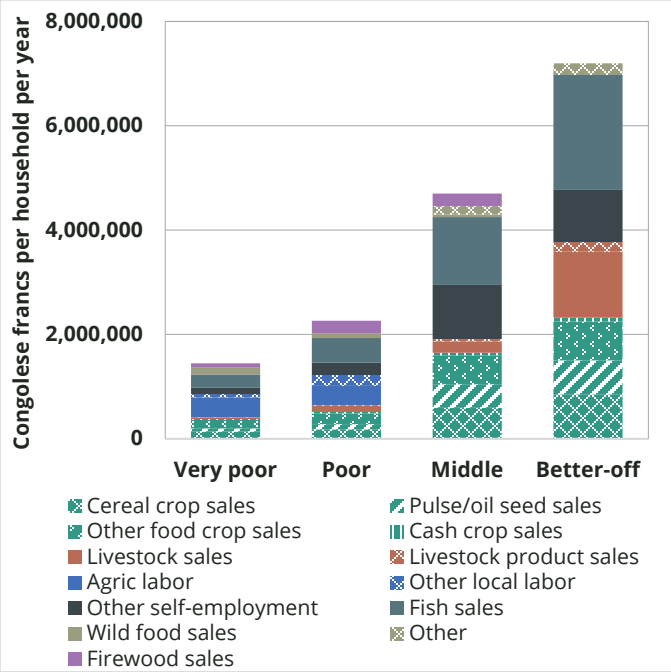
For very poor households, agricultural labor was the most significant source of income in the reference year, contributing 20-30% of their total cash income. Men typically engaged in land preparation, while women handled planting activities. Fishing was another crucial income source, accounting for 15-20% of the total income. This group engaged in line-and-hook fishing and provided fishing labor to better-off households, with payments in fish. Sale of cereal crops contributed 5-15% of income, with pulses and oil seeds adding about another 5%. Self-employment activities, such as brick and charcoal manufacturing by men and vegetable trading by women, provided 5-10% of the income for very poor households. Firewood and wild food sales accounted for 10-20% of the total income.

Poor households also relied heavily on agricultural labor in the reference year, which made up 10-20% of their total cash income. Fishing was another important activity, providing 15-25% of their cash income. Sales of cereal crops, pulses, and other food crops contributed 20-25% of their annual

cash income. Self-employment activities and firewood sales were more prominent among poor households, contributing 20-25% of the income. Livestock sales provided about 5% of their income.

Middle households derived a substantial portion of their income, 25-30%, from fishing and crop sales, 30-40%, indicating better access to productive resources. Self-employment activities were also important, accounting for 20-25% of their income. This includes higher-scale activities, such as expanded brick and charcoal production, and more significant vegetable trading. Livestock sales provided approximately 5% of the total income, reflecting moderate livestock ownership. Unlike poorer households, middle households relied less on local labor, focusing instead on more profitable activities.

Figure 6. Total Annual Cash Income



Better-off households derived significant income from fish sales, accounting for 25-35% of their total annual cash income. They had better access to fishing equipment and resources, which allowed them to capitalize more effectively on this activity. Crop sales, including cereals, pulses, and other food crops, accounted for 30-35% of total income, reflecting their larger landholdings and higher productivity. Livestock sales contributed 15-20%, reflecting their significant livestock holdings. These households also engaged in lucrative self-employment activities, which provided 10-15% of their income, highlighting their access to capital to invest in and manage diverse business ventures.

As shown in Figure 6 and Table 4, there was a large difference in wealth between the very poor and the better-off households. In the December 2021 to November 2022 reference year, better-off households earned approximately five times more than very poor households and three times more than poor households.

Table 4. Income Summary Table (Congolese Francs or CDF)

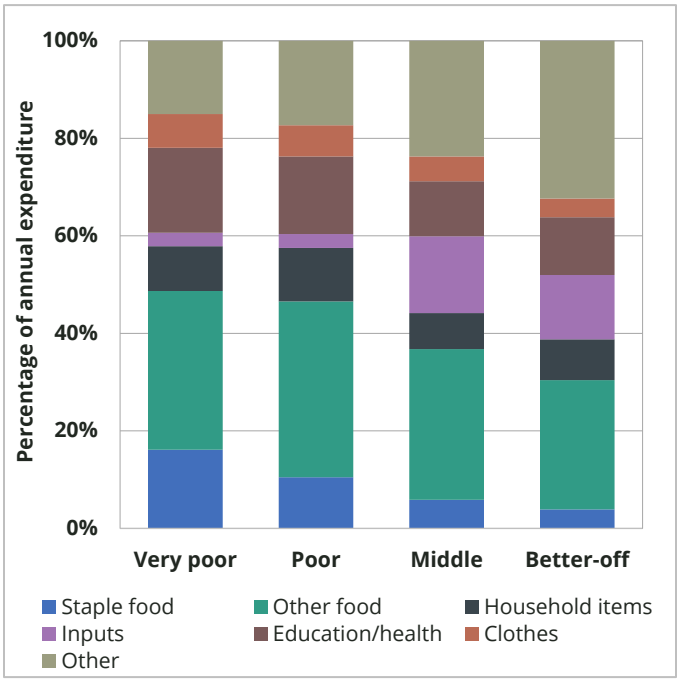
Wealth Group	Very Poor	Poor	Middle	Better-Off
Annual income per household[4]	1,200,000–1,700,000	2,000,000–2,500,000	4,000,000–5,500,000	6,000,000–9,000,000

[4] The average exchange rate from December 2021 to November 2022 was 1 USD = 2,004 CDF.

Expenditure Patterns

Figure 7 presents expenditure patterns for the reference year. While absolute expenditure increases with wealth in line with total cash income, the figure's breakdown of expenditure by percentage shows the *relative* amount of income spent on different categories. Households in the zone must cover a range of essential expenditures over the year. These include staple foods, non-staple foods, household items/services (salt, soap, tea, lighting, milling, etc.), productive inputs, social services (health and education), clothing, and other essential and non-essential items.

Figure 7. Total Annual Cash Expenditure by Category



Expenditure patterns in CD15 reflect the economic stratification within the community. Poorer households prioritized food and basic needs, while wealthier households had the flexibility to invest more in agricultural inputs, business ventures, and savings. Households in all wealth groups had no expenditure for water.

In the reference year, very poor households spent a significant portion of their income on food, with 10-20% spent on staple foods, primarily rice, and 30-35% on non-staple foods, such as vegetables and meat. Expenditures on household items, such as soap, salt, grinding, and utensils, constituted 5-15% of their spending. Very poor households allocated minimal spending, about 3%, to agricultural inputs (tools and seeds), reflecting limited capacity to invest in improving crop yields. Social services (education and health) comprised 15-20% of their expenditure, reflecting the importance of maintaining access to basic services despite financial constraints. In the reference year, spending on clothing/shoes accounted for 5-10% of annual expenditure and the remaining 10-20% on other expenses, which may include social obligations, transportation, and other miscellaneous needs.

Poor households also spent a significant portion of their income on food, with 5-15% on staple foods and 30-40% on non-staple foods. They spent 5-15% of their income on household items. Like very poor households, poor households allocated about 3% of income to agricultural inputs (tools and seeds) and 10-20% on social services (education and health). Spending on clothing/ shoes accounted for 5-10% of annual expenditure. Poor households allocated the remaining 15-20% of income to other expenses, which may include social obligations, transport, and other miscellaneous needs.

Middle households allocated less of their income to staple foods and other foods than poorer households, reflecting better food security and more disposable income for other expenditure

items. Expenditure on household items was about 5-10%. Middle households also significantly increased spending on agricultural inputs (tools, seeds, and hiring farm workers), which accounted for 10-20% of their total expenditures, reflecting investments in improving agricultural productivity and securing higher returns from crop sales. Social services (education and health) spending was 5-15% of income. In the reference year, spending on clothing/shoes accounted for 5-10% of annual expenditure. A large share of expenditure, 20-30%, was on other household expenses, like savings.

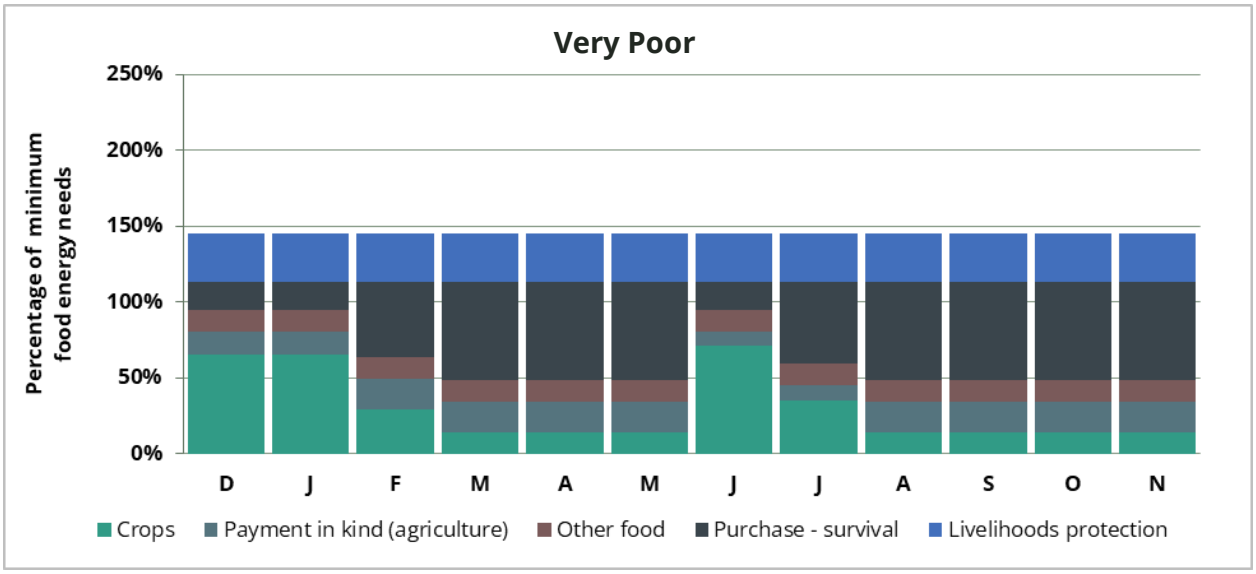
Better-off households spent the least on food as a percentage of their income, with less than 5% allocated to staple foods and 25-30% to non-staple foods. This pattern reflects their ability to secure a varied and sufficient diet with less financial strain. Spending on household items was 5-10%, with better-off households likely to invest in higher quality or more durable goods. These households allocated 10-15% of their expenditure to agricultural inputs. Expenditure on social services (education and health) remained significant at 10-15%, reflecting continued investment in maintaining and improving access to quality services. Spending on clothing/shoes in the reference year accounted for less than 5% of annual expenditure. Better-off households spent the most on other expenses, with 30-35% of the total on diverse needs, including savings and social obligations.

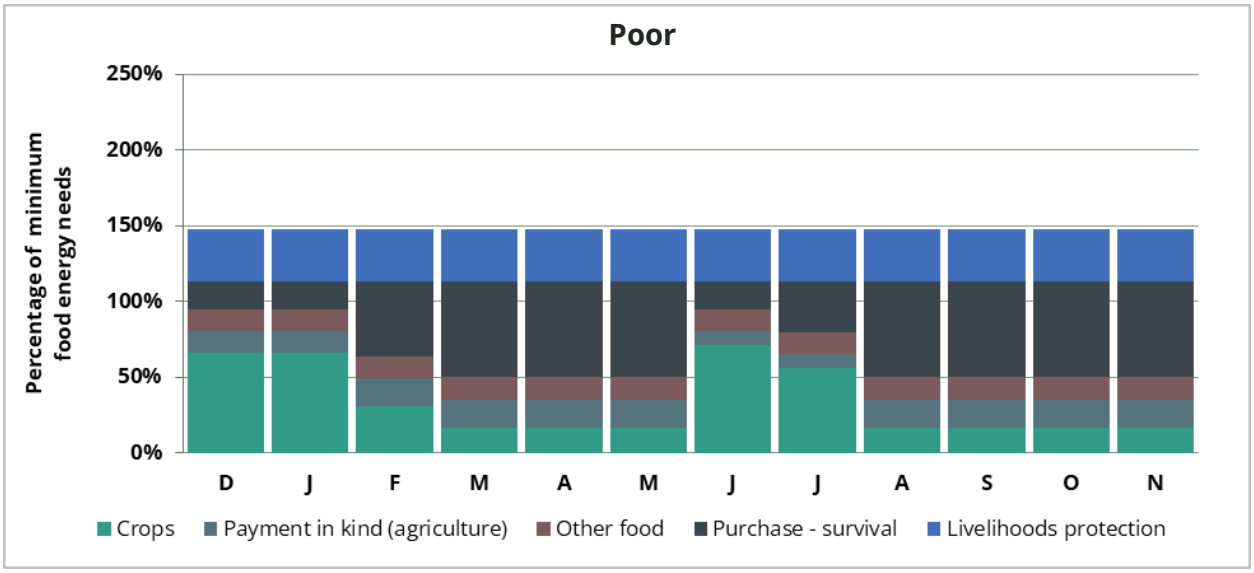
Food Access Calendars

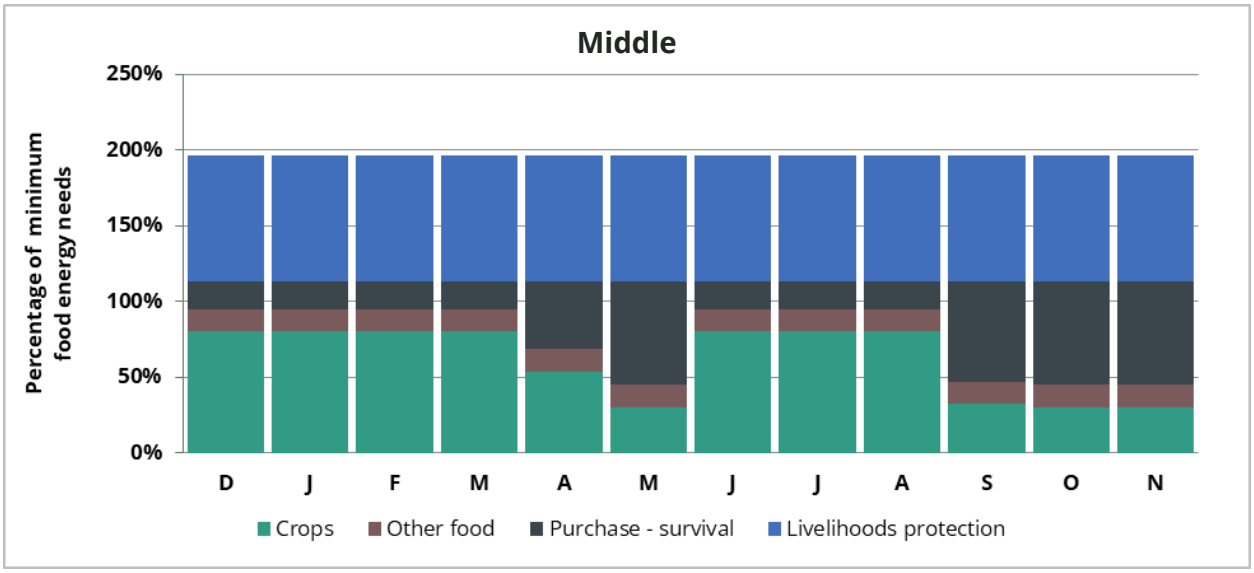
The graphs in Figure 8 present monthly food and cash access calendars for the four wealth groups.

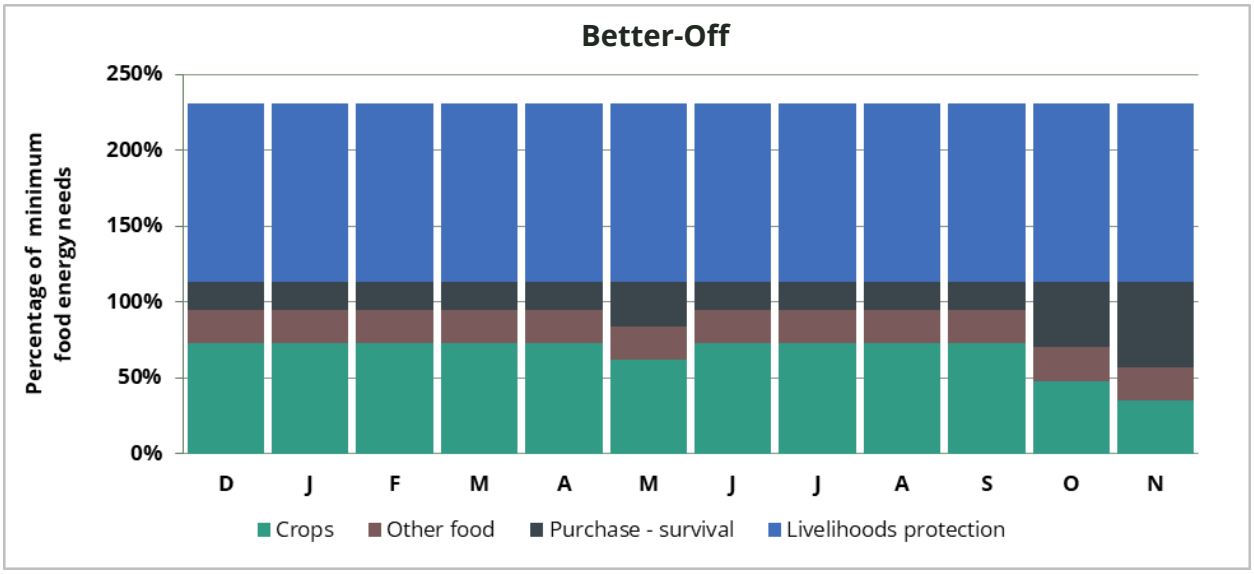
All household groups can meet their minimum needs year-round, with a peak reliance on food purchases from March to May and August to November, particularly for very poor and poor households. The Season A harvest starts in December, and the Season B harvest starts in June. The dark blue “livelihoods protection” sections of the bars increase as a proportion of the total because wealthier households can afford to spend more on productive inputs, health, and education.

Figure 8. Seasonal Food and Cash Access Calendars per Wealth Group




Poor
Percentage of minimum food energy needs
250%
200%
150%
100%
50%
0%
D J F M A M J J A S O N
Crops
Payment in kind (agriculture)
Other food
Purchase - survival
Livelihoods protection


Middle
Percentage of minimum food energy needs
250%
200%
150%
100%
50%
0%
D J F M A M J J A S O N
Crops
Other food
Purchase - survival
Livelihoods protection


Better-Off
Percentage of minimum food energy needs
250%
200%
150%
100%
50%
0%
D J F M A M J J A S O N
Crops
Other food
Purchase - survival
Livelihoods protection

Poor Female-Headed Households

Female-headed households are found in very poor and poor wealth groups, as shown in the wealth breakdown (Figure 3). During fieldwork, we conducted in-depth interviews with poor, female-headed households. These households are typically characterized by a family structure in which the female head of the household manages domestic duties and generates income to sustain the family. Women in these households often struggle to obtain credit, which limits their ability to invest in income-generating activities or improve their agricultural productivity. Moneylenders are hesitant to extend loans to women, perceiving them as higher-risk borrowers with lower repayment capacity. Women in this zone generally have fewer property rights than men, particularly regarding land ownership. These households also face significant barriers in livestock production due to their limited financial capacity to purchase and maintain livestock. As a result, they cannot benefit from the potential income and food security that livestock could provide. The limited financial resources available to poor female-headed households restrict their ability to invest in other income-generating activities.

Figure 9 shows that poor female-headed households and poor male-headed households share a similar pattern of food access. In the reference year, they both met their annual minimum food energy needs from similar food sources, mainly market purchase and own crop production. Poor female-headed and poor male-headed households obtained 35-45% of their annual food needs in the reference year from market purchase and 30-35% from own crops. However, poor female-headed households relied more heavily on certain food sources than poor male-headed households. For example, female-headed households obtained 20-25% of their food from payments in-kind, compared to 15-20% for male-headed households. Fishing contributed slightly less to female-headed households' diets than male-headed households. Poor female-headed households purchased more staple food and less non-staple food than poor male-headed households, reflecting that they were approximately 25% poorer per capita cash income.

The income picture shown in Figure 10 shows that both poor male-headed households and poor female-headed households had similar sources of cash income in the reference year except for construction labor, which only concerned poor male-headed households.

Despite having similar sources of cash income, female-headed households depended more on agricultural labor, which contributed 20-25% of their income, compared to 10-20% for male-headed households. Other self-employment activities, such as small-scale trading or crafts, were crucial for female-headed households, contributing 20-30% of their income compared to 10-15% for male-headed households. Income from livestock sales was lower for female-headed households (approximately 2%) than for male-headed households (roughly 5%). Income from fish sales was lower for female-headed households, 10-15%, compared to 20-25% for male-headed households, indicating less involvement or success in this income-generating activity.

Figure 9. Sources of Food: Poor Households vs Poor Female-Headed Households

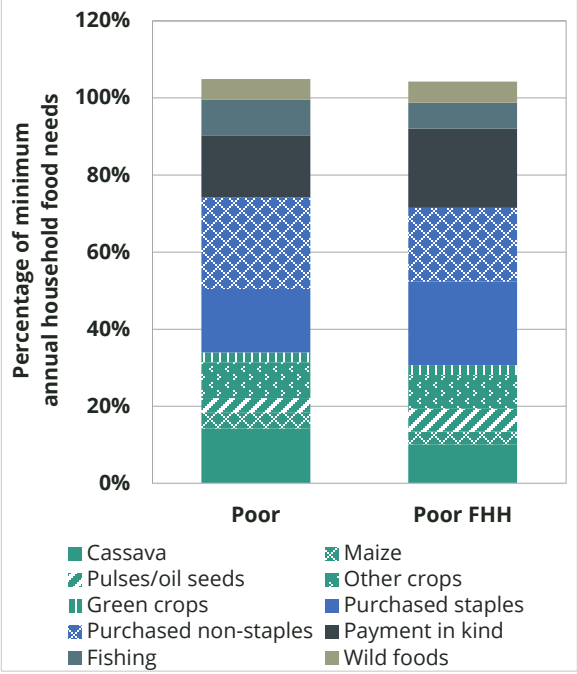
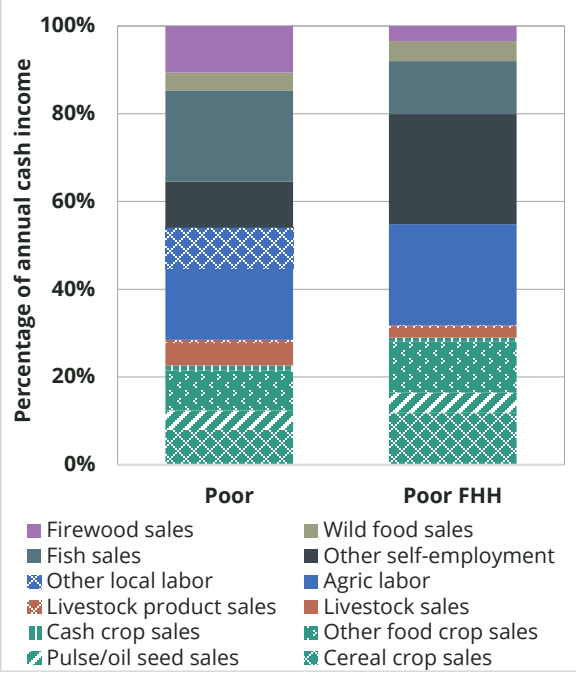


Figure 10. Sources of Cash: Poor Households vs Poor Female-Headed Households



Response Strategies

In response to hazards and years of bad production, households attempt to meet their minimum food needs and cash requirements through several strategies. Below are some common strategies employed by households.

Households in all wealth groups try to reduce expenditures on non-essential or more expensive items first, such as cutting down on festival costs or not buying clothes or utensils that year. Households rely more heavily on cassava, which is the cheapest staple.

Very Poor and Poor Households

Very poor and poor households often try to increase their labor activities efforts by involving more family members in income-generating activities. This includes seeking casual labor — activities within and outside the community to augment household income. These households increasingly rely on collecting wild foods to supplement their diet and income. Very poor and poor households also engage in more hunting, which provides an additional source of protein and potential income. This strategy is crucial when other food sources are scarce or when income opportunities are limited.

Middle and Better-Off Households

Middle and better-off households cope with hazards differently. In bad years, these households sell additional livestock to cover basic food and non-food expenses. They also intensify and engage more in their already established small businesses. This entrepreneurial approach provides a more stable and diversified income stream, reducing reliance on agriculture alone.

Key Parameters for Monitoring

The key parameters listed in Table 5 are food and income sources that contribute substantially to the household economy in the *Orientale Agriculture with Fishing Livelihood Zone*. These parameters should be monitored to track potential losses or gains to local household economies through ongoing monitoring systems or periodic assessments.

Table 5. Key Parameters for Monitoring

Item	Key Parameter – Quantity	Key Parameter – Price
Crop production	• Maize Season A and B – quantity produced • Cassava – quantity produced • Groundnuts Season B – quantity produced • Rice Season A – quantity produced • Cowpeas – quantity produced • Plantains – quantity produced • Palm oil sales – quantity	• Maize Season B – producer price • Cassava – producer price • Groundnuts Season B – producer price • Rice Season A – producer price • Cowpeas – producer price • Plantains – producer price
Livestock production	• Pigs – herd size • Goats – herd size	• Pigs – producer price • Goats – producer price
Other food and cash income	• Fish – quantity • Wild foods – quantity • Cultivation labor – number of days worked • Construction labor – number of days worked • Charcoal/firewood sales – quantity sold • Self-employment – demand • Petty trade – demand	• Fish – producer price • Wild foods – producer price • Cultivation labor – wage rates • Construction labor – wage rates • Charcoal/firewood sales – producer price • Self-employment – amount earned • Petty trade – daily earnings
Expenditure		• Cassava – consumer price • Maize – consumer price • Rice – consumer price • Plantains – consumer price

CD16 Livelihood Zone

Reference Year: July 2022–June 2023

Northwestern Plateau: Groundnuts, Staple Crops, and Tree Crops Livelihood Zone

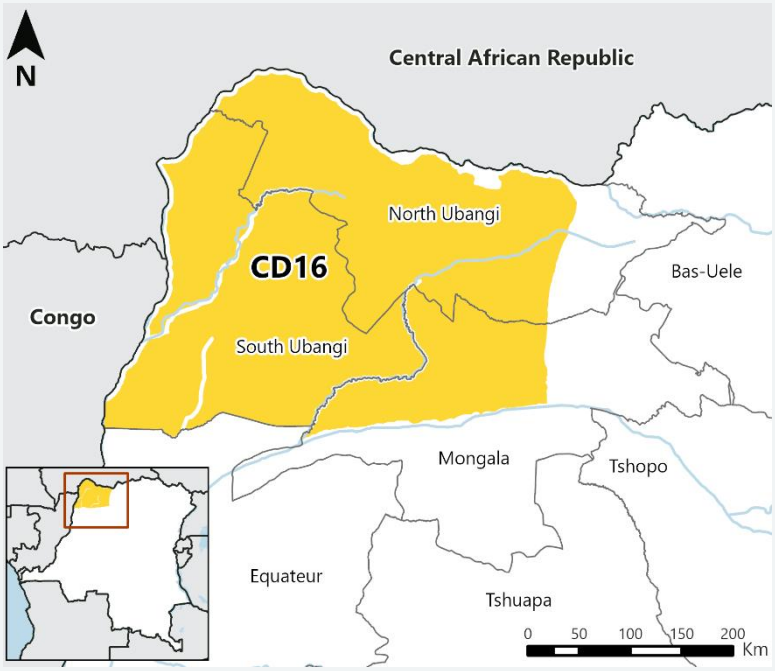


Figure 1. CD16 Livelihood Zone

Summary: The *Northwestern Plateau: Groundnuts, Staple Crops, and Tree Crops Livelihood Zone* (CD16) is the dominant livelihood zone in the northwest corner of the Democratic Republic of the Congo (DRC), covering the northern half of Mongala Province, parts of South Ubangi Province, and North Ubangi Province. The zone is a mixed agricultural zone with traditionally rainfed crop production, with two production seasons and livestock rearing as the main economic activities for households from all wealth groups. The area is a food surplus zone with high overall production potential due to good soil fertility and rainfall. Other important economic activities include trade, artisanal palm oil production and sales, casual labor, self-employment, fishing, and wild food gathering and sales.

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Zone Description

The *Northwestern Plateau: Groundnuts, Staple Crops, and Tree Crops Livelihood Zone*[1] (CD16) is the dominant livelihood zone in the northwest DRC, covering the northern half of Mongala Province (Lisala, a small part of Bumba, and part of Bongandanga Territories), South Ubangi Province (Gemena, Budjala, Kungu, and Libenge Territories) and North Ubangi Province (three sectors of Mobayi-Mbongo Territory, three sectors of Businga Territory, Bosobolo Territory, and Yakoma Territory). The population of CD16 is 4,571,075, with an average population density of around 44 people per square kilometer.[2]

The density of the Congo Basin's forest cover diminishes considerably in this livelihood zone, making agriculture a more viable livelihood option. Tropical forests give way to expanses of savannah, where cultivation is concentrated. As a result, agricultural output levels and yields are considerably higher in this zone than south of the Congo River. The local climate is tropical equatorial, with rainfall of approximately 830 millimeters per year, falling mainly between April and November, and temperatures ranging from 28°C to 38°C.

The zone is characterized by varied topography: hills, undulating plains, valleys, plateaus, and rivers. The vegetation is a combination of equatorial/tropical rainforest, forest, bush, savannah grassland, marshes, and agricultural land, with fertile sandy-clay soils and the mineral molybdenum. Some private farms contain hevea rubber trees. Within the zone, the major geographical features include the Mongala, Libala, Bubangi, Lukame, Lwa, Legbala, Etedika, and Liagno rivers. Major roads include the *Route Nationale* (RN) 24 road. The main towns and cities include Gbadolite, Lisala, Gemena, Zongo, Libenga, Businga, Karawa, Budjla, Kungu, Yakoma, Abuzi, Wapinda, Bosobolo, and Bili. The Okapi Wildlife Reserve, Komolo Falls on the Lokame River, and Lake Kwanda are tourist attractions. Natural resources found in the zone and exploited by the population include wood, game, fish, mushrooms, caterpillars, and snails.

The zone is a mixed agricultural zone with crop production and livestock rearing as the main economic activities for households from all wealth groups. Other important economic activities include trade, artisanal palm oil production and sales, casual labor, self-employment, fishing, and wild food gathering and sales.

Crop production is traditionally rainfed with cassava, maize, groundnuts, and cowpeas grown for household consumption and sale. There are two seasons of crop cultivation for all crops — Seasons A and B, with Season B dominating. Maize is intercropped with groundnuts, and cassava is intercropped with cowpeas. Land areas cultivated range from 0.1-1.5 hectares (ha) for poorer households and from 1-6 ha for wealthier households. Land for cultivation is prepared manually, as

[1] Fieldwork for the current profile took place from February 19 to March 20, 2024. The information presented in this profile refers to the reference year, which was the consumption year from July 2022 to June 2023. If no fundamental and rapid shifts in the economy occur, the information in this profile is expected to remain valid for approximately five to 10 years (i.e., until around 2029-2034). All prices in the document are for the reference year.
[2] FEWS NET Data Explorer, population data (2023), accessed 2025, https://fdw.fews.net/data-explorer/.

there are no oxen or tractors for plowing. Poorer households use their own household labor, whereas wealthier households use hired labor paid in cash or in kind (i.e., food) for all labor-intensive agricultural production activities (including land preparation, planting, weeding, harvesting, and threshing/winnowing). This generates nearly constant demand for labor — an important source of income for poorer households.

The zone's overall production is high due to good soil fertility and good rainfall, but quantifying overall agricultural production is difficult.[3] The area is a food surplus zone. The main constraints on increasing crop production include heavy rains that sometimes destroy crops, lack of quality agricultural inputs, lack of oxen and agricultural equipment like tractors for plowing, insufficient markets/buyers because of road problems, and crop pests and diseases.

Livestock rearing is less important than crop production. The main livestock types in the zone are cattle, goats, pigs, poultry, and guinea pigs. Women are typically responsible for pigs and guinea pigs. Livestock graze freely on open pastures, which include grass and crop residues. Households do not purchase feed. Households freely obtain water for livestock from rivers and springs in the Rainy and Dry Seasons. Shepherds rear livestock, including cattle, so these animals are not milked. In addition, the area's communities rarely consume milk. The slaughter of goats, pigs, poultry, and guinea pigs is common throughout the year. Households also commonly sell livestock throughout the year, with peak sales in September (to cover back-to-school expenses) and December (for festivals). The main constraints on livestock health and productivity include livestock diseases, inbreeding, lack of veterinary inputs, and lack of good breeding stock.

Self-employment activities include local brew sales, handicrafts, brick production and sales, local soap making and sales, palm oil sales, fish and wild food sales, motorbike/bicycle transport businesses, and commerce/small businesses.

Commerce, including petty trade and small business, is local. Wealthier households mainly dominate commerce because they have the capital to invest, and trade is one of the few ways to diversify their livelihoods. Men and women from wealthier households engage in trading activities throughout the year. Trade involves purchasing items/products in the main towns to resell at the village level for profit.

Men, women, and children from poorer and wealthier households engage in palm oil production and sale all year round, but it peaks in the Dry Season from December to March. The oil is locally produced and sold to retailers and consumers.

[3] Due to a lack of financial, material, and human resources, the DRC's technical agricultural services cannot properly monitor agricultural campaigns to quantify production, so there is a problem with the reliability of agricultural statistics. Furthermore, the staggered year-round harvest of cassava (the main crop in the area) makes it very difficult to quantify its production.

Men, women, and children from poorer households gather wild foods for consumption and sale, mainly in April, July, and August. Households sell gathered products locally to merchants and consumers. Collected products include game, insects, mushrooms, and wild plants.

Poorer households have less land and livestock and must depend on cash generated from their own labor, mainly agricultural and construction labor.

The *Northwestern Plateau: Groundnuts, Staple Crops, and Tree Crops Livelihood Zone* experiences several hazards that affect its economy and livelihoods. The main hazards include crop pests and diseases, livestock diseases, flooding, hot and dry conditions, and poor road infrastructure. Crop pests and diseases occur every year, negatively affecting crop production. The main crop pests include caterpillars and armyworms. Crop diseases include crop rot. Livestock diseases are also common and occur every year. Common diseases include *peste des petits ruminants* (an acute disease affecting goats), avian plague (which affects poultry), pork mullet (a bacterial pig disease), and snot/glanders disease (also affecting pigs). Climatic disturbances, such as flooding and hot and dry conditions, occur every two years. Poor road infrastructure affects the zone in all years, as the zone is mainly served by dirt roads, which are in poor condition.

Poorer households live in houses made of mud with mud/clay floors and thatched/straw roofing. Wealthier households have different types of houses, which vary depending on the village. Some wealthier households have houses similar to poorer counterparts' houses; others have houses made of bricks, with cement floors and iron sheet roofs. Households from all wealth groups obtain water for drinking and domestic use free from springs, rivers, and surface water. Regarding sanitation, poorer and wealthier households use hand-dug traditional latrines without slabs. Households from all wealth groups primarily access healthcare through dispensaries and health centers. Wealthier households can also access healthcare in general reference hospitals. For lighting, most poorer households use battery-operated flashlights; wealthier households use battery-operated flashlights and solar panels. Poorer households use firewood for cooking; wealthier households use firewood and charcoal. Mobile phone service and use are limited in this zone. Most poorer households do not own phones. Wealthier households have at least one phone per household for either voice or voice and internet use. Poorer households usually send their children to school through the primary level; only a few reach the secondary level. Better-off households usually send their children to school through the secondary level, with a few continuing through college/university. Financial services are scarce, and access to credit is rare. Saving banks and schemes are virtually non-existent in the zone.

Markets

Market access in this zone is poor and difficult, especially during the Rainy Season. Dirt roads in poor condition and the RN24 road mainly serve the zone. A few recently built bridges exist on agricultural feeder roads.

The zone's main markets are in the towns and cities of Gbadolite, Lisala, Gemena, Zongo, Libenga, Businga, Karawa, Budjla, Kungu, Yakoma, Abuzi, Wapinda, Bosobolo, and Bili, with cross-border markets in Dongo, Zambi, Libengue, Zongo, Pandu, and Bangui. Although market access is difficult, there are many trading activities because of the market demand from middle-sized towns (Gemena, Gbadolite, Zongo, Bosobolo, Lisala, Bumba, Yakoma, and Businga) and numerous cross-border markets linking the zone to the Central African Republic and more distant markets in Cameroon, Chad, and South Sudan.

The main crops sold in the market include cassava, maize, groundnuts, and palm oil. Households sell the crops year-round, with peak periods between November and March for cassava, August to September and December to January for maize and groundnuts, and November to March for palm oil. The flow of crops sold is usually from village to local market to the main markets (Gbadolite, Kinshasa, Pambwa, Kisangani, Businga, Karawa, Sonbalo, Bosobolo, Gemena, Yakoma, Lisala, Molegbe, Boyawe, Kotakoli, Bobadi, Bodambula, Mangundu, Niaki, Maniko, and Bangui in the Central African Republic). The main foodstuffs purchased at local markets are maize and groundnuts, with a peak in demand accompanied by higher prices between April and June, corresponding to the local Lean Season.

The main livestock species traded are goats, pigs, and poultry. They are mainly traded out of the same local markets as crops and transported to Bangui in the Central African Republic. Sales peak in September, when local households need cash to meet school expenses, and again in December, when live animals are in increased demand for consumption during festivals.

Almost all casual labor, mainly agricultural labor, is undertaken within the local rural area.

Timeline and Reference Year

The baseline assessment is for the "reference year." In the *Northwestern Plateau: Groundnuts, Staple Crops, and Tree Crops Livelihood Zone,* the reference year covers the consumption period from July 2022 to June 2023. During community leader interviews, informants were asked to score the last five years in terms of seasonal performance, with "1" indicating a poor season and "5" indicating an excellent season. Table 1 summarizes the community leaders' responses.

Overall, key informants ranked most of the years and seasons between 2018 and 2023, including the reference period, as "3" (average) or "4" (above average) in terms of household food security, suggesting general food security stability within the zone. The reference year was an average year for agricultural production in the zone due to good rainfall and low pest attacks. The reference year was characterized by average to good crop yields (cassava, maize, groundnuts) and resulted from good and regular rainfall during Season A. However, Season B saw lower production in some areas due to excessive rainfall, flooding, and crop rot. Otherwise, crop pests and diseases were uncommon that year.

Table 1. Timeline

Production Year/ Season	Score	Critical Events
2023/Season B	3	Flooding, pests. Households coped through labor intensification.
2022–2023/Season A	3	Plenty of rain, high heat, pests. Households coped by intensifying labor, using mountain fields, intensifying wild food collection and fishing, and increasing livestock sales.
2022/Season B	3	Flooding, pests. Households coped by intensifying wild food collection and fishing, increasing livestock sales.
2021–2022/Season A	3	Plenty of rain, high heat, pests. Households coped by using mountain fields.
2021 Season B	4	Flooding, pests. Households coped by using mountain fields.
2020–2021/Season A	4	Plenty of rain, high heat, pests. Households coped by intensifying labor.
2020/Season B	4	Flooding, pests. Households coped by intensifying labor.
2019–2020/Season A	4	Plenty of rain, high heat, pests. Households coped by intensifying wild food collection and fishing, increasing livestock sales.
2019/Season B	3	Flooding, pests. Households coped by intensifying wild food collection and fishing, increasing livestock sales.
2018–2019/Season A	4	Plenty of rain, high heat, pests. Households coped by using mountain fields.

5 = Excellent season for household food security (e.g., due to good rains, good prices, good crop yields)
4 = Good season or above-average season for household food security
3 = Average season for household food security
2 = Below-average season for household food security
1 = Poor season for household food security (e.g., due to drought, flooding, livestock disease, pest attack)

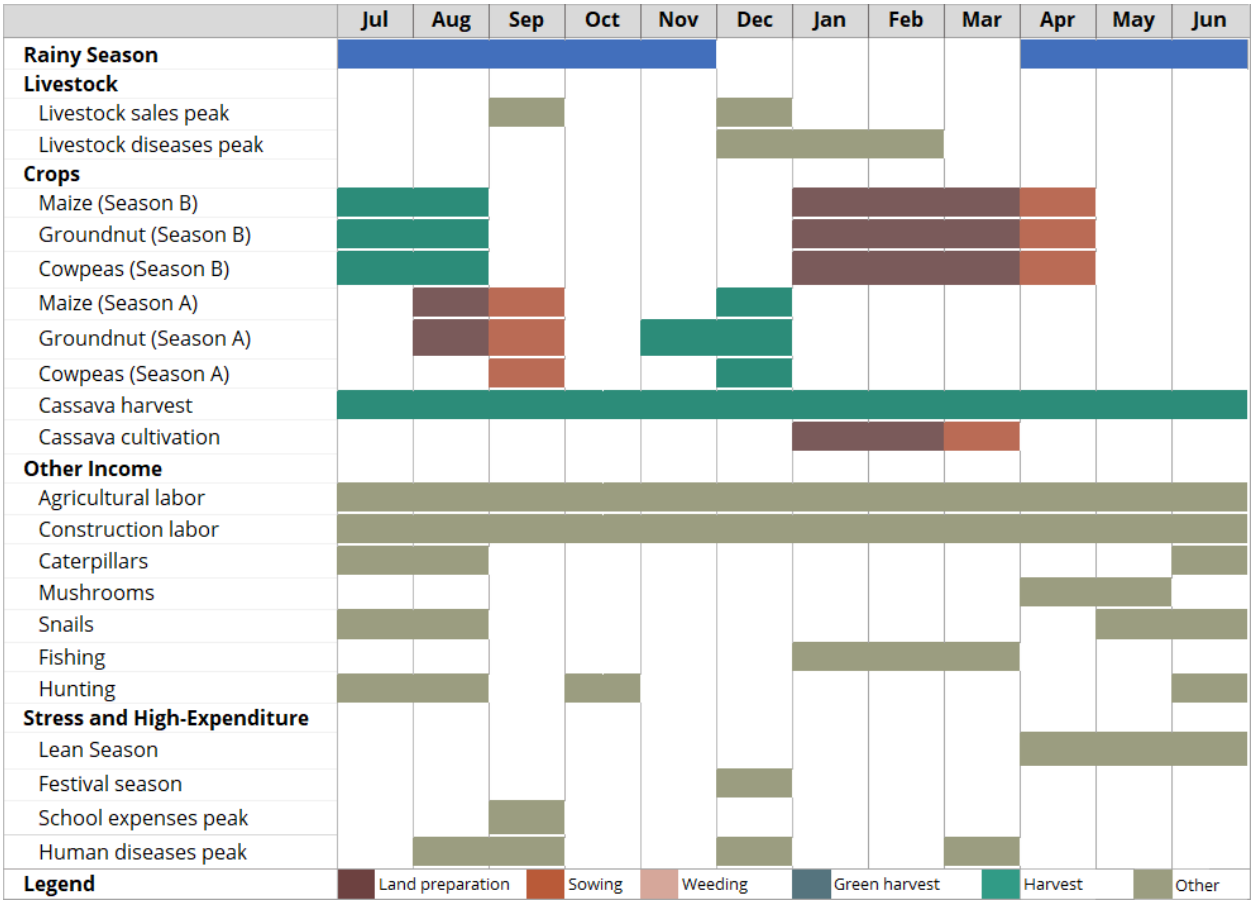
Seasonal Calendar for Reference Year

The seasonal calendar (see Figure 2) illustrates the main economic activities and events of the reference year. It traces the rainy months, pastoral activities, the movement of people and livestock, food purchasing periods, and other relevant factors.

The Rainy Season of the *Northwestern Plateau: Groundnuts, Staple Crops, and Tree Crops Livelihood Zone* between April and November. The rest of the year is dry and hot. The zone has two cropping seasons: Season A and Season B. Season B is the most dominant. All crops are cultivated in the two seasons except for cassava, which is cultivated once a year but harvested all year round. Season B crops are planted at the start of the Rainy Season in April with land preparation done months earlier between January and March. Season B crops are ready for green consumption in July, with dry

harvesting in July/August. Season A planting takes place in September after the harvest of Season B crops in July/August, and land preparation happens in August immediately after the harvest. The harvesting of Season A crops occurs in December.

Figure 2. Seasonal Calendar



Agricultural labor opportunities are available within the zone throughout the year and are significant income sources for poorer households. There is a high demand for work in land preparation, planting, weeding, harvesting, and threshing by wealthier households. Construction labor, likewise, is available throughout the year.

Livestock are sold throughout the year, with peak periods in September at the start of the school year (when households need cash for fees and other school-related expenses) and in December, when there is high demand for the festive season. Livestock diseases can occur, but the peak period is during the hot Dry Season, between December and February. During this period, on livestock drugs.

Human diseases, like livestock diseases, can also occur at any time of year, but diseases such as malaria and respiratory illnesses peak during the Rainy Season, from August to September, and at the change of seasons, in December and March. Household expenditure on health increases during this period.

Table 2 shows the typical division of labor. Men and women are both involved in crop production activities and in trade/small business (with men selling manufactured products and engaging in transport business, while women sell mostly small items, and fruit and vegetables). Men (and boys) are largely responsible for livestock production activities, except care of poultry and guinea pigs which is women's responsibility. Men also engage in fishing activities and construction labor. All domestic work including water collection for domestic use, cooking meals, firewood collection for domestic use, taking care of children and laundry is done by women. House construction and maintenance is done by men.

Table 2. Typical Division of Labor

Shared Tasks	Women's Tasks	Men's Tasks
• Land preparation • Planting • Weeding • Harvesting • Threshing/winnowing • Market selling – crops • Agricultural labor • Wild food collection and sale • Handicraft production and sale • Livestock watering	• Livestock care – poultry & guinea pigs • Brewing • Petty trade/small business – sale of small items, fruit, and vegetables	• Livestock rearing, slaughter, and sales • Petty trade – sale of manufactured products, transport • Fishing • Brick production and sales • Construction labor • House construction/ maintenance

Wealth Breakdown and Productive Assets

Table 3 summarizes the types and numbers of productive assets that typical households within each wealth group own and/or manage. The table shows asset holdings in a range that reflects the diversity of household situations within a wealth group. Figure 3 shows the percentage of households within the zone in each wealth group. The communities themselves carried out the socioeconomic categorization of households in the zone.

The main determinants of wealth in this zone are the amount of land owned and cultivated and the number and types of livestock owned. Other wealth determinants include the ability to engage in commerce/small business, the ability to hire and pay for labor, ownership of non-farming productive assets (such as motorcycles, bicycles, sewing machines, groundnut mold, and hunting rifles), and — to some extent — household size.

Households of all wealth groups grow food crops and sell a portion of their harvest. No specific cash crops are cultivated in the zone. There is no difference in crop types cultivated by the different wealth groups. Only the quantity produced differs by wealth group due to the amount of land

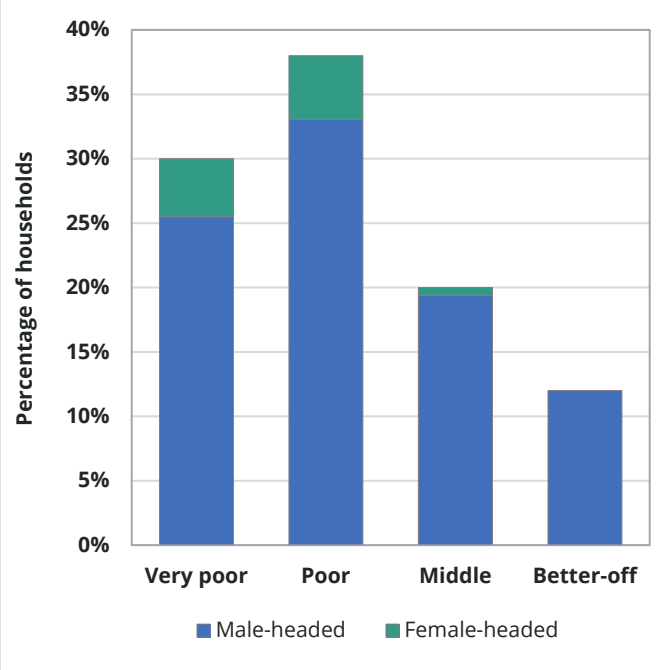
cultivated and the ability to hire labor, with wealthier households cultivating more land and using hired labor.

Table 3. Wealth Breakdown

Household Size and Productive Assets	Very Poor	Poor	Middle	Better-Off	Poor Female-Headed
Household size	5-7	7-9	10-12	15-17	5-7
Land owned (ha)	0.1-1	0.5-1.5	1-3	2-6	0.1-1
Land cultivated (ha)	0.1-0.4	0.25-0.75	1-2	2-4	0.1-0.5
Pigs	0	0-2	3-10	10-20	0-2
Cattle	0	0	0-2	0-10	0
Goats	0	0-4	5-10	5-15	0-4
Sheep	0	0	0-5	0-10	0
Poultry	0-6	0-8	0-25	0-40	5-10
Motorcycles	0	0	1	1	0
Bicycles	0	0	1	1	0
Sewing machines	0	0	1	1-2	0

Figure 3. Wealth Breakdown

Note: All results are the mid-point of a range



Livestock ownership is another important determinant of wealth in this zone. Livestock are a significant source of income and a form of savings. The main types of livestock kept are cattle, goats, pigs, and poultry. Very poor households hardly have any livestock, except a few poultry. Petty trade/small business is an important economic activity in the zone and is mostly done by middle and better-off households, which have the capital required to run and manage a business.

Middle and better-off households cultivate more land in total and per capita than poorer households and employ laborers from poor and very poor households,

especially for land preparation. They also own non-farming productive assets, including a motorbike, bicycle, sewing machines, rifles, and solar panels. In contrast, poorer households hardly have any productive assets apart from land and small numbers of livestock.

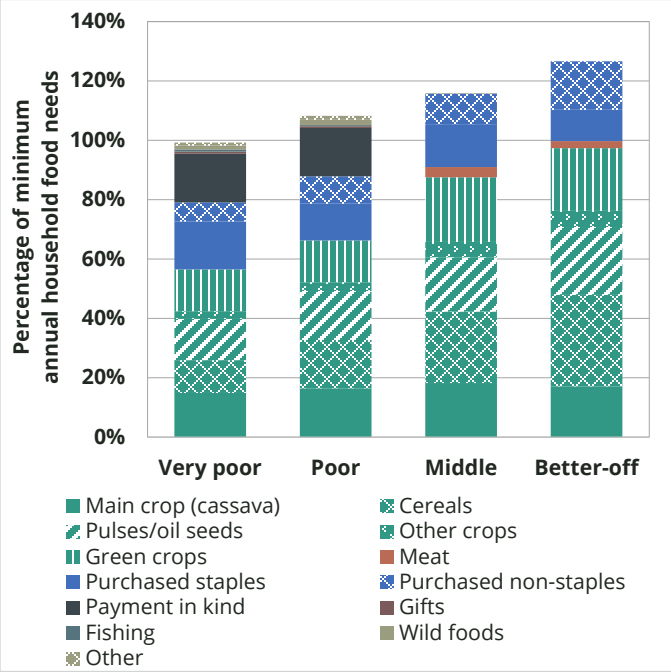
Household size increases with wealth. The wealthier the household, the larger it is, with more land, livestock, and other productive assets.

The proportion of households in the community is as follows: very poor households 20-40%, poor households 30-45%, middle households 15-25%, and better-off households 10-15%.

Sources of Food

Figure 4 presents the sources of food for households in different wealth groups in the livelihood zone for the reference year (July 2022 through June 2023). July represents the start of the consumption year when most Season B food crops, including maize, groundnuts, cowpeas, and cassava (available all year round), are ready for harvest. The figure presents food as a percentage of the annual caloric needs of the household based on the internationally accepted estimate of 2,100 kilocalories (kcal) per person per day.

Figure 4. Sources of Food



The main food source in the reference year for households from all wealth groups was their own crop production, supplemented by food purchased from the market. Other minor food sources included livestock production (meat) for middle and better-off households and payments in-kind, gifts, wild foods, and fishing for very poor and poor households.

Own crop production was the most significant food source for all wealth groups. The contribution of own crop production depends on the amount of land cultivated. Middle and better-off households cultivated more land and, therefore, obtained more calories from their own crops compared to very poor and poor households. Own crop production covered approximately 50-70% of annual minimum calories for very poor and poor households and roughly 80-100% of annual minimum calories for middle and better-off households in the reference year.

Purchased food contributed about 20-30% of annual needs for households from all wealth groups in the reference year. Households purchased maize, cassava, rice, beans, cowpeas, sugar, meat, cooking oil, groundnuts, plantains, sweet potatoes, fresh fish, and dried fish.

The contribution of households' own livestock (meat) production depends on the level of livestock ownership. Middle and better-off households own more livestock, including pigs, goats, and sheep, and, therefore, obtain more calories from their own livestock.

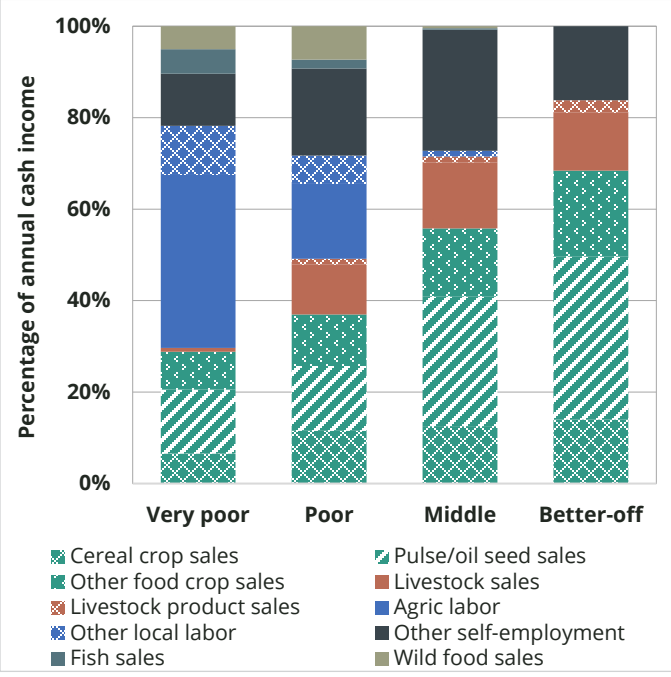
Payments in-kind came from labor during harvest and post-harvest work (threshing and winnowing) and accounted for an additional 15-20% of annual needs for very poor and poor households. The payment was in the form of maize, cassava, and groundnuts. Gifts accounted for 1-5% of annual needs for the very poor and poor. Wild foods and fishing accounted for less than 5% of annual needs.

Overall, the reference year was average for food security, with households from all wealth groups meeting their minimum annual food energy needs.

Sources of Cash Income

Agricultural production is the main livelihood activity in the *Northwestern Plateau: Groundnuts, Staple Crops, and Tree Crops Livelihood Zone*. However, the primary means of obtaining cash income in this zone in the reference year varied by wealth group (see Figure 5). Middle and better-off households derived most of their income from own-farm sources, whereas very poor and poor households derived most of their income from off-own-farm sources.

Figure 5. Sources of Cash Income as a Percentage of Annual Cash Income

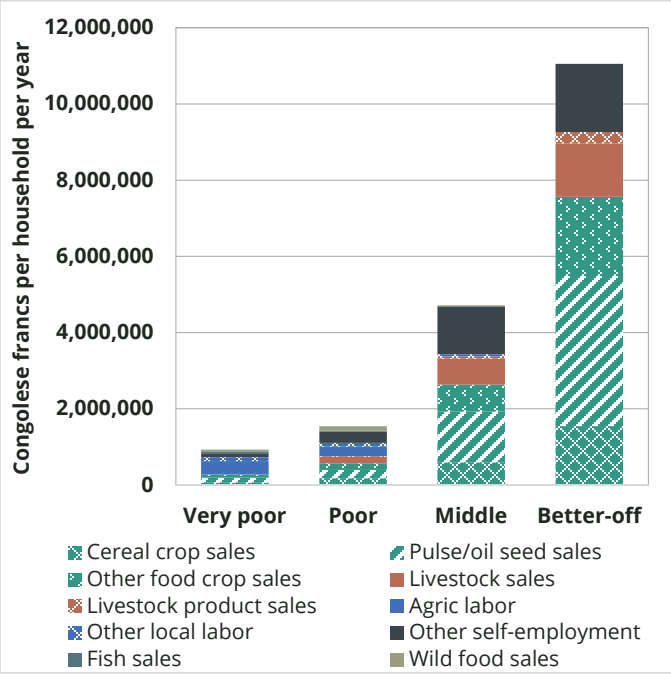


Middle and better-off households own and cultivate considerable amounts of land and consequently harvest and sell more production, which they supplement with live animal sales and self-employment, including motorbike/bicycle transport businesses, brewing (local brew sales), local soapmaking, palm oil sales, and commerce/small businesses.

Very poor and poor households own small portions of land and have less income from crop production. They obtain most of their income from labor (agriculture and construction), brickmaking, and self-employment — including local brew sales (poor households), local soapmaking,

handicrafts, palm oil sales, petty trade (especially poor female-headed households), and fish and wild food sales.

Figure 6. Total Annual Cash Income



Very poor households generated roughly half (45-55%) of their cash income in the reference year from agricultural and construction labor. Crop sales accounted for 25-35% of total cash income for this wealth group. Livestock sales accounted for approximately 0-2% of total cash income. Self-employment generated about 5-15% of the total cash income. Fish and wild food sales each generated roughly 5% of the total cash income for this wealth group.

Poor households generated approximately 35-40% of their cash income in the reference year from crop sales. Livestock and livestock product sales accounted for about 10-15%. They earned roughly 15-20% of their annual cash income from agricultural labor and about 5-10% from construction labor. Self-employment generated about 20% of total cash income. Wild food and fish sales accounted for approximately 10% of total cash income.

Middle households earned 50-60% of their annual cash income from crop sales, about 10-20% from livestock and livestock product sales, and 20-30% from commerce/small business. Better-off households earned roughly 60-75% of their annual cash income from crop sales in the reference year. They earned about 10-20% from livestock and livestock product sales. Commerce/small businesses accounted for approximately 10-20% of the total cash income.

There is a large difference in wealth between the very poor/poor and the middle/better-off households. In the July 2022 to June 2023 reference year, better-off households earned nearly 12 times what very poor households earned and over seven times what poor households earned. Figure 6 and Table 4 illustrate this gap.

Table 4. Income Summary Table (Congolese Francs or CDF)

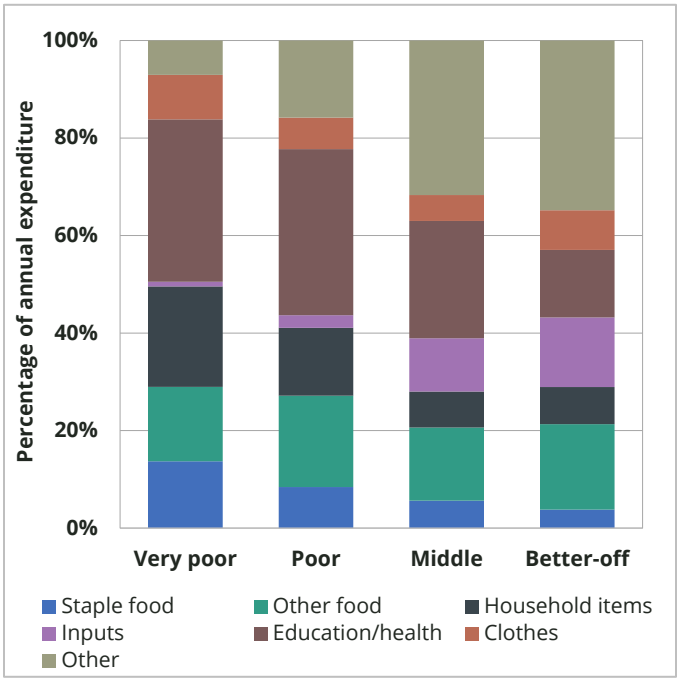
Wealth Group	Very Poor	Poor	Middle	Better-Off
Annual income per household[4]	800,000-1,100,000	1,000,000-2,000,000	2,500,000-7,000,000	8,000,000-14,000,000

[4] The average exchange rate from July 2022 to June 2023 was 1 USD = 2,060 CDF.

Expenditure Patterns

Figure 7 presents expenditure patterns for the reference year (July 2022 to June 2023). Although absolute expenditure increases with wealth in line with total cash income, this graph's expenditure breakdown by percentage shows the *relative* amount of income spent on different categories. Households in the zone must cover a range of essential expenditures over the year. These include staple foods, non-staple foods, household items (like salt, soap, tea, lighting, milling services, etc.), productive inputs, social services (health and education), clothing, and other essential and non-essential items.

Figure 7. Total Annual Cash Expenditure According to Category



Households spent 20-30% of their annual income on staple and non-staple foods and another major part on household items, productive inputs, social services (health and education), clothing, and other essential and non-essential items. Households did not purchase water.

Very poor households' expenditure on staple foods accounted for 10-20% of annual expenditure in the reference year. Expenditure on non-staple foods accounted for another 10-20% of annual expenditure. Purchases of household items, including utensils, accounted for 15-25% of annual expenditure. Spending on productive inputs by very poor households accounted for less than 5% of annual expenditure. Expenditure on social services (education and health) were the largest category for this wealth group in the reference year, accounting for 30-35% of annual spending. In the reference year, expenditure on clothing/shoes accounted for 8-10% of annual spending. Expenditure on "other" items, including transportation, phone credit, and festivals, accounted for 5-10% of annual expenditure for this wealth group.

Poor households' expenditures on staple and non-staple foods accounted for 5-10% and 15-25% of annual expenditures, respectively. The purchase of household items, including utensils, accounted for 10-20% of annual expenditure, productive inputs (tools and seeds) accounted for less than 5% of annual expenditure, and social services (education and health) accounted for 30-40% of annual expenditure. Spending on clothing/shoes in the reference year accounted for less than 10% of annual expenditure, with expenditure on "other" items, including transportation, phone credit, and festivals, accounting for 10-20% of annual spending.

Middle households' expenditures on staple and non-staple foods accounted for 5-10% and 10-20% of annual spending, respectively. Purchase of household items, including utensils, accounted for 5-10% of annual expenditure. Expenditures on productive inputs, including animal salt purchase, tools, seeds, hiring agricultural/livestock workers, and livestock purchase, accounted for 5-15% of annual expenditure. Social services (education and health) expenditures accounted for 20-30% of annual expenditures. Spending on clothing/shoes accounted for less than 10% of annual expenditure, and 25-405 on "other" items, including transportation and phone credit.

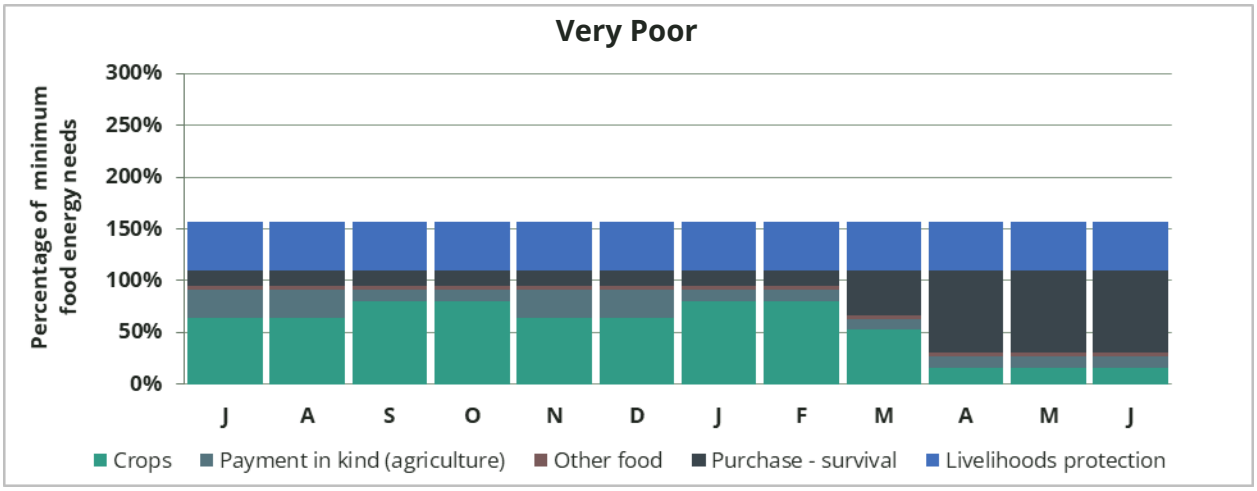
Better-off households' expenditure on staple and non-staple foods accounted for roughly 5% and 15-20% of their annual expenditure, respectively. The purchase of household items, including utensils and grinding costs, accounted for about 5-10% of annual expenditure. Expenditure on productive inputs, including animal salt purchase, tools, seeds, hiring agricultural/livestock workers, and livestock and livestock feed purchase, accounted for 10-20% of annual expenditure. Spending on social services (education and health) in the reference year accounted for 10-20% of annual expenditure, clothing/shoes accounted for 5-10% of annual expenditure, and expenditure on "other" items, including transportation and phone credit, accounted for 30-40% of annual expenditure.

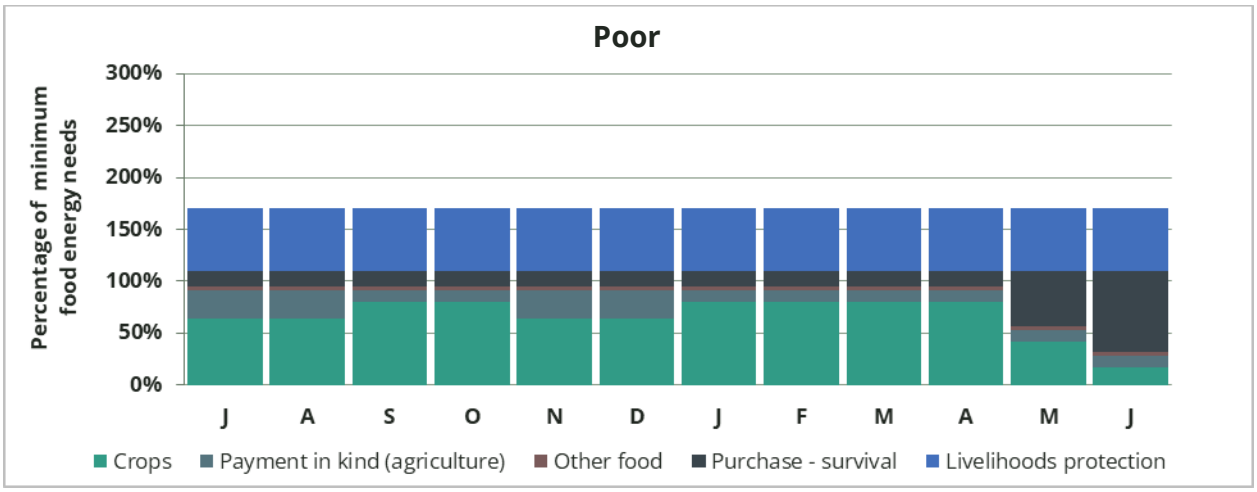
Food Access Calendars

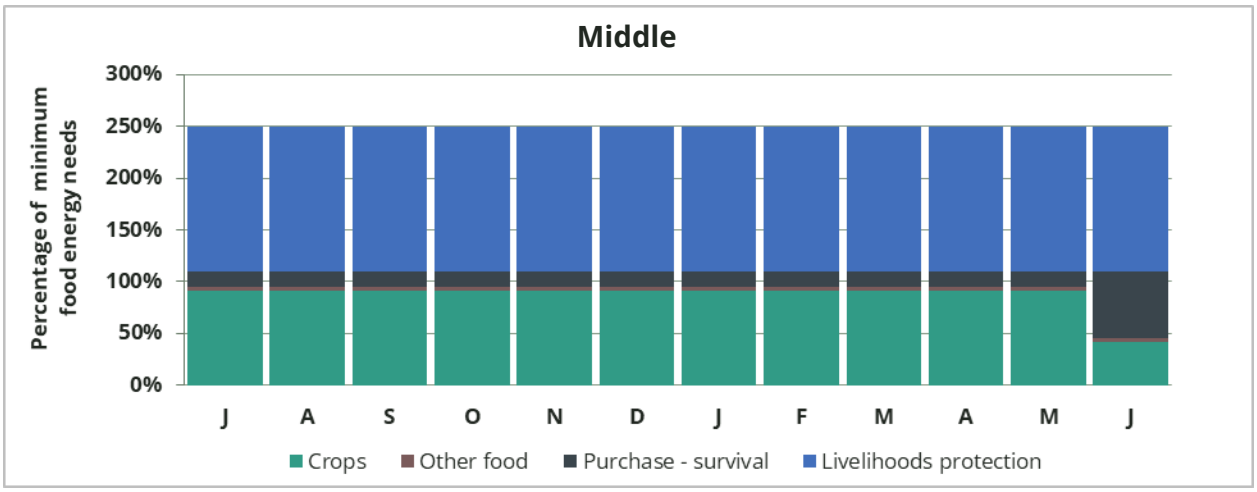
The graphs in Figure 8 present monthly food and cash access calendars for the four wealth groups.

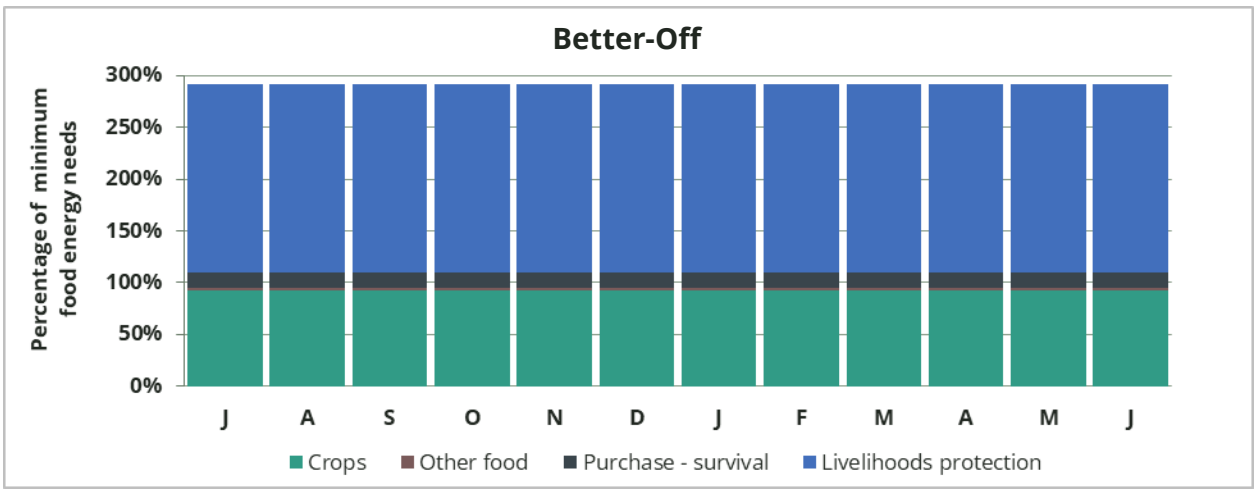
Households in all wealth groups met their minimum survival and livelihoods protection thresholds year-round in the reference year, with a peak reliance on food purchases from April to June, particularly for very poor households. The Season B harvest starts in July, and the Season A harvest starts in November. Very poor and poor households obtained some food from payment in-kind for casual agricultural labor (in teal). The dark blue "livelihoods protection" sections of the bars increase as a proportion of the total with wealth because wealthier households can afford to spend more on productive inputs, health, and education.

Figure 8. Seasonal Food and Cash Access Calendars per Wealth Group




Poor
Percentage of minimum food energy needs
300%
250%
200%
150%
100%
50%
0%
J A S O N D J F M A M J
Crops
Payment in kind (agriculture)
Other food
Purchase - survival
Livelihoods protection


Middle
Percentage of minimum food energy needs
300%
250%
200%
150%
100%
50%
0%
J A S O N D J F M A M J
Crops
Other food
Purchase - survival
Livelihoods protection


Better-Off
Percentage of minimum food energy needs
300%
250%
200%
150%
100%
50%
0%
J A S O N D J F M A M J
Crops
Other food
Purchase - survival
Livelihoods protection

Poor Female-Headed Households

Female-headed households exist in very poor, poor, and middle wealth groups, as the wealth breakdown in Figure 3 shows. The women who head these households are widows, left by their husbands, or single women living alone with their children. During fieldwork, data collectors conducted in-depth interviews with female-headed households from the poor wealth group. This wealth group is like male-headed households in the same wealth group in terms of the constraints it faces and the characteristics it exhibits. However, female-headed households from the poor wealth group are further disadvantaged by a lack of productive intra-household labor and, sometimes, constraints on types of asset ownership, productive work, or income-generating activities. These constraints include insufficient financial resources, lack of able-bodied farm workers, insufficient means to invest in acquiring and using productive assets, and lack of time to devote to farming, self-employment, and labor.

Figure 9 shows that poor female-headed households and poor male-headed households shared a similar pattern of food access. Poor male-headed households obtained 5-10% more food from their own crops than poor female-headed households, and the latter made up for this through slightly increased cereal purchases, payment in-kind, fishing, and wild food collection. A combination of family members generated most production in poor male-headed households, with all members of the household engaging in crop production. In poor female-headed households, women generate most of the production, with children engaging in fishing and wild food collection.

Figure 9. Sources of Food: Poor Households vs Poor Female-Headed Households

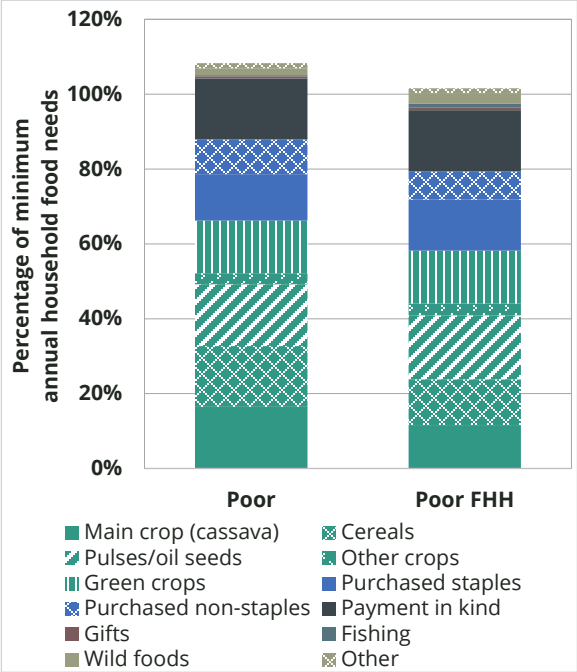


Figure 10. Sources of Cash: Poor Households vs Poor Female-Headed Households

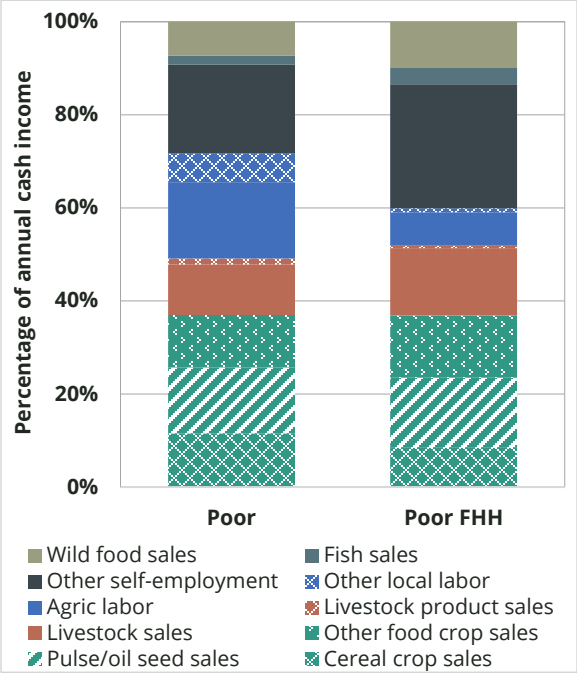


Figure 10 shows that poor female-headed households had options for obtaining cash income similar to those of poor male-headed households: crop sales, livestock, livestock product (meat) sales, casual labor (agricultural and construction), self-employment, and fish and wild food sales. Poor female-headed households' annual cash income per capita was similar to that of poor male-headed households. However, they obtained more income from self-employment and less from paid casual labor than poor male-headed households.

Response Strategies

In response to hazards and years of bad production, households attempt to meet their minimum food needs and cash requirements through several strategies. Responses implemented tend to vary across wealth groups, although some similarities exist. Below are some common strategies employed by households.

Households from all wealth groups try to reduce expenditure on non-essential or more expensive items first, such as cutting down on festival costs or not buying clothes or utensils. Households consume mainly cassava, which is the cheapest staple.

Very Poor and Poor Households

Very poor and poor households try to increase cash income by intensifying daily casual labor activities to earn more cash. However, as more people flood the labor market in bad years, this option quickly loses value because wage rates drop, and jobs are harder to find. Poorer households also intensify self-employment activities in bad years, including local brew sales, local soapmaking and selling, handicrafts, palm oil sales, petty trade, and fish and wild food sales. Poorer households also increase wild food collection and fishing activities. They try to purchase more food, especially cassava, to make up for decreases in crop production.

Middle and Better-Off Households

Middle and better-off households sell additional livestock to cover basic food and non-food expenses in bad years. They also increase self-employment activities, including motorbike/bicycle transport business, local brew sales, local soapmaking and selling, palm oil sales, commerce/small businesses, and fishing and wild food sales. They also purchase more food to make up for decreases in crop production.

Key Parameters for Monitoring

The key parameters in Table 5 are food and income sources that substantially contribute to the household economy in the *Northwestern Plateau: Groundnuts, Staple Crops, and Tree Crops Livelihood Zone*. These should be monitored to indicate potential losses or gains to local household economies through ongoing monitoring systems or periodic assessments.

Table 5. Key Parameters for Monitoring

Item	Key Parameter – Quantity	Key Parameter – Price
Crop production	• Cassava Season A and B – quantity produced • Maize Season A and B – quantity produced • Groundnuts Season A and B – quantity produced • Cowpeas – quantity produced • Squash – quantity produced • Plantains – quantity produced	• Cassava Season A and B – producer price • Maize Season A and B – producer price • Groundnuts Season A and B – producer price • Cowpeas – producer price • Squash – producer price • Plantains – producer price
Livestock production	• Pigs – herd size • Cattle – herd size • Goats – herd size	• Pigs – producer price • Cattle – producer price • Goats – producer price
Other food and cash income	• Payment in-kind – amount received • Fish – quantity • Wild foods – quantity • Harvest labor – number of days worked • Construction labor – number of days worked • Palm oil sales – quantity • Self-employment (handicrafts, local brew, transport) – demand • Petty trade – demand	• Wild foods – producer price • Harvest labor – wage rates • Construction labor – wage rates • Palm oil sales – producer price • Self-employment – producer price • Petty trade – daily earnings
Expenditure		• Maize – consumer price • Cassava – consumer price • Rice – consumer price • Beans – consumer price • Cowpeas – consumer price • Sugar – consumer price • Cooking oil – consumer price • Groundnuts – consumer price • Plantains – consumer price • Sweet potatoes – consumer price • Fresh fish – consumer price • Dried fish – consumer price

CD17 Livelihood Zone

Reference Year: July 2022–June 2023

Bumba Rice and Tubers Livelihood Zone

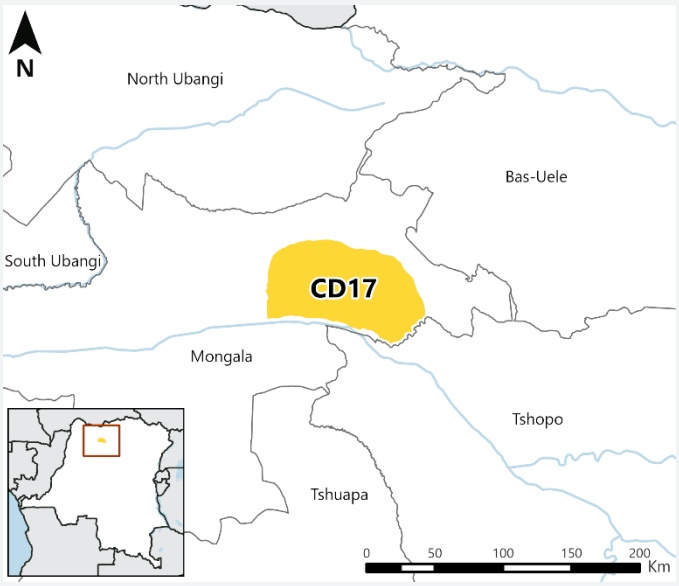


Figure 1. CD17 Livelihood Zone Map

Summary: The *Bumba Rice and Tubers Livelihood Zone* (CD17) is in Mongala Province and covers the rice-producing areas surrounding Bumba town, north of the Congo River. The tropical equatorial climate is drier than the surrounding provinces and allows for two distinct agricultural seasons. This high-productivity zone normally produces a food surplus, especially for rice and yams. However, poor market access limits the zone's agricultural potential. Crop production and sales are the main livelihood strategies that support the food and cash requirements of local households. Households in all wealth groups grow and sell rice, maize, cassava, yams, groundnuts, oil palm, plantains, and bananas. Better-off households also grow coffee. Agricultural production provides paid labor opportunities for the very poor and poor wealth groups. Livestock provide a complementary source of income, but only better-off households own cattle and pigs. All wealth groups consume and sell natural resources (e.g., firewood, various wild foods, and fish).

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Zone Description

The *Bumba Rice and Tubers Livelihood Zone* (CD17)[1] is the smallest livelihood zone in Mongala Province. It covers the rice-producing areas surrounding Bumba town, north of the Congo River, in the Bumba territory of Mongala Province. This zone largely depends on rainfed rice production. However, areas of irrigated rice production occur in and around Bumba town, along the riverbanks. The flood-recession rice production system differs significantly and is not used in this livelihood zone.

The tropical equatorial climate is drier than the surrounding provinces and allows for two distinct agricultural seasons (Seasons A and B). Temperatures are relatively moderate, ranging from 28°C to 38°C. In 2023, the zone received 2,242 millimeters of rain.[2]

Hills, plains, and riverine areas along the Congo, Molua, and Mongala Rivers dominate the zone's topography. The vegetation mainly comprises equatorial forest, savannah grassland, marshes, and agricultural land. Soils in this zone are primarily sandy clays, and the agricultural potential is high thanks to high soil fertility and rainfall. The zone is a rice and tuber surplus-producing area. However, market access for agricultural produce remains a barrier to the expansion of this sector. In fact, rice production is currently falling.

Cultivation is entirely rainfed. Households intercrop rice, cassava, maize, and plantains for consumption and sale. They grow yams, groundnuts, and pumpkins as single crops reserved especially for sale. The June/July harvests (Season B) are larger than the harvests in December/January (Season A). Households typically grow yams and pumpkins over a single season and harvest at the end of the year. Coffee production also occurs in the zone, but it is not a major cash crop. All households in the zone carry out agricultural tasks by hand, without animal or motorized traction. Better-off households hire local laborers to help cultivate and harvest crops.

This zone integrates livestock rearing into its mixed farming system, but livestock rearing does not significantly contribute to the overall economy. Most households across wealth groups own goats, sheep, pigs, and poultry, but middle and better-off households also own cattle. Large and small livestock browse freely, and other animals feed on grass and food and crop residues. Households obtain water for livestock freely throughout the year from rivers and ponds. Households in this zone rarely milk their animals, but they sometimes sell or slaughter livestock for consumption. Animal sales peak in September, with an increase in household expenditure linked to the start of the school year, and then again in December because of Christmas and other end-of-year celebrations.

[1] Fieldwork for the current profile was undertaken from March 21 to April 15, 2024. The information presented in this profile refers to the reference year, which was the consumption year that covered the period July 2022 to June 2023. Provided there are no fundamental and rapid shifts in the economy, the information in this profile is expected to remain valid for approximately five to 10 years (i.e., until 2029-2034). All prices referred to in the document are for the reference year.
[2] Direction de l'Agriculture du Territoire, Bumba, 2024.

Households with less land and livestock engage in agricultural labor throughout the year. Men, women, and children from poorer households work in the fields of middle and better-off households. Non-agricultural labor (e.g., in the local construction sector) is also common among poorer households. These households also supplement their incomes with small trade and craft sales, including local soap.

Natural resources found in this zone include firewood, timber, game, fish, and wild foods, which are all used by most households in the zone, regardless of wealth level. Forest cover provides access to wild foods (e.g., snails, fungi, caterpillars, wild leaves) and wild animals (e.g., monkeys, antelopes, gazelles, wild boars, tortoises, hedgehogs), which are sold for consumption. The production of palm oil, traditional liquor (made from maize, cassava, or sugar cane), and small-scale fishing in ponds and swamps provide additional sources of income.

With an average population density of 126 people per square kilometer, CD17 is more densely populated than surrounding areas in Mongala Province; the total population of the zone is 760,793.[3]

The most common hazard in rice-producing areas like the *Bumba Rice and Tubers Livelihood Zone* is colonies of birds that annually feed on seeds during the rice-sowing season (peaking in April and September), forcing farmers to guard fields almost full-time to minimize loss. Bacterial and fungal diseases also affect rice periodically, especially when land clearing and preparation are inadequate. Flooding can also occur when rainfall levels peak in November and December (usually every two years), while uncontrolled bushfires are most common during the land preparation phases during the Dry Seasons. Fall armyworm is a pest that typically affects maize, as does crop decay when humidity levels are too high for too long, especially for tubers. Livestock diseases include swine erysipelas, *peste des petits ruminants*, respiratory diseases, and avian flu.

Services are often lacking in this zone, and the living conditions reflect the relative poverty of much of the population. Living in mud-walled houses with thatched or tin roofs, poorer households use pit latrines for home sanitation facilities, and their water sources are public wells, boreholes, and rivers. Lighting is primarily by flashlight, and households in the poor wealth group use firewood for cooking. Local health clinics, dispensaries, and traditional healers provide healthcare. In terms of educational attainment, children in this zone typically only receive primary education. The living conditions of the middle and better-off wealth groups are similar, with the only differences being access to solar panels for electricity and the ability to purchase charcoal for cooking. Children in the middle and better-off wealth groups typically receive secondary and tertiary education. This zone has limited mobile phone service and use, and poorer households rarely own mobile phones. In contrast, better-off households have at least one mobile phone for either voice and/or internet use. Financial services are scarce, and access to formal credit is difficult. Some households participate in local savings and loans groups (*tontines*), and access to loans from cooperatives is possible in some communities.

[3] FEWS NET Data Explorer, population data (2023), accessed 2025, https://fdw.fews.net/data-explorer/.

As reported by the research team, some local and international NGOs were present in the zone during the time of analysis, such as Enable RDC, HPP-Congo (Humana People to People Congo), SIFORKO, OVDA, and the Programme d'appui à la réhabilitation et à la relance du secteur agricole (PARRSA, implemented by Caritas through local dioceses).

Markets

Bumba town is on the banks of the Congo River and is an intermediary fluvial port between Kisangani and Kinshasa. Local produce and imported, manufactured goods flow in both directions, especially between June and December when the river is fully navigable. Between January and May, river traffic slows down considerably. The zone's main marketing center is Bumba market, which is supplemented by markets in Bokota Imbiri, Mombesa, Yandongi, and Agene, as well as the river trade networks from Kisangani and Kinshasa.

Overall, market access in this zone is challenging, especially during the Rainy Season, because of the poor state of the local roads, which are mainly unpaved. Two national routes serve the zone: Route Nationale (RN) 6, which crosses Bumba Territory from east to west and links it to the Central African Republic, and the RN 24, which links Gemena, Gbadolite, and Yakoma to the north of CD17. Nevertheless, limited access routes from the zone's villages to Bumba town and the lack of substantial transport capabilities push farm-gate prices down.

The Vicicongo railway line between Bumba and Mungbere (via Aketi, Buta, Likati, and Isiro and with a branch line to Bondo and Titule) has not operated for many decades. A Belgian company built the line between the 1920s and 1930s as a portage railway to transport goods between river ports on unnavigable sections of the river.

In this livelihood zone, households market crops using three main marketing routes: 1) toward the northeast from Bumba to Lisala and Gbadolite on the border with Central African Republic; 2) toward the southeast from Bumba to Lisala, and to Mbandaka and Kinshasa/Brazaville; and 3) toward the west from Bumba to Mindonga, Buta, and/or Kisangani or Butembo. Crop sales peak at harvest time: cassava in November and December, maize and groundnuts between November and March, and rice in July and December. In the past, this livelihood zone was the rice granary of the country. National companies like SCIBE, Neguira, Griza, and SOCAM purchased large quantities of "Bumba rice" or *riz de montagne* (mountain rice) to supply the Kinshasa market and national breweries, Bralima and Bracongo, to make beer. Today, local rice from this zone must also compete with cheaper imported rice varieties and is often purchased by brewing companies instead of consumers.[4]

[4] "Pourquoi Le Riz Bumba Se Fait Rare À Kinshasa," *Radio Okapi*, August 7, 2015, https://www.radiookapi.net/economie/2011/08/02/pourquoi-le-riz-bumba-se-fait-rare-a-kinshasa.

Although households can sell livestock throughout the year, most sales occur during three periods: the agricultural season, when money for inputs is needed; at the start of the school year; and during festival months, when demand for meat is higher. Households sell livestock locally in Bumba town, where it is transported to Mbandaka and then on to Kinshasa/Brazzaville and Kisangani.

The labor market in this zone is primarily local, and since the zone is far from the country's major cities, most people in search of labor remain within their rural localities or travel to Bumba town. Seasonal labor migration is not a typical feature of this livelihood zone.

Timeline and Reference Year

The baseline assessment refers to a specific period called the reference year. In CD17, the reference year covers the consumption period from July 2022 to June 2023. During community leader interviews, informants were asked to score the last five years in terms of seasonal performance with "1" indicating a poor season and "5" indicating an excellent season. Table 1 summarizes the responses of the community leaders. The last five years (and 10 agricultural seasons) have been average to above average, with the July 2023 harvest as the best season. Although structural poverty and seasonal food insecurity during the main Lean Season are a feature of this zone and households have to contend with minor annual hazards, livelihoods in this zone are stable.

Table 1. Timeline

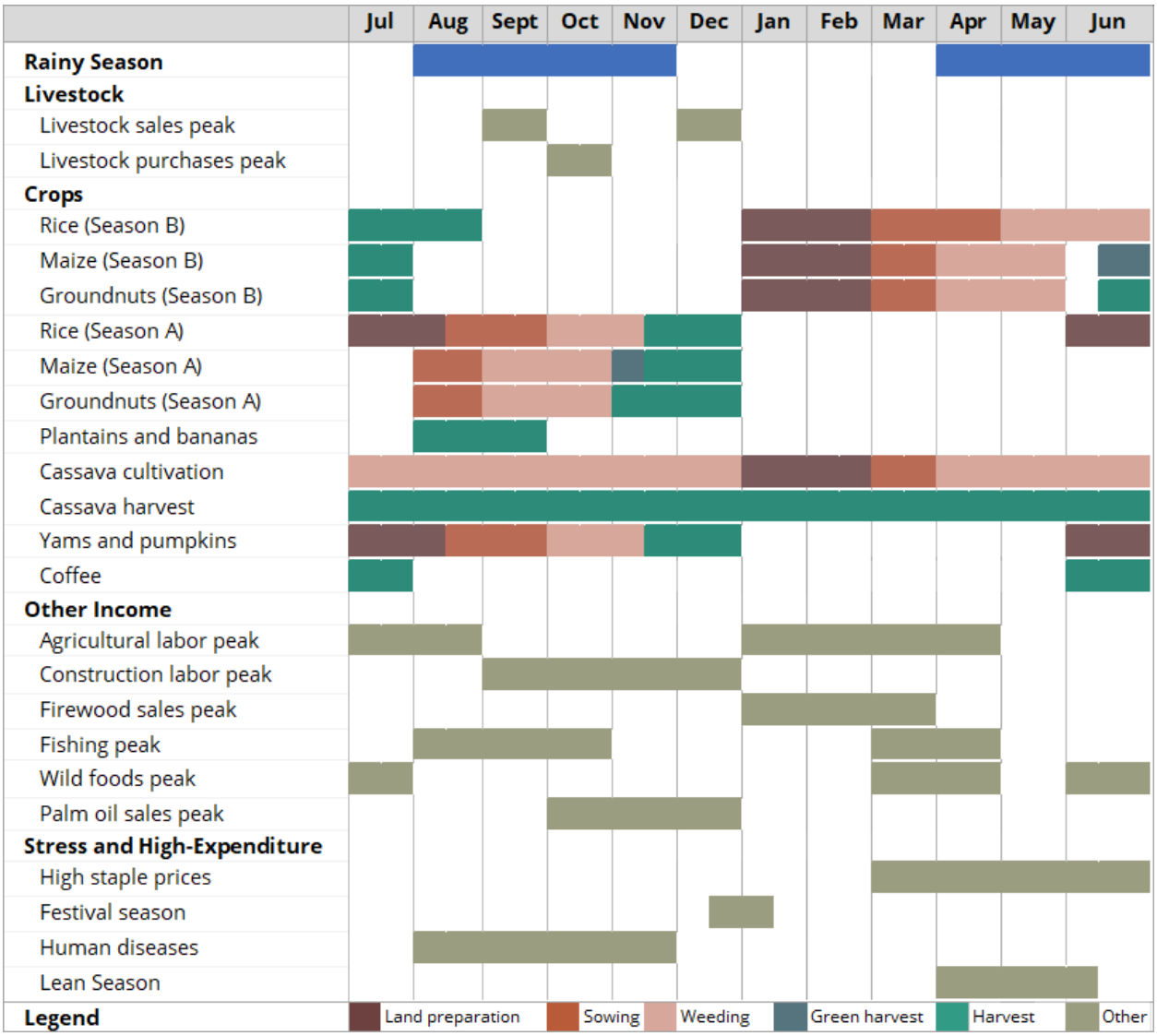
Production Year/Season	Score	Critical Events
2023-2024/Season A	3	No notable events
2023/Season B	4	No notable events
2022-2023/Season A	3-4	No notable events
2022/Season B	2-3	No notable events
2021-2022/Season A	3-4	No notable events
2021/Season B	3	No notable events
2020-2021/Season A	3-4	No notable events
2020/Season B	2-3	No notable events
2019-2020/Season A	3-4	No notable events
2019/Season B	3-4	No notable events

5 = an excellent season for household food security (e.g., due to good rains, good prices, good crop yields)
4 = a good season or above average season for household food security
3 = an average season for household food security
2 = a below average season for household food security
1 = a poor season for household food security (e.g., due to drought, flooding, livestock disease, pest attack)

Seasonal Calendar for Reference Year

The seasonal calendar (see Figure 2) illustrates the main economic activities and events of the reference year. It traces the rainy months, agricultural activities, non-agricultural activities, food purchasing periods, etc.

Figure 2. Seasonal Calendar



There are no major differences between this zone's seasonal calendar and that of the larger neighboring *Northwestern Plateau: Groundnuts, Staple Crops, and Tree Crops Livelihood Zone* (CD16) — which characterizes the northwest of the country — except for the specialization in rice production, the growing of plantains in humid plots close to the river, and the addition of yams and pumpkins. Farming is somewhat more intensive in this rice-producing zone, and as a result, agriculture has a prominent role in local livelihoods. Specifically, more time is dedicated to crop production, on either

family farms or working for others, and to the search for clients, which leaves less time (and necessity) for other activities.

Rice, maize, and groundnuts are grown over two seasons, while yams and pumpkins are only harvested once, at the end of the year. Plantains and cassava are harvested year-round. Coffee is harvested in June and July. Coffee plots are small, and the harvest is generally carried out by family labor with local laborers. The main agricultural season, Season B, starts in January/February. First-season sowing takes place in March before the start of the April to June rains. Season B is a busy time for households who tend their own plots and work for others. Labor payments are usually in cash, but once the harvest starts in late June/July, households receive food payments as well. During harvest seasons, households also see an increase in gifts of food from family and neighbors. Labor demand continues for rice threshing and winnowing well into August/September, when the sowing of the second season crops and the planting of yams starts.

Farm labor demands decrease during the months of September and November/December, and households turn to other activities, like working in the local construction sector, making palm oil, or fishing, although all three activities are available year-round. Petty trade and craft sales also continue throughout the year.

For livestock owners, most sales of mature livestock peak in September with the start of the school year and in December when demand for meat for the festive period peaks. Households from all wealth groups may also sell animals when cash is needed to purchase farm inputs. Depending on the outcome of the main harvest in December and the profits derived from crop sales, some households will invest part of their earnings in buying new animals.

Wild food consumption and sales increase during the Lean Season between April and June and at the key harvest periods for each species. For example, wild mushrooms are abundant during the Rainy Season months and snails and caterpillars between June and August.

The Lean Season heightens progressively from April to June. It is characterized by low or depleted food stocks, especially for poorer households — except for cassava, which is generally available year-round. Staple food prices are also higher in the Lean Season, which affects the purchasing power of poorer households the most. Some households may also deal with depleted food stocks before the second harvest in December.

Human diseases, just like livestock diseases, can occur at any time of the year. However, diseases like malaria and respiratory diseases peak during the long Rainy Season from August to November.

Table 2 shows the typical division of labor in the *Bumba Rice and Tubers Livelihood Zone* (CD17), listing the activities that are not typically shared by men and women. Men and women share crop production activities, but men typically lead the land preparation tasks and women the sowing/planting, weeding and cereal threshing, and winnowing. Men and women take part in agricultural labor and sell crops, but harvesting labor — which is typically paid in-kind — is most

often carried out by women. Men are largely responsible for livestock production activities. Women do all domestic work and childcare. Men and women also carry out petty trade and self-employment, but it is typically the women who produce palm oil and soap, and the men who provide transport services (if the household has access to a motorbike).

Most income-generating tasks are carried out by men and women together, but some are led by men alone and some by women alone. Among the tasks carried out by men alone are livestock sales, construction, motorcycle taxi services, brewing beer, and making handicrafts for sale. Women alone, on the other hand, perform the following tasks: harvesting crops, wild foods sales, chicken sales, and palm oil and soap production and sales. Fishing is generally a women's activity when it takes place in swamps but a male activity in rivers.

Table 2. Typical Division of Labor

Shared Tasks	Women's Tasks	Men's Tasks
• Crop planting, harvesting, threshing, and sales • Petty trade • Palm oil preparation • Wild foods collection • Paid agricultural labor • Charcoal preparation and sale • Fishing	• Crop weeding, threshing/winnowing • Poultry rearing and sales • Wild food sales • Palm oil and soap production (for sale) • Household chores and childcare	• Land preparation • Livestock rearing, slaughter, and sales • Construction labor • Motorcycle transport • Brewing • Handicrafts

Wealth Breakdown and Productive Assets

Table 3 summarizes the types and numbers of productive assets that typical households within each wealth group own and/or manage. Asset holdings are shown in a range that reflects the diversity of households within a wealth group. Figure 3 shows the percentage of households within the zone that fall in each wealth group. The communities themselves managed the socioeconomic categorization of households in the zone.

Land ownership is the most important wealth determinant in this zone. Cultivation is common in the livelihood zone and is practiced by all wealth groups. Crops are also the main source of income and main source of food for all wealth groups. There is a progressive increase in the area cultivated with increasing wealth. Overall, better-off households cultivate six times the area cultivated by very poor households. Households do not rent land within the livelihood zone. Households cultivate most of the land they own each season but are limited in expanding the area cultivated due to the lack of animal or mechanical traction. The middle and better-off wealth groups produce a surplus of crops for sale. The very poor and poor wealth groups grow enough food to cover their minimum

consumption needs but sell significant amounts post-harvest and purchase more later in the year. The middle and better-off wealth groups also cultivate a cash crop, coffee.

Table 3. Wealth Breakdown

Household Size and Productive Assets	Very Poor	Poor	Middle	Better-Off	Poor Female-Headed
Household size	5-7	7-9	10-12	13-15	5-7
Land owned (hectares [ha])	0.3-0.5	0.3-1	1-2	2-3	0.3-0.5
Land cultivated (ha)	0.3-0.5	0.3-1	1-2	2-3	0.3-0.5
Pigs	0	0	5-10	5-15	0
Cattle	0	0	0-3	0-12	0
Goats	0	1-2	5-10	5-15	0-2
Sheep	0	0	2-10	2-14	0
Poultry	2-6	3-12	10-25	15-25	3-8
Motorcycles	0	0	0-1	0-1	0
Bicycles	0	0	1	1-2	0
Shelling machines	0	0	1	1-2	0
Mobile phones	0	0-1	0-1	0-2	0
Solar panels	0	0	0-1	0-1	0

Availability of household labor is the second most important determinant of wealth in CD17 and is measured by the amount of income the average household generates from labor-based activities outside their own farms. The middle and better-off have larger household sizes than the very poor and poor and therefore more labor for agricultural production and for caring for livestock. Middle and better-off households hire additional laborers from the very poor and poor wealth groups for both cultivation and harvesting labor. This work outside of their own households limits the amount of labor these poorer households can devote to their own crop and livestock production.

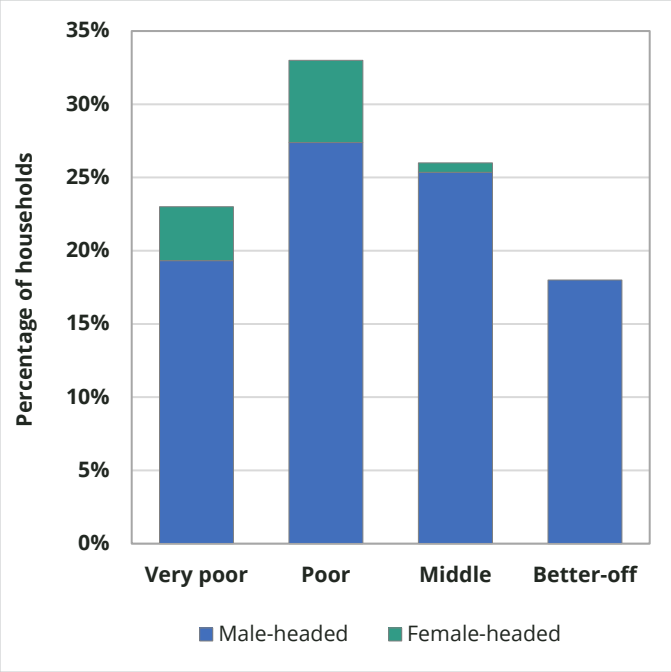
Livestock ownership is the third most important determinant of wealth in the zone. The common important types of animals are cattle, pigs, small stock (e.g., sheep and goats), and poultry. Cattle and pigs are generally only kept by middle and better-off households. Overall, better-off households own one to two times the number of animals owned by middle households. Small stock animals are owned by the poor, middle, and better-off wealth groups. For these groups, there is a progressive

increase in number of animals owned with increasing wealth. Households in all wealth groups own poultry and, again, the numbers increase with wealth. The poor, middle, and better-off wealth groups sell livestock; the very poor only sell poultry.

Middle and better-off households have more savings/capital than other wealth groups, which they use to engage in other small businesses. Among the assets used for small businesses are motorcycles and bicycles, owned by the middle and better-off groups. They use these to offer transport services for a fee.

Figure 3. Wealth Breakdown

Note: All results are the mid-point of a range



Female-headed households make up a portion of all wealth groups except the better-off, with the highest percentage found among the poor (see Figure 3). In terms of land, poor female-headed households have an asset profile that is in between the very poor and poor; the same is true of their livestock asset profile. Poor female-headed households cultivate an average of 0.5 ha, compared to an average of 0.6 hectare for poor households. Neither they, nor poor male-headed households, own any cattle. Poor female-headed households own an average of one small stock, compared to an average of two for poor male-headed households. Household size increases considerably with wealth. The very poor and poor female-headed households have a household size of 5-7, poor households 7-9, middle households 10-12, and better-off approximately 13-15. The wealthier the household, the larger it is, with more land, livestock, labor power, and other productive assets.

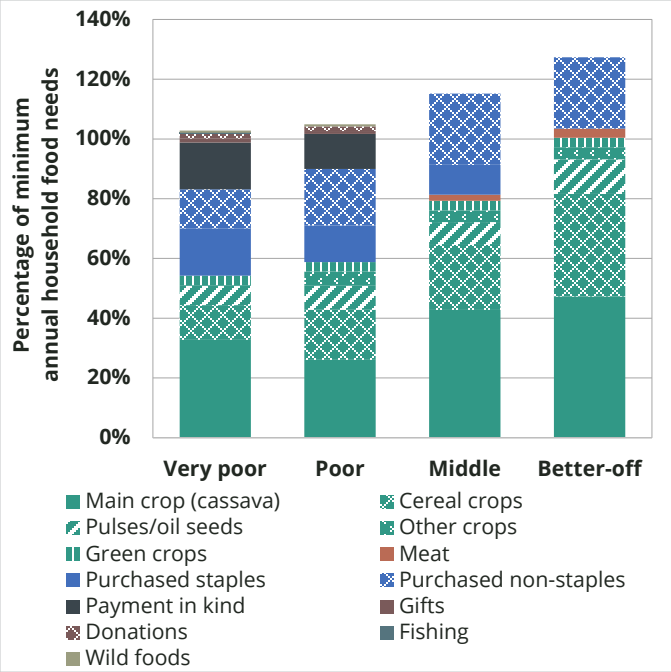
The proportion of households in the community is as follows: very poor households range between 10-35% of households; poor households are the largest group, between 30-40%; middle households between 25-30%; and better-off households between 15-25%.

Sources of Food

Figure 4 presents the sources of food for households in different wealth groups in the livelihood zone for the period of July 2022 to June 2023. July represents the start of the consumption year because it is when Season B crops are ready for harvest thereby marking the end of the annual Lean

Season. Food sources are presented as a percentage of the annual kilocalorie (kcal) needs of the household, based on the internationally accepted 2,100 kcal per person per day.

Figure 4. Sources of Food



Beginning with total food consumption, there is a progressive increase in the amount of food consumed with increasing wealth. Overall, the very poor consumed 100-105% of minimum annual food needs and the better-off 125-130%.
There are two main sources of food in this zone and four minor sources. The main sources are households' own crops and market purchases. The four minor sources are payment in-kind, households' own meat, gifts, and wild foods.

Crop production is the most important source of food in the livelihood zone. All wealth groups consume some of their own harvests. The middle and better-off wealth groups grow enough crops to cover their entire annual minimum consumption needs. In comparison, the very poor consumed 50-60% of minimum annual food needs from their own crops. The three most important crops grown for own consumption are cassava (consumed fresh and dried), rice, and groundnuts. For all crops grown over the two seasons, Season B harvests are larger than the harvest in Season A.

Purchased food is the second most important source of food in CD17. Purchased foods are divided into staple and non-staple categories. The very poor, poor, and middle wealth groups purchase staple foods. Better-off households produce sufficient staples and do not need to purchase staples at any point during the year. The most important staple foods are maize flour, rice, and cassava flour. Cassava flour is considerably less expensive (CDF 600 per kilogram [kg] compared to CDF 1,000 to 1,200 per kg for maize flour and rice), and poorer households consume more of it. Staple food purchases represented roughly 15% of minimum annual food needs for very poor households and roughly 10% for middle households. In contrast, all wealth groups purchase non-staple foods. The most important are vegetable oil, sugar, bananas, tubers, and cowpeas. Of these foods, the very poor purchased 10-15% of minimum annual food needs and the better-off roughly 25%.

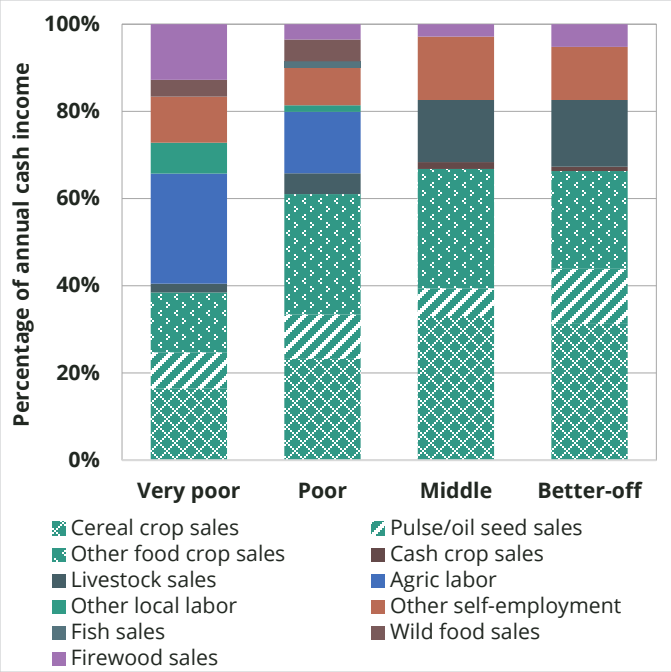
Wild foods are a minor source of food in the zone. The very poor wealth group consumed less than 5% of minimum annual food needs from wild foods, but they are an important addition to the local diet throughout the year. The most common wild foods include snails, caterpillars, mushrooms, and various insects.

Payment in-kind is a minor source of food in the livelihood zone. It is most often provided in exchange for harvest labor when food stocks are high. Overall, the very poor received roughly 15% of minimum annual food needs, and the poor 10-15%. Gifts are also a minor source of food in the livelihood zone. Overall, very poor households received 1-5% of minimum annual food needs and poor households less than 5%. There was no food aid or school feeding in the livelihood zone in the reference year.

Sources of Cash Income

Agriculture is the main livelihood activity in the *Bumba Rice and Tubers Livelihood Zone*. However, the primary means of earning cash income in this zone varies by wealth group (see Figure 5).

Figure 5. Sources of Cash Income as a Percentage of Annual Cash Income

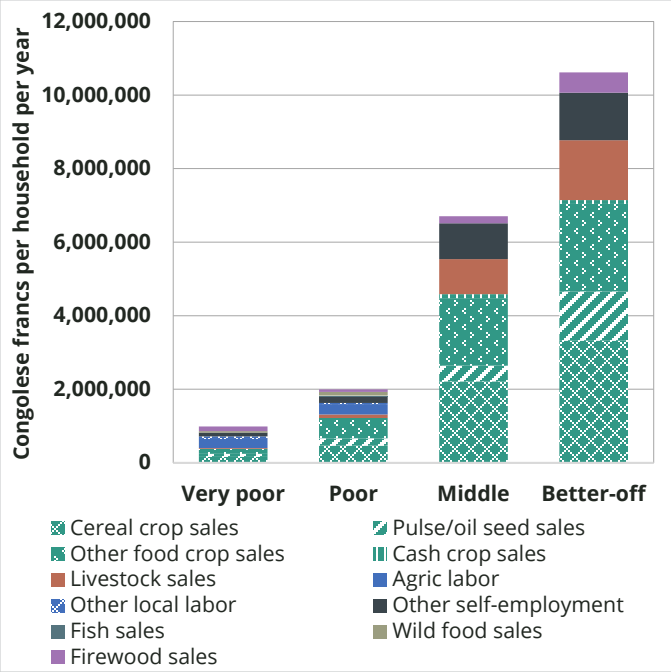


In terms of cash income, the wealth groups can be split into two. The very poor and poor have a similar income profile, with crop sales, wage labor, and self-employment as the top three sources of cash. The middle and better-off also have a similar income profile, with crop sales, livestock sales, and self-employment as the top three sources of cash.

Crop sales are the most important source of cash for all four wealth groups. They generate roughly 40% of total cash income for the very poor and 60-70% for the other three wealth groups. The main food crops sold are rice, yams, maize and cassava. The main cash crop sold is coffee (all other crops are partly consumed and sold), however, it generates 1-2% of annual income for middle and better-off households who cultivate it.

Wage labor is the second most important source of cash for very poor and poor households. It generates 30-35% of total cash income for the very poor and roughly 15% for the poor. The main types of wage labor are cultivation, harvesting, and construction. All labor is performed locally within the livelihood zone. Livestock sales are the second most important source of cash for middle and better-off households, although it is an activity carried out by all wealth groups. It generates less than 5% of total cash income for the very poor, roughly 10% for the poor, and 15-20% for the middle and better-off. The most common types of animals sold are poultry, then pigs and small stock (i.e., sheep and goats). Cattle are seldom sold (once every 2-4 years).

Figure 6. Total Annual Cash Income



Self-employment is the third most important source of income for all four wealth groups. It generates 25-30% of total cash income for the very poor, about 15% for the poor, and between 5-10% for the middle and the better-off. The main activities included in this category are firewood/charcoal sales, palm oil production and sale, and the sale of wild foods and handicrafts.

Households have access to small amounts of informal credit (from local store owners, family members, or friends). However, these loans are typically reimbursed at harvest time and do not incur any costs to the borrower.

There is a large difference in wealth between poorer and wealthier households. In the July 2022 to June 2023 reference year, better-off households earned 10-11 times the cash income of very poor households. This gap is illustrated in Figure 6 and Table 4. Differences between wealth groups in per capita cash income were large, but smaller than for total income. Overall, the better-off earned close to four times the annual per capita cash income of the very poor.

Table 4. Income Summary Table (Congolese Francs or CDF)

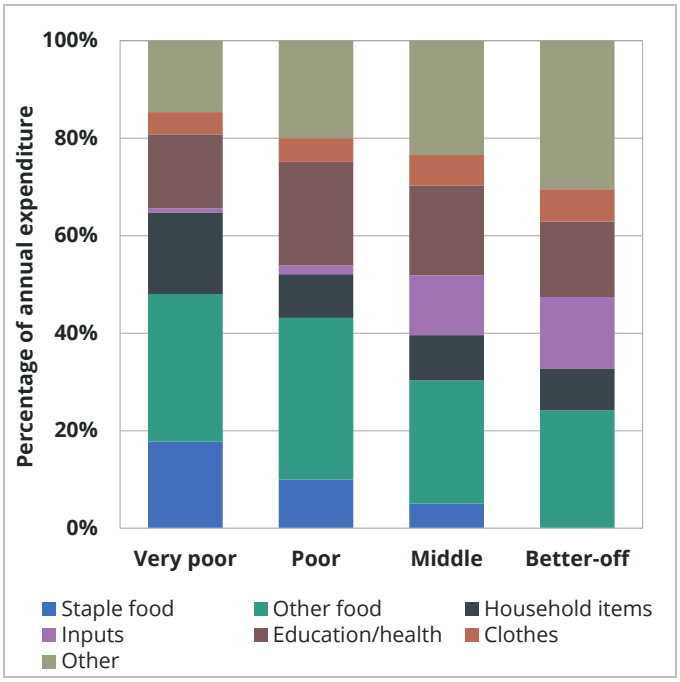
Wealth Group	Very Poor	Poor	Middle	Better-Off
Annual income per household[5]	700,000–1,200,000	1,200,000–3,000,000	5,000,000–8,000,000	8,000,000–12,000,000

Expenditure Patterns

Figure 7 presents expenditure patterns for the reference year July 2022 to June 2023. While absolute expenditure increases with wealth was in line with total cash income, this graph's expenditure breakdown by percentage shows the *relative* amount of income spent on different categories. Households in the zone needed to cover a range of essential expenditures over the year. These included staple foods, non-staple foods, household items (e.g., salt, soap, tea, lighting, milling/grinding services), productive inputs, social services (e.g., health and education), clothing, as well as other essential and non-essential items.

[5] The average exchange rate from July 2022 to June 2023 was 1 USD = 2,058 CDF.

Figure 7. Total Annual Cash Expenditure by Category



Non-staple foods account for the largest share of total expenditure for all households, except for the better-off. Non-staple foods account for 30-35% of total expenditure by the very poor and poor and 20-25% by the middle and better-off. In terms of cash per capita, however, expenditure by better-off households is close to two times that of the poor. The main non-staple foods purchased are sugar, bananas, and cowpeas for poorer households and sugar, fish, and meat for wealthier households.

Staple foods account for the second largest share of total expenditure for very poor households. This is an expenditure item for the very poor, poor, and middle wealth groups, as the better-off are self-sufficient in staple foods despite their larger household size. For those wealth groups that purchase, there is a progressive decrease in the share of expenditure with increasing wealth. Staple foods account for 15-20% of total expenditure by the very poor and roughly 5% by the middle. The main staple foods purchased are maize flour, rice, and cassava flour.

Household items account for the third largest share of total expenditure for very poor households. This is an expenditure item for all wealth groups. There is a progressive decrease in the share of expenditure on households items with increasing wealth. Household items account for roughly 15% of total expenditure by the very poor and 5-10% by the better-off. Put another way, expenditure by the very poor wealth group is close to two times that of the better-off, as a percentage of their total annual budget. In terms of cash per capita, on the other hand, the trend is reversed, and expenditure by the better-off is close to two times that of the very poor. In order of amount spent per year, the main items in this category include salt and household items (e.g., onions, tomatoes), soap, tea/coffee, and utensils.

Other non-essential items account for the largest share of total expenditure for better-off households. This means they have considerable surplus income after covering their essential food and non-food items and services for the year. There is a progressive increase in the share of expenditure on non-essential items with increasing wealth. Other non-essential items account for roughly 15% of total expenditure by the very poor and 25-30% by the better-off. Included in this category are transport, communication, religious and community contributions, celebrations, local beer, and other discretionary items.

Health and education is an expenditure item for all wealth groups and accounts for the third largest share of total expenditure for better-off households. It accounts for roughly 15% of total expenditure for the very poor, roughly 20% for the poor, and roughly 15% by the better-off. In terms of spending per capita, on the other hand, the trend is reversed, and expenditure by better-off households is close to two times that of poor households.

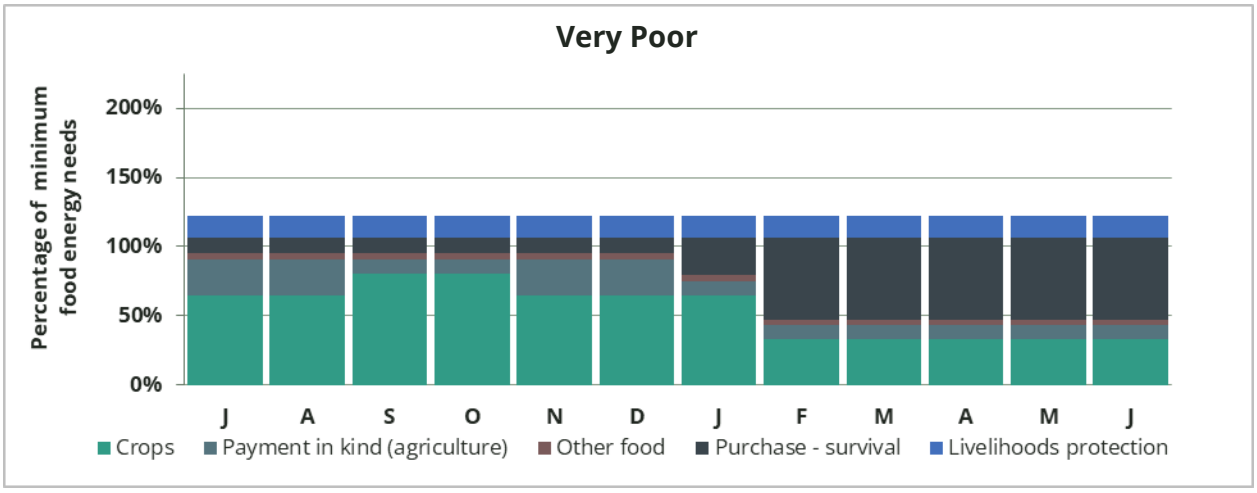
Inputs are not among the top three expenditures for any wealth group, but all households spent some money on inputs during the reference year. There is a progressive increase in share of expenditure with increasing wealth. Inputs account for less than 5% of total expenditure by poorer households and roughly 15-20% by wealthier households. For the latter, the main items in this category include agricultural labor, agricultural inputs, livestock purchase, and seeds (in order of amount spent). Very poor households only purchased agricultural tools, while poor households could also afford seeds.

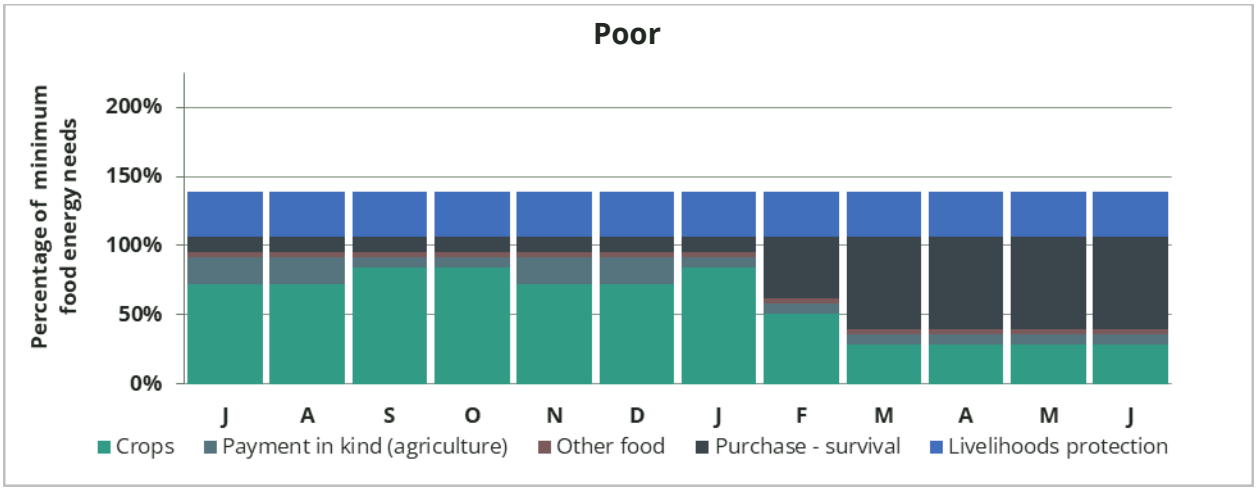
Food Access Calendars

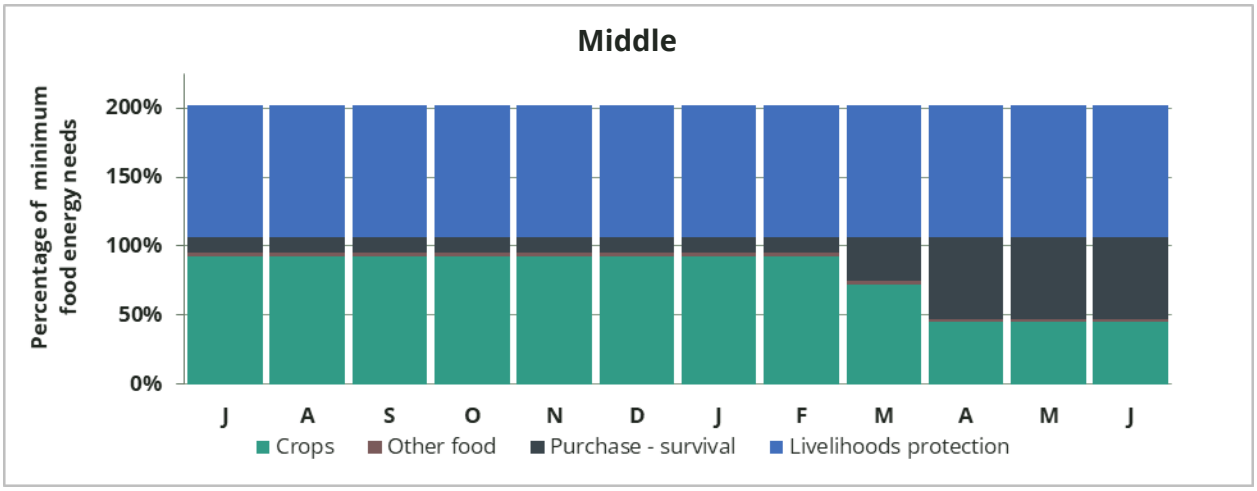
The graphs in Figure 8 present monthly food and cash access calendars for the four wealth groups.

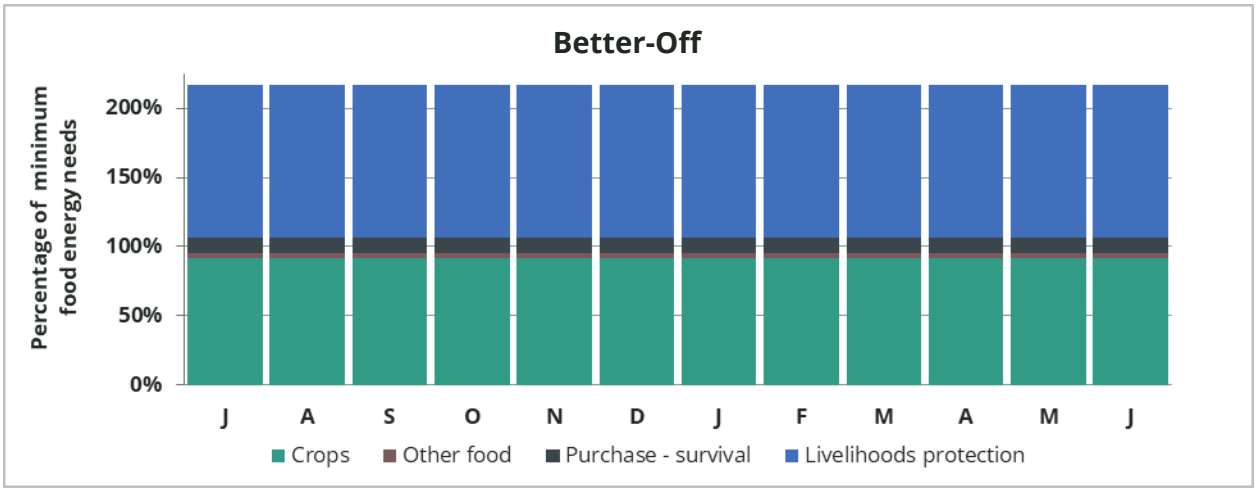
Households in all wealth groups were able to meet their minimum survival and livelihoods protection thresholds year-round in the reference year, with a peak reliance on food purchases from February to June. The Season B harvest starts in July and the Season A harvest starts in November. Very poor and poor households obtained some food from payment in-kind for casual agricultural labor (in teal). The dark blue “livelihoods protection” sections of the bars increase as a proportion of the total with wealth because wealthier households can afford to spend more on productive inputs, health, and education.

Figure 8. Seasonal Food and Cash Access Calendars per Wealth Group




Poor
Percentage of minimum food energy needs
200%
150%
100%
50%
0%
J A S O N D J F M A M J
Crops
Payment in kind (agriculture)
Other food
Purchase - survival
Livelihoods protection


Middle
Percentage of minimum food energy needs
200%
150%
100%
50%
0%
J A S O N D J F M A M J
Crops
Other food
Purchase - survival
Livelihoods protection


Better-Off
Percentage of minimum food energy needs
200%
150%
100%
50%
0%
J A S O N D J F M A M J
Crops
Other food
Purchase - survival
Livelihoods protection

Poor Female-Headed Households

Female-headed households are typically found in the very poor and poor wealth groups as shown in the wealth breakdown section in Figure 3. During fieldwork, data collectors conducted in-depth interviews with female-headed households from the poor wealth group. This is a group that faces similar constraints and characteristics as male-headed households in the same wealth group, but they are further disadvantaged by a lack of productive intra-household labor and, potentially, constraints on certain types of asset ownership, productive work, or income-generating activities.

Figure 9 shows that poor female-headed households and poor male-headed households share a similar pattern of food access. For total food consumption, both male- and female-headed households consumed roughly 105% of minimum annual food needs. The five main food sources for poor female-headed households are, in order of importance: crops, non-staple purchases, payments in-kind, staple purchases, and wild foods. Households' own crop production contributed slightly less food for poor female-headed households. In contrast, payment in-kind for harvest labor — which is predominately a women's activity — contributed slightly more food for poor female-headed households. To make up for the gap, poor female-headed households purchased slightly more non-staple foods.

Figure 9. Sources of Food: Poor Households vs Poor Female-Headed Households

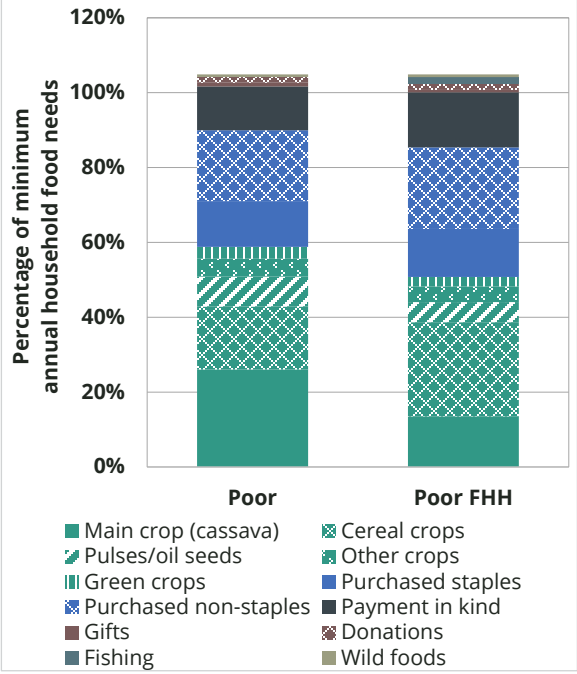
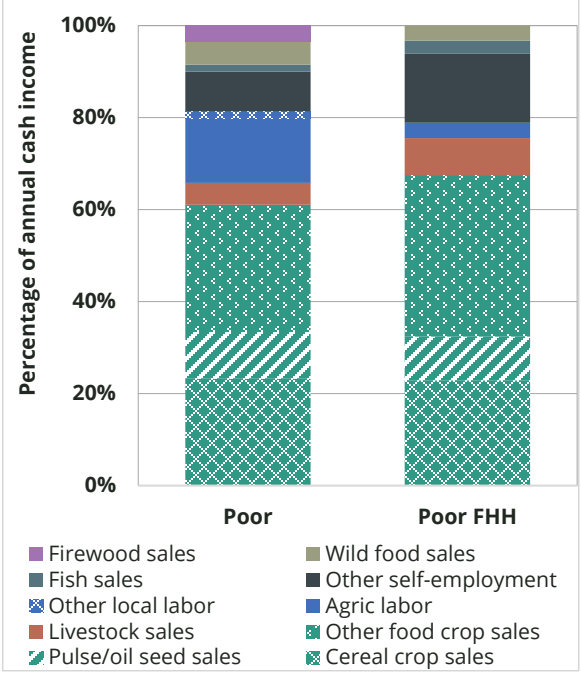


Figure 10. Sources of Cash: Poor Households vs Poor Female-Headed Households



Regarding cash income, poor female-headed households earned roughly 40% less cash income than poor male-headed households. Poor female-headed households are, however, smaller than male-headed households, so per capita cash income was roughly 20% less. The five main types of cash income for poor female-headed households, in order of importance, are: crop sales, self-

employment, livestock sales, petty trade, and wage labor (see Figure 10). Of these, wage labor and self-employment generated less cash for poor female-headed than poor male-headed households.

Because of reduced access to labor capital (there is typically only one adult laborer in the household), wage labor made up a smaller percentage of annual cash income for poor female-headed households, less than 5%, compared to 10-20% for poor male-headed households. Crop sales and petty trade made up a larger percentage of annual cash income for poor female-headed households. Poor female-headed households did not have access to either charcoal sales or construction labor, and they generated less cash from wild food sales.

Response Strategies

In response to hazards and years with bad production, households attempt to meet their minimum food needs and cash requirements through several strategies. Below are some common strategies employed by households.

All households try to reduce expenditure on non-essential or more expensive items first, buying less sugar and oil, for instance, and using that money to buy the less expensive staples like cassava flour instead, cutting down on festival costs, or eliminating clothing purchases that year.

Very Poor and Poor Households

Very poor, poor female-headed, and poor households try to increase cash income through the intensification of daily casual labor activities to earn more cash. However, in bad years, as increasing numbers of people flood the livelihood zone's labor market, this option quickly loses its value because wage rates drop, and jobs are harder to find. Poorer households also intensify self-employment activities, like the sale of firewood/charcoal, palm oil, wild foods, and fish, in bad years. Additionally, poorer households may also leave the local area in search for urban labor in Bumba town or rely on informal loans from family members and friends.

Middle and Better-Off Households

Middle and better-off households cope with hazards in similarly to poorer households by increasing income-generating activities that are commonly available to them. Additionally, because they own more animals, they can sell additional livestock. They can also increase the sale of high-value crops.

Key Parameters for Monitoring

The key parameters listed in Table 5 are food and income sources that make a substantial contribution to the household economy in the *Bumba Rice and Tubers Livelihood Zone*. These should be monitored to indicate potential losses or gains to local household economies, either through ongoing monitoring systems or through periodic assessments.

Table 5. Key Parameters for Monitoring

Item	Key Parameter – Quantity	Key Parameter – Price
Crop production	• Cassava Seasons A and B – quantity produced • Maize Seasons A and B – quantity produced • Rice Seasons A and B – quantity produced • Groundnuts Seasons A and B - quantity produced • Plantains – quantity produced • Yams – quantity produced • Coffee – quantity produced • Palm oil – quantity produced	• Cassava Seasons A and B – producer price • Maize Seasons A and B – producer price • Rice Seasons A and B – producer price • Groundnuts Seasons A and B - producer price • Plantains – producer price • Yams – producer price • Coffee – producer price • Palm oil – producer price
Livestock production	• Pigs – herd size • Cattle – herd size • Sheep – herd size • Goats – herd size	• Pigs – producer price • Cattle – producer price • Sheep – producer price • Goats – producer price
Other food and cash income	• Fish – quantity • Wild foods – quantity • Harvest labor – number of days worked • Construction labor – number of days worked • Firewood sales – quantity sold • Petty trade – demand • Transport services – demand	• Fish – producer price • Wild foods – producer price • Harvest labor – wage rates • Construction labor – wage rates • Firewood sales – producer price • Petty trade – daily earnings • Transport services – daily earnings
Expenditure		• Maize flour – consumer price • Cassava flour – consumer price

CD18 Livelihood Zone

Reference Year: January 2023–December 2023

River Fishing, Crops, and Livestock Livelihood Zone

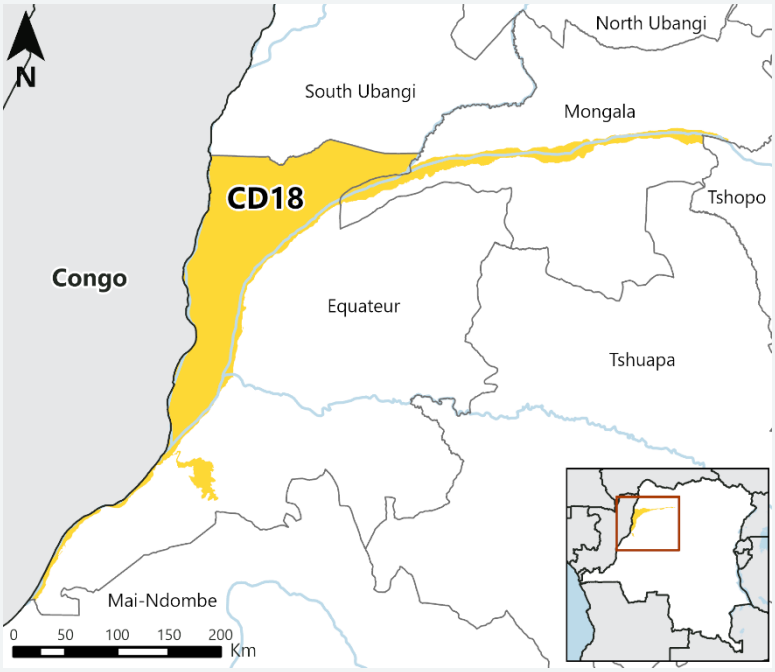


Figure 1. CD18 Livelihood Zone Map

Summary: The *River Fishing, Crops, and Livestock Livelihood Zone* (CD18) covers the triangular area created by the Congo and Ubangui Rivers in Bomongo and Makanza Territories (in Equateur Province), an area of flooded forests and swamps. The main livelihood activities in this zone include rainfed agriculture, fishing, livestock rearing, petty trade, and firewood sales. The zone is highly productive, and the primary crops are maize, cassava, groundnuts, and plantains. Small-scale livestock production involves rearing cattle, pigs, goats, sheep, and poultry. Infrastructure in the zone is relatively underdeveloped, and transportation depends almost entirely on the Ubangi and Congo Rivers for moving goods and people.

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Zone Description

The *River Fishing, Crops, and Livestock Livelihood Zone* (CD18)[1] covers the triangular area created by the Congo and Ubangi Rivers in the districts of Bomongo and Makanza (western Equateur Province), an area of flooded forests and swamps, where firm land for growing crops is difficult to come by. The zone continues along the Congo riverbanks upstream toward Bumba town and includes all the fishing villages located at a maximum of 1 or 2 kilometers (km) from the riverbanks. The zone borders the Republic of Congo along its western edge.

Population density is low, with an average of 16 people per km^2, distributed in villages and permanent fishing camps closer to the water; the total population of CD18 is 449,865.[2] The livelihood zone is characterized by a reliance on fishing, agriculture, and livestock rearing. This zone encompasses several administrative units, including the Territories of Makanza, Bomongo, and Ngiri, among others. The zone is defined by its proximity to major water bodies, including the Congo, Ubangi, Ngiri, and Mweko Rivers and Lake Ntumba. The riverine areas provide abundant fish resources and serve as primary transportation routes for goods and people, especially during the Rainy Season when the river levels are high and more navigable. Extensive flat plains in the zone are primarily used for agriculture. These plains are fertile due to seasonal flooding from nearby rivers, which deposit nutrient-rich silt. Besides the plains, the presence of valleys further contributes to the diversity in landforms, influencing microclimatic conditions and providing natural irrigation channels that benefit agriculture during the Dry Season. Additionally, the Ngiri Triangle, a protected natural reserve, contributes to the zone's ecological diversity.

CD18 experiences a humid climate, with annual rainfall ranging between 1,400 and 1,800 millimeters and temperatures fluctuating seasonally from 29°C to 35°C.[3] The Rainy Seasons typically occur from mid-April to June and October to November, influencing the agricultural calendar and fishing activities. The soils in this zone are generally sandy clay with a rich humus content due to fertile sediment deposits from flooding. Cassava, maize, plantains, and groundnuts are the primary crops, with two cultivation cycles per year.

Residents of local communities are traditional river people, and one of their main activities is fishing and fish trading. Fishermen and women use a wide range of traditional techniques: fixed lines, fixed nets, and mobile nets set by canoe. Their equipment is simple and only a few better-off households have outboard motors. Fishing also takes place inland in ponds and swamps. Fish is sold fresh for local consumption, as well as dried, salted, or smoked. The area is well known for the high quality of its smoked fish. River links to Kinshasa are good, and much of the fish is transported downstream.

[1] Fieldwork for the current profile was undertaken from June 2 to July 15, 2024. The information presented in this profile refers to the reference year, which was the consumption year that covered the period January to December 2023. Provided there are no fundamental and rapid shifts in the economy, the information in this profile is expected to remain valid for approximately five to 10 years (i.e., until 2028-2033). All prices referred to in the document are for the reference year.
[2] FEWS NET Data Explorer, population data (2023), accessed 2025, https://fdw.fews.net/data-explorer/.
[3] FEWS NET Early Warning Explorer CHIRPS and LST dataset 10-year average.

Fish is also sold in Mbandaka (the largest town in the region) and in the Republic of the Congo (via the Makotopoko cross-border market).

Agricultural activities play a crucial role in supporting the local economy. The main crops cultivated in the zone include cassava, maize, plantains, and groundnuts, which are typically grown in two seasons per year, aligning with the rainy periods to take advantage of the natural irrigation provided by seasonal flooding. There are many other crops grown in smaller amounts, including sweet potatoes, sorrel, tomatoes, and peppers. The fertile, silt-enriched plains create ideal conditions for crop growth. Farming methods are manual, using basic tools, such as machetes, hoes, and axes, and both men and women are actively involved in various stages of agricultural production. Households, particularly middle and better-off households, also engage in crop rotation and fallowing practices to maintain soil fertility. However, the lack of proper storage facilities poses a challenge, with harvested produce often stored on the ground in homes, exposing them to spoilage and loss. Wealthier households typically hire labor for various agricultural tasks, such as land preparation, planting, weeding, and harvesting. The payment for this labor is typically made in kind, though in some cases it might be provided in cash. Both local labor and workers from neighboring territories are employed for these tasks.

Livestock contributes to the livelihoods of households in the zone, although income from the sale of livestock is secondary to agriculture and fishing (except for better-off households, who earn more from the sale of livestock than from fishing). The primary types of livestock raised in the zone include goats, sheep, pigs, and poultry, while only better-off households own cattle. Animals are mostly left to graze and forage freely. Very little meat is eaten, and livestock are overwhelmingly bred for sale for meat as well as for products like skins, which are used for making local crafts like drums. Oxen are used for plowing, and only better-off households own cattle, so middle and poorer households pay to rent draft power. Households tend to sell livestock, particularly goats and poultry, during times of economic need or for cash for special occasions, such as festivals. Challenges, such as seasonal diseases and limited access to veterinary services, affect livestock productivity. Men typically manage larger livestock while women are responsible for poultry.

Supplementary economic activities include petty trade and the sale of firewood, charcoal, and wild foods. Petty trade typically involves the retail sale of small amounts of fish and other locally available items. Both men and women participate in petty trade, which takes place throughout the year primarily in local markets within the zone. Charcoal production and firewood collection are important ways for all households to supplement their income.

The infrastructure in the zone is relatively underdeveloped, posing challenges for economic activities and access to essential services. Transportation within the zone primarily relies on waterways, with rivers, including the Congo River, serving as the main routes for moving goods and people. During the Rainy Season, these waterways are more navigable, facilitating better market access. However, in the Dry Season, with lower water levels, river transport becomes more challenging, further isolating some areas. Road infrastructure is minimal and in poor condition, often becoming

impassable during heavy rains, which exacerbates the difficulties in transporting goods, particularly agricultural and fishery products. The zone lacks sufficient storage facilities, which hampers the preservation and quality of harvested crops and fish. There are also no significant agricultural cooperatives, and existing farmer associations struggle due to a lack of sustainable project strategies and resources.

The most prominent hazard is excess flooding, which occurs frequently due to the zone's proximity to major rivers, such as the Congo, Ubangi, and Ngiri Rivers. Although seasonal floods contribute to soil fertility by depositing nutrient-rich silt, abnormal flooding damages crops, disrupts fishing activities, and destroys infrastructure, leading to food shortages and economic losses. In recent years, the zone has experienced several such events. Additionally, the region is vulnerable to climatic variability, including irregular rainfall patterns that can lead to periods of damaging rainfall deficit for crops. The prevalence of livestock diseases, such as swine fever and avian flu, poses another significant threat, reducing livestock populations and thus household incomes from sales. These hazards, combined with the zone's limited infrastructure and access to essential services, exacerbate the vulnerabilities of local communities, necessitating adaptive strategies and external support to mitigate their adverse effects.

Access to basic services, such as clean water, sanitation, healthcare, and education, is limited, particularly for poorer households. Most residents rely on natural water sources like rivers for drinking water, and health facilities are sparse and poorly equipped. Formalized sanitation infrastructure is lacking, with makeshift toilets commonly used near the rivers, leading to heightened health risks, particularly during the Rainy Seasons when water contamination is more prevalent. Educational opportunities are limited, with schools often lacking qualified teachers and adequate learning materials.

Poorer households face additional barriers to accessing education, as children are often involved in economic activities like fishing and petty trade from a young age. Electricity and lighting are rare. For cooking, firewood is the primary fuel source across the zone. Communication within the zone is hampered by limited mobile phone coverage and network access. The lack of reliable telecommunications infrastructure further isolates the zone and restricts access to essential services and information.

Markets

Market access in the *River Fishing, Crops, and Livestock Livelihood Zone* is notably challenging due to the region's geographical and infrastructural limitations. As noted above, the most common trade routes follow the rivers, mainly the Ubangi and Congo Rivers, with goods such as fish, agricultural products, and livestock sold within and outside the zone. CD18 lacks any developed road infrastructure. During the Dry Season, accessing markets becomes particularly difficult, as some rivers may be harder to navigate. Conversely, during the Rainy Season, flooding can make river transport easier but still perilous due to the increased risk of accidents, especially with the

commonly used canoes. These harsh conditions affect the availability and prices of essential commodities. The main markets are Mbandaka (the largest), Mankanza, Lobengo, Bobanga, Mobenzeno, Maîya, Lilanga, Bomongo and Buburu (cross-border markets), and Makotipoko (in Congo-Brazzaville).

Fresh and dried fish is transported along these waterways to reach local markets within and outside the zone. The trade is especially active during the peak fishing seasons, which are in January, February, June, and July. Crops and charcoal are also transported by river.

Timeline and Reference Year

The baseline assessment refers to a specific period called the "reference year." In the CD18, the reference year covers the consumption period from January 2023 to December 2023. During community leader interviews, data collectors asked informants to score the last five years in terms of seasonal performance with "1" indicating a poor season and "5" indicating an excellent season. Table 1 summarizes the response of the community leaders. Seasons A and B are explained in the next section.

Overall, most years in the *River Fishing, Crops, and Livestock Livelihood Zone* are above average in terms of household food security. Adequate rainfall, particularly during the Rainy Seasons from mid-October through mid-January and mid-March through mid-May, ensures sufficient water supply for crops, contributing to high yields. The reference year was characterized as average, despite major flooding in Season B. This signals relative food security stability with no need for external humanitarian food assistance.

Table 1. Timeline

Production Season/ Year	Score	Critical Events
2023/Season B	3	Despite major flooding in December 2023, a normal season for agricultural production and fishing. Avian flu and swine fever disease outbreaks affected poultry and pigs.
2022-2023/Season A	4	Good production despite irregular rainfall.
2022/Season B	4	Good agricultural production due to favorable conditions led to above-average household food security in the two seasons. Ample and consistent rainfall.
2021-2022/Season A	4	
2021/Season B	4	Good agricultural production due to favorable conditions led to above-average household food security in the two seasons. Ample and consistent rainfall.
2020-2021/Season A	4	

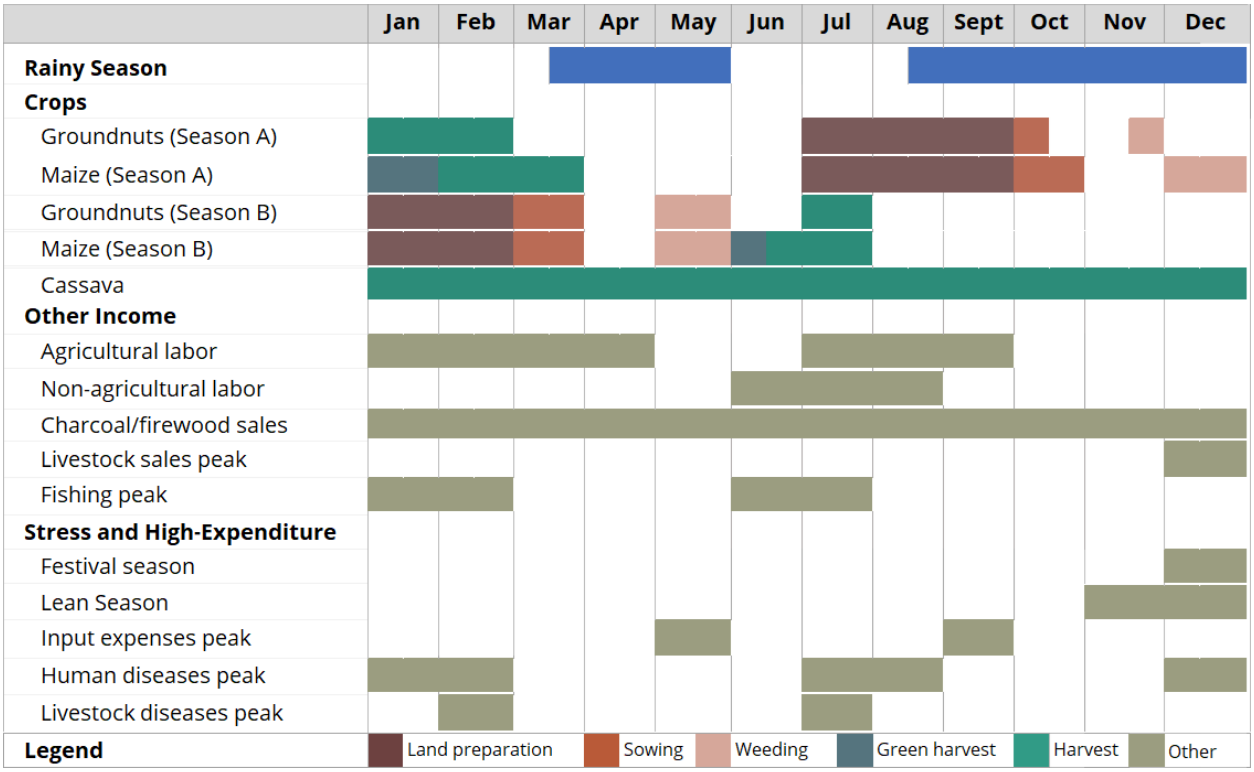
2020/Season B	4	Good agricultural production due to favorable conditions led to above-average household food security in the two seasons. Ample and consistent rainfall.
2019-2020/Season A	4	
2019/Season B	4	Generally good season for food security.
2018-2019/Season A	4	Flooding, but otherwise a good season for food security.

5 = excellent season for household food security (e.g., due to good rains, good prices, good crop yields)
4 = good season or above average season for household food security
3 = average season for household food security
2 = below-average season for household food security
1 = poor season for household food security (e.g., due to drought, flooding, livestock disease, pest attack)

Seasonal Calendar for Reference Year

The seasonal calendar (see Figure 2) illustrates the main economic activities and events of the reference year. It traces the rainy months, agricultural activities, off-farm income-generating activities, food-purchasing periods, etc.

Figure 2. Seasonal Calendar



The local economy in the *River Fishing, Crops, and Livestock Livelihood Zone* revolves around two main Rainy Seasons, mid-March through May and mid-August through December. This creates two cultivation cycles: Season A with maize and groundnut harvests between January and March, and Season B with maize and groundnut harvests in June/July. Cassava and plantains are harvested

throughout the year. Cassava, groundnuts, maize, sweet potato, and cowpeas are commonly grown together in mixed-cropping systems. This practice of intercropping helps maximize land use and can contribute to better yields and soil health.

Fishing takes place year-round, peaking in January/February and June/July, months when the intensity of the rain decreases, water levels fall, and fishing becomes easier. Both men and women participate in fishing activities, but their roles differ. Men are primarily involved in the fishing itself — catching fish using various equipment, such as nets, lines, hooks, rafts, or boats. Women contribute by engaging in post-capture activities, such as processing and selling the fish. Processing includes drying or salting fish to preserve it for later sale in more distant markets.

Agricultural labor is paid either in cash or in kind, depending on the activity. Land preparation, sowing, and weeding are typically paid in cash. Payment for work during the harvest season includes food like cassava and groundnuts. Non-agricultural labor is highest from June to August (corresponding to most of the Dry Season). Urban demand for charcoal and firewood is consistent and is another important income-generating activity for all wealth groups, typically carried out by women and children. Petty trade involves men, women, and children from middle and better-off wealth groups throughout the year. Wild foods (mushrooms and honey) collected from the forest throughout the year provide income for households in all wealth groups in the zone. Women and children often collect these wild foods while conducting other activities in the forest, such as gathering firewood. The sale of livestock, one of the main sources of income for better-off households, peaks around the holidays in December, when meat is in demand for feasting.

Periods of increased food stress and higher expenditure are clustered around November and December. Higher prices for staple foods (cassava and maize) correspond to peak market demand in November and December. Festivals require greater expenditure on clothing and food in December. Human diseases, like livestock diseases, can occur at any time of the year. However, human diseases peak in January and February. Livestock disease tends to occur most frequently in February and July.

Table 2 shows the typical division of labor. Most of the agricultural tasks are shared, from land preparation to crop sales. The only agricultural tasks that are not shared between men and women are weeding and sowing. Men, women, and children all participate in petty trade. Women are involved in the processing and selling of fish, wild food foraging, firewood collection, and most domestic work (cooking, taking care of children, laundry, water collection). Men are largely responsible for livestock production activities, catching fish, and construction labor.

Table 2. Typical Division of Labor

Shared Tasks	Women's Tasks	Men's Tasks
• Agricultural labor – land preparation and harvesting • Crop sales • Petty trade	• Processing and selling of fish • Agricultural labor – sowing and weeding • Wild foods collection and sales • Poultry rearing and sales • Collection and sale of firewood • Production and sale of charcoal • Household water collection • Household firewood collection • Meal preparation • Laundry • Care and feeding of young children	• Cattle, pig, sheep, and goat rearing and sales • Construction labor • Labor migration

Wealth Breakdown and Productive Assets

Table 3 summarizes the types and numbers of productive assets that typical households within each wealth group own and/or manage. Asset holdings are shown in a range that reflects the diversity of households' situations within a wealth group. Figure 3 shows the percentage of households within the zone that falls in each wealth group. The socioeconomic categorization of households in the zone was created by the communities themselves.

Table 3. Wealth Breakdown

Household Size and Productive Assets	Very Poor	Poor	Middle	Better-Off	Poor Female-Headed
Household size	4-6	6-9	9-13	14-16	4-7
Land owned (hectares [ha])	0.25-0.5	0.4-1	1-3	2-4	0.25-0.75
Land cultivated (ha)	0.25-0.5	0.4-1	1-3	2-4	0.25-0.75
Cattle	0	0	0	0-7	0
Pigs	0	0-3	2-5	5-15	0-3
Goats	0	0-2	2-7	4-10	0-3
Sheep	0	0	0-4	4-8	0
Poultry	0-6	0-15	0-15	0-30	0-15
Bicycles	0	0-1	0-2	0-3	0
Motorcycles	0	0	1	1-2	0
Canoes	0-1	0-1	1-3	2-6	0-1
Fishing nets (dragging)	0-4	0-8	0-50	0-60	0-6
Fishing nets (stationary)	0-4	5-10	0-50	50-100	0-4

There are significant differences in the assets held by different wealth groups, and those differences directly influence their livelihoods, economic stability, and overall quality of life. Wealthier households possess a wider range and larger quantity of assets compared to poorer households, allowing them more flexibility and security in the face of economic or environmental shocks.

Ownership of land is the most important determinant of wealth in the zone. As wealth increases, there is a progressive increase in the amount of land cultivated. Overall, better-off households cultivate seven to eight times the area cultivated by very poor households. Per capita, middle and better-off households cultivate about twice the amount of land as poor and very poor households. The very poor and poor wealth groups produce less staple food than they need and must purchase food for much of the year, especially in the pre-harvest Lean Season.

The availability of household labor is the second most important determinant of wealth in the zone (measured by the amount of income the average household generates from labor-based activities outside their own farms). The middle and better-off wealth groups have larger household sizes than the very poor and poor households and, therefore, more labor for agricultural production, fishing, and caring for livestock. Wealthier households hire additional laborers from poorer households for cultivation and harvesting labor and for fishing. This limits the amount of labor poorer households can devote to their own crop and livestock production.

Better-off households typically own other productive assets, including larger numbers of livestock, especially, goats and poultry, which serve not only as a source of income but also as a form of savings for greater financial security. Cattle are only owned by the better-off wealth group, which means they are the only ones who possess (and can rent out) oxen for plowing. Better-off households also possess far more fishing equipment and canoes, which enable them to engage in more extensive and profitable fishing activities, using hired labor from poorer households from within the zone.

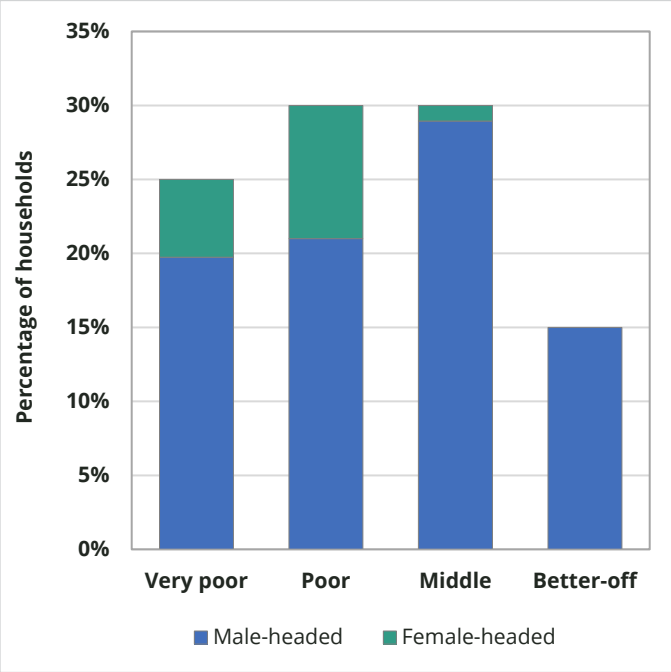
Additionally, better-off households often own more fertile agricultural land and have access to better farming tools and equipment, such as plows and improved seeds. Possessing more land means that middle and better-off households can leave more land fallow. This access allows them to cultivate larger areas and produce higher yields, both for consumption and for sale in local markets. Better-off households are also more likely to have permanent, well-constructed houses, and some may own small businesses, providing them with diversified income streams.

In contrast, poorer households have significantly fewer assets. They generally possess smaller numbers of livestock — primarily poultry and occasionally goats — that provide limited income, serving more as a buffer against immediate financial needs rather than a substantial economic base. Poorer households' fishing activities are restricted by reliance on small nets and fewer canoes, which limits their fishing capacity and profitability. Agricultural activities for poorer households are similarly constrained — they typically have less access to fertile land and often lack the resources to purchase improved farming inputs, resulting in lower crop yields. Housing for poorer households is

often more rudimentary than wealthier households, constructed from less durable materials, and they rarely own any significant non-agricultural assets or businesses.

Figure 3. Wealth Breakdown

Note: All results are the mid-point of a range



Female-headed households make up a portion of all wealth groups except the better-off, with the highest percentage found among the poorer wealth groups — about 20% of very poor households and about 25% of poor households (see Figure 3). In terms of land, poor female-headed households have an asset profile that is in between the very poor and poor. They cultivate 0.25-0.75 ha, compared to an average of 0.7 ha for the poor. For livestock, poor female-headed households have an asset profile similar to poor households in general. Both groups own 0-3 pigs, and poor female-headed households own an average of 1-2 goats compared to an average of one for poor households.

Sources of Food

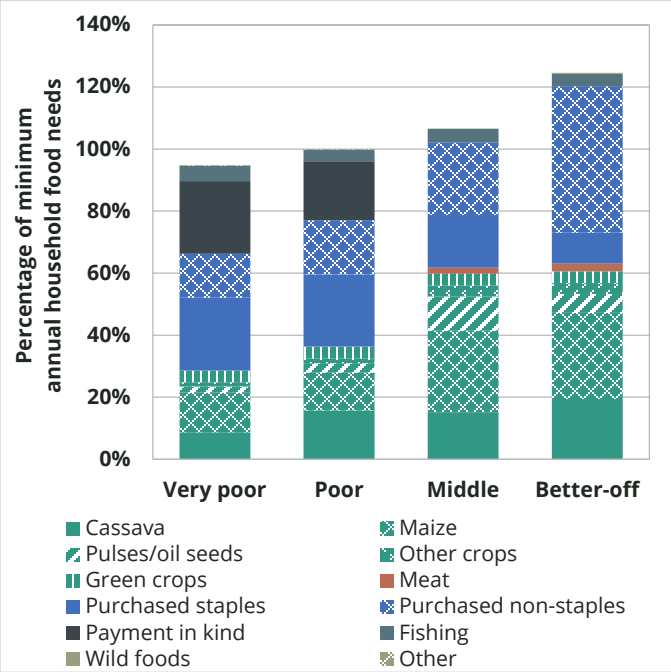
Figure 4 presents the sources of food for households in different wealth groups in the livelihood zone for the period of January 2023 to December 2023. January represents the start of the consumption year because it is when the main harvest begins. Food is presented as a percentage of the internationally accepted standard of 2,100 kilocalories (kcal) per person per day for the 12-month period.

During the reference year, total food consumption increased progressively with wealth. Better-off households consumed some 125% of their minimum requirement, middle households 110%, and poor households about 100%; very poor households only managed to consume some 95% of their requirement. There was no food aid and no school feeding program in CD18.

The primary sources of food for all wealth groups were crop production and market purchases. These sources were supplemented by in-kind payments for very poor and poor households, some fish for households in all wealth groups, and meat for wealthier households. The main crops grown for household consumption included maize, fresh cassava, cassava flour, groundnuts, and plantains. Middle and better-off households covered approximately 60% of their annual food needs from their harvests, while very poor and poor households met about 30-35% of their needs. Middle and better-

off households produced enough to meet their full food requirements, and they could still sell significant quantities post-harvest. However, they often chose to purchase other, preferred foods, including rice and pulses, while they also pursued a strategy of selling surplus staples at harvest and buying some staples later for storage and commercial reasons.

Figure 4. Sources of Food



Purchases were the second most important source of food in the livelihood zone, encompassing both staple and non-staple items. The key staple foods bought were fresh cassava, cassava flour, and maize. Rice, though not grown in the zone, was a purchased staple across all wealth groups. Poorer households relied on staple food purchases for around 25% of their minimum annual food needs, while wealthier households covered approximately 10-15% of their needs through purchased staples. Non-staple foods, mainly vegetable and palm oil, cowpeas, and sugar, were also bought by households in all wealth groups. Poorer households met about 15% of their needs through non-staple purchases, while middle households covered roughly 25% and better-off households around 50%, with 30% of this being cooking oil.

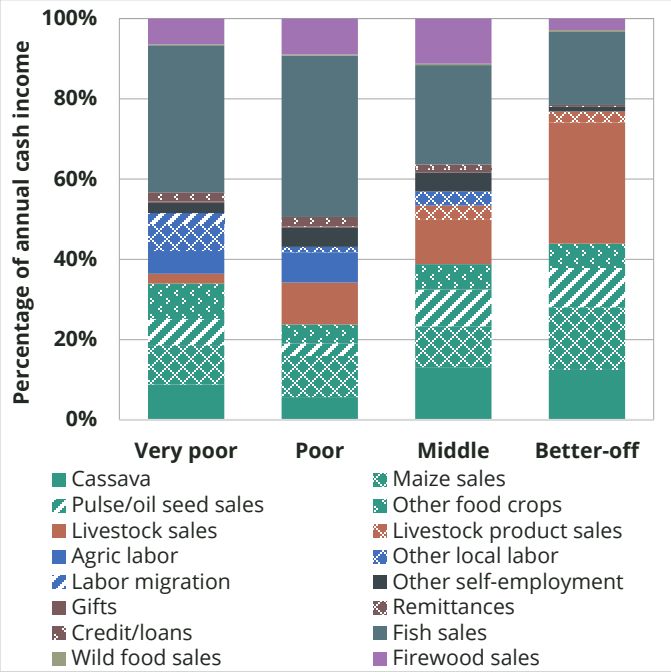
Fish provided roughly 5% of the minimum annual caloric needs for all wealth groups**.** Payment in-kind, typically in the form of cassava and groundnuts, was a significant food source for very poor and poor households, particularly in exchange for labor during harvests; women more likely than men to be compensated in kind. Very poor households obtained approximately 25% of their minimum annual food needs through in-kind payments, and poor households about 20%.

Sources of Cash Income

Figure 5 shows the proportion of income sources for all wealth groups; Figure 6 shows absolute levels of cash income.

Fish sales were the biggest single source of income for very poor and poor households, followed closely by the sale of their own crops and livestock. Very poor and poor households also relied on paid agricultural labor and firewood sales.

Figure 5. Sources of Cash Income as a Percentage of Annual Cash Income



Crop sales were more important for wealthier households; poorer households earned about 25-35% of their income from crop sales, while middle and better-off households generated around 40% and 45%, respectively, from crop sales. The primary food crops sold were maize, cassava, groundnuts, and plantains. Additionally, households sold smaller quantities of sorrel, amaranth, palm oil nuts, dessert bananas, peppers, cassava leaves, and sweet potatoes.

Sales of fresh and dried or smoked fish accounted for 35-40% of total income for very poor and poor households. Their fishing income included payment for fishing labor but equated to less than 5% of their fish sales income. For middle and better-off households, the proportion of fish sales in total income was lower, ranging from 20-25%.

Livestock sales of cattle, pigs, goats, and poultry were the second largest source of income for better-off households, contributing about 35% of their total income, including some meat sales. Livestock sales of pigs, goats, and poultry for middle and poor households were around 10-15% of their total income, while for very poor households, with only poultry, their sales generated around 2% of total income.

Local wage labor was an income source for the very poor and poor wealth groups. The main types were pre-harvest cultivation labor, harvesting labor, construction, and domestic work. Agricultural labor contributed roughly 5-10% to their total income. Other local labor (construction and domestic work, such as fetching water) contributed about 7% for very poor households and 5% for poor households. Income from fishing labor is included above with fishing income, but if it were included here as local wage labor, it would represent about 6% of total local labor for very poor households and 15% of local labor for poor households. Labor migration outside the zone was an income source only for very poor households, representing less than 5% of total cash income.

Households from all wealth groups sold firewood, with earnings ranging from under 5% of total income for the better-off households to upwards of 10% for the middle households. Sales of wild foods (mushrooms for poorer households and honey for middle and better-off households), though important, were a very minor source of income, representing less than 1% of total cash income for households from all wealth groups. Other self-employment activities included petty trade and motorcycle taxi driving. Poor female-headed, middle, and better-off households engaged in petty trade, while only better-off households earned cash from motorcycle taxi services. Gifts and

remittances did not contribute significantly for any of the wealth groups. Credit or loans were only slightly more important for very poor and poor households, contributing around 2% of their income, but were negligible for better-off households.

Figure 6. Total Annual Cash Income

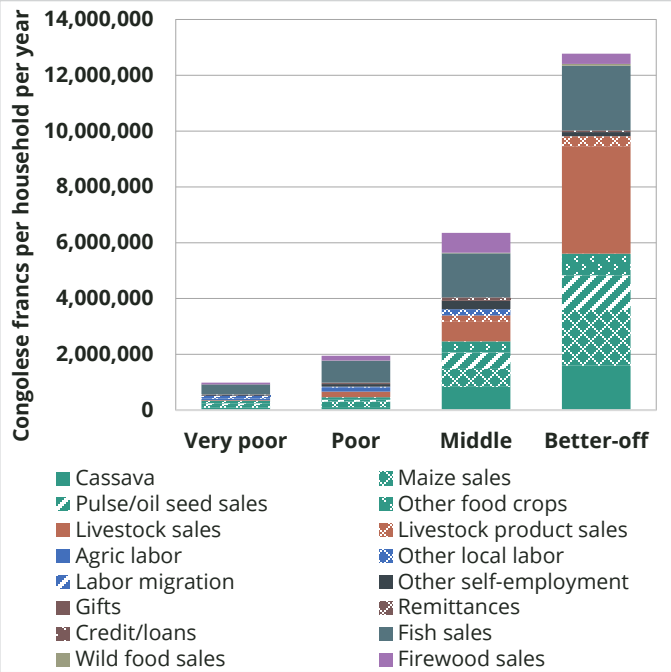


Figure 6 and Table 4 show that differences between wealth groups in the absolute amount of cash income generated during the reference year were large. Overall, better-off households earned 13 times the cash income of very poor households and six times more than poor households. Differences between wealth groups in per capita cash income were also large, although given the differences in household size, they were smaller than for total income. Overall, better-off households earned four to five times the annual per capita cash income of very poor households.

Table 4. Income Summary Table (Congolese Francs or CDF)

Wealth Group	Very Poor	Poor	Middle	Better-Off
Annual income per household[4]	700,000–1,300,000	1,500,000–2,500,000	5,000,000–8,000,000	9,000,000–16,000,000

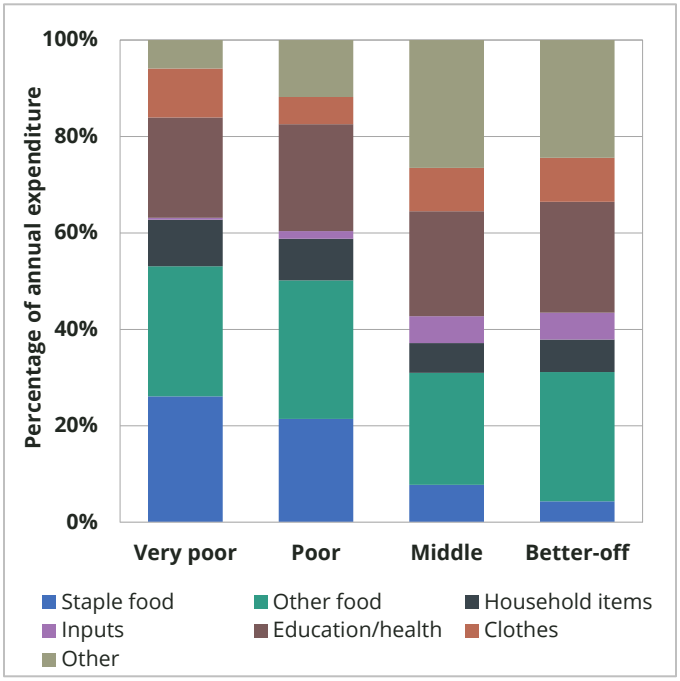
Expenditure Patterns

Figure 7 presents expenditure patterns for the reference year of January to December 2023. While absolute expenditure increases with wealth in line with total cash income, this graph's expenditure breakdown by percentage shows the *relative* amount of income spent on different categories. Households in the zone need to cover a range of essential expenditures over the year. These include staple foods, non-staple foods, household items/services (like salt, soap, tea, lighting, milling, etc.), productive inputs, social services (which include health and education), clothing, as well as other essential and non-essential items.

Non-staple foods accounted for the largest share of total expenditure for all households. The main non-staple foods purchased were vegetables, palm oil, sugar, and beans.

[4] The average exchange rate from January 2023 to December 2023 was 1 USD = 2,311 CDF.

Figure 7. Total Annual Cash Expenditure by Category



Staple food was an expenditure item for households from all wealth groups. There was a progressive decrease in the share of expenditure with increasing wealth. Staple foods accounted for roughly 25% of total expenditure for very poor households and less than 5% for better-off households. However, for poorer households, food from payment in-kind substantially substituted for food purchases. The main staples purchased were fresh cassava, cassava flour, maize, and rice.

Health and education were expenditures for households from all wealth groups. As wealth increased, there was a progressive decrease in the share of expenditure on social services. Health and education accounted for roughly 20% of total expenditure by very poor households and roughly 20-25% for better-off households.

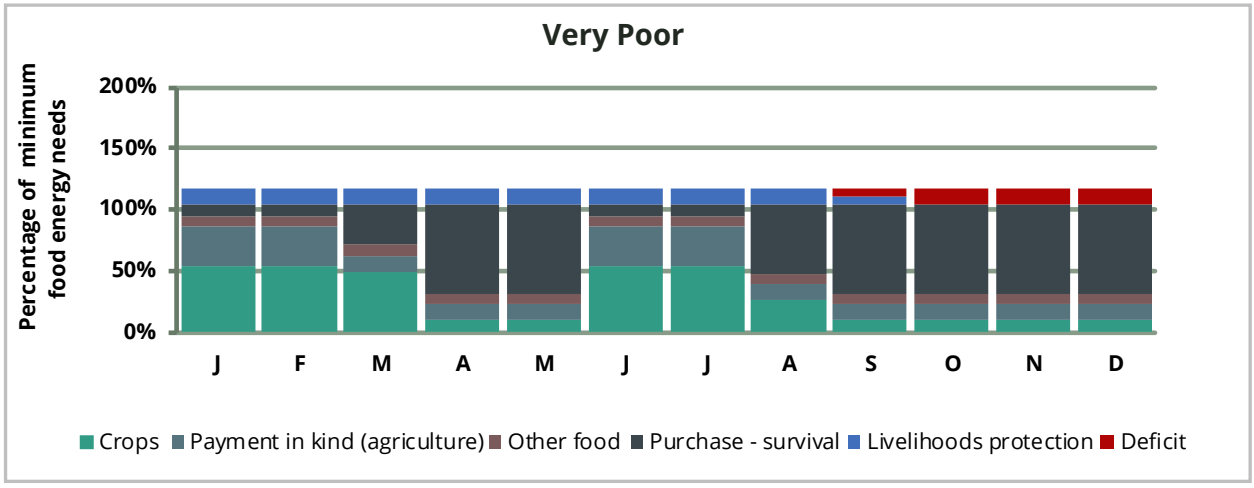
"Other" items were an expenditure for households from all wealth groups**,** accounting for roughly 25% of total expenditure by wealthier households and 5-15% for poorer households. The main items in this category were transportation, credit reimbursement, and gifts.

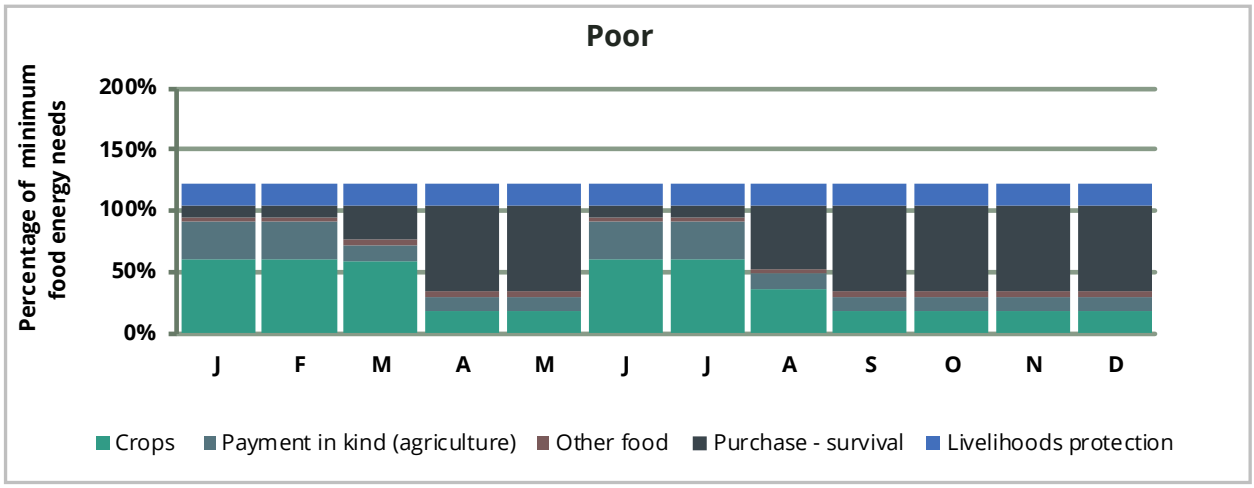
Production inputs were an expenditure item for households from all wealth groups. The main items in this category, in order of amount spent, were hiring of labor, renting of draft animals, labor, and seeds. There was no expenditure on fertilizers or pesticides. There was a progressive increase in the share of expenditure with increasing wealth. Inputs accounted for less than 5% of total expenditure by poorer households and roughly 5% by wealthier households.

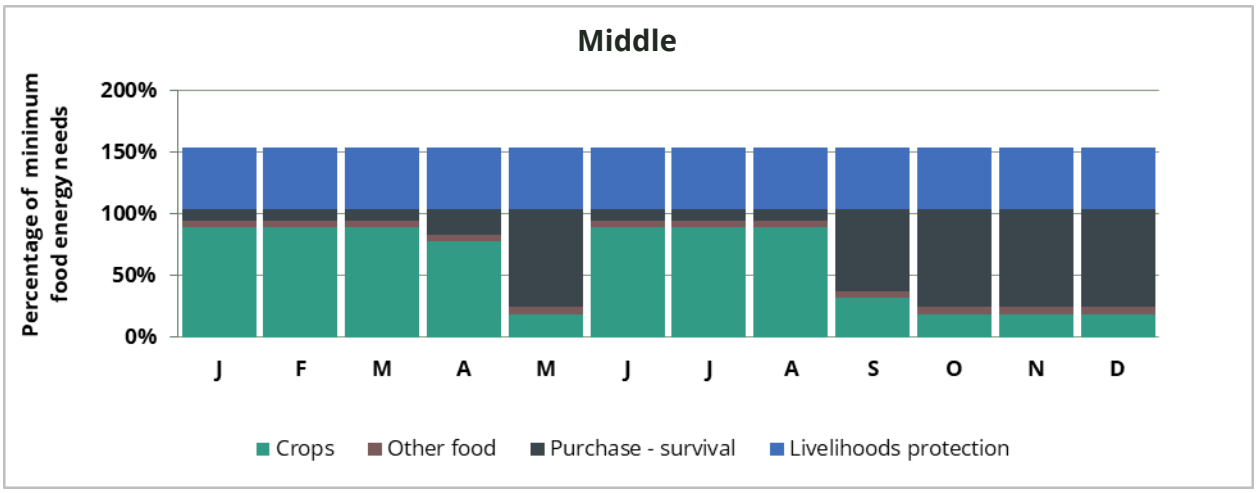
Food Access Calendars

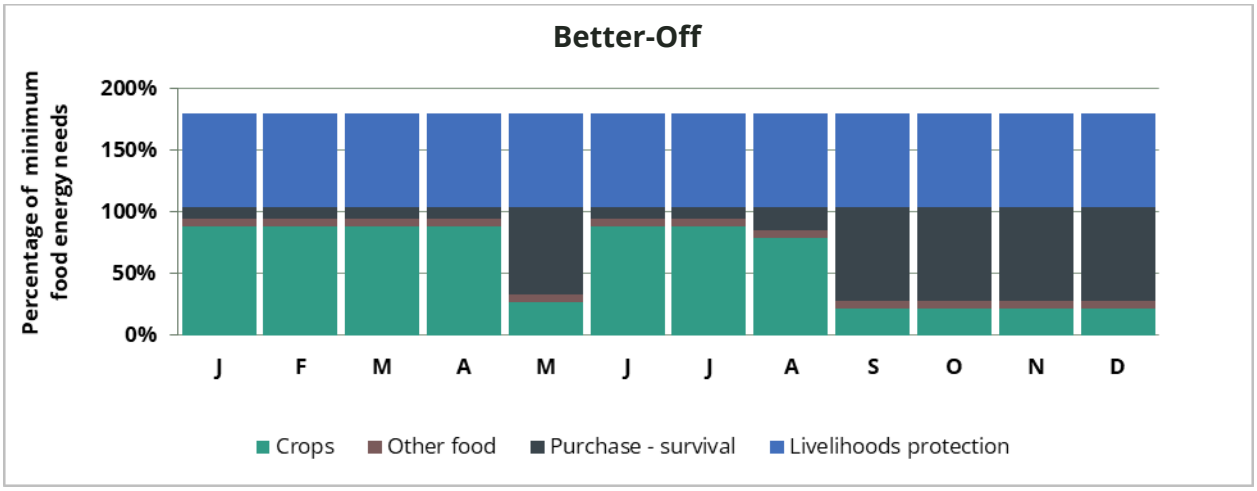
The graphs in Figure 8 present monthly food and cash access calendars for the four wealth groups. Households in the poor, middle, and better-off wealth groups were able to meet their survival and livelihoods protection thresholds year-round in the reference year. The very poor wealth group had a small livelihoods protection deficit (in red). The main harvest period in this livelihood zone started in January and the second harvest period started in June. Very poor and poor households obtained some food from payment in-kind for casual agricultural labor (in teal). Reliance on food purchases peaks from April to May and September to December, with even middle and better off households purchasing substantial quantities of food.

Figure 8. Seasonal Food and Cash Access Calendars per Wealth Group









Poor Female-Headed Households

Figure 9 shows that poor female-headed households, which make up about 25% of poor households, share a similar pattern of food access with male-headed households. For food consumption, poor male-headed households consumed roughly 100% of minimum annual food needs, while poor female-headed households were very slightly below the minimum threshold.

Figure 9. Sources of Food: Poor Households vs Poor Female-Headed Households

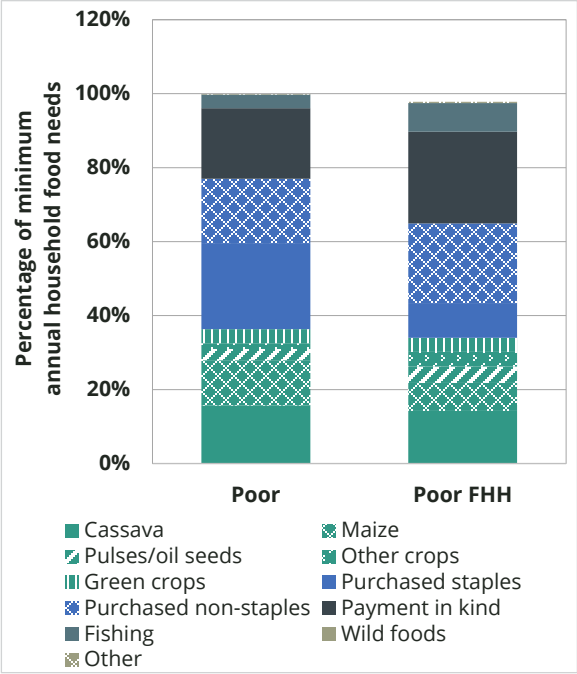
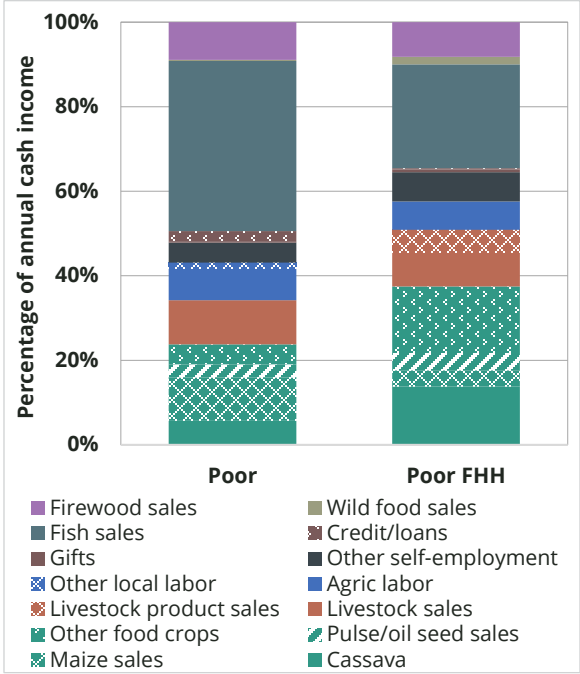


Figure 10. Sources of Cash: Poor Households vs Poor Female-Headed Households



The five main food sources for poor female-headed households were, in order of importance, crops, payments in-kind, non-staple purchases, staple purchases, and fish. Of these, two contributed less food for poor female-headed households than for male-headed households: staple purchases and

crops. Poor female-headed households purchased less staple foods, about 10% of required kcals compared to roughly 25% for poor male-headed households. Households' own crop production contributed slightly less food for poor female-headed households than for poor male-headed households, whereas payment in-kind was slightly higher for poor female-headed households.

Poor female-headed households earned 30% less cash income than poor male-headed households. However, poor female-headed households were smaller than male-headed households, and in fact, per capita cash income was about the same. As shown in Figure 10, the five main types of cash income for poor female-headed households were, in order of importance, crop sales, self-employment, livestock sales, wage labor, and petty trade. Crop sales made up a much larger percentage of annual cash income for poor female-headed households than poor male-headed households. However, income from fishing was significantly less than the amount earned by poor male-headed households.

Response Strategies

In response to hazards, such as flooding, climatic variability, and livestock diseases, households in CD18 employ various coping strategies to mitigate their impact on livelihoods and food security. During periods of excessive flooding or drought, households often resort to alternative subsistence activities, such as hunting and small-scale trading of forest products, despite legal restrictions on some of these activities. Fishing communities may try to increase catches during less affected periods and may shift to different fishing techniques to adapt to changing water levels and access to fish. Households also engage in crop rotation, fallowing, and the use of drought-resistant crop varieties to manage agricultural risks associated with irregular rainfall and flooding.

Overall, all households in the zone face significant challenges due to recurring hazards. But there are notable differences in the response strategies employed by poorer households compared to better-off households. Wealthier households generally have more options and flexibility in their response strategies, enabling them to maintain a higher level of livelihood security compared to poorer households.

Very Poor and Poor Households

Poorer households, having fewer resources and assets, tend to rely more heavily on immediate, low-cost strategies, such as reducing meal frequency, selling small livestock like poultry, or engaging in casual labor activities for income. They may also depend more on natural resources like wild fruits and game to supplement their diet.

Middle and Better-Off Households

In contrast, better-off households, with greater financial reserves and assets, are better positioned to employ more sustainable coping mechanisms, such as selling larger livestock, using savings, or

even investing in agricultural practices or storage facilities that reduce vulnerability to hazards. They may also have better access to credit or external support, allowing them to recover more quickly from shocks.

Key Parameters for Monitoring

The key parameters listed in Table 5 are food and income sources that make a substantial contribution to the household economy in the *River Fishing, Crops, and Livestock Livelihood Zone*. These parameters should be monitored to track potential losses or gains to local household economies through ongoing monitoring systems or periodic assessments.

Table 5. Key Parameters for Monitoring

Item	Key Parameter – Quantity	Key Parameter – Price
Crop production	• Cassava – quantity produced • Maize Seasons A and B – quantity produced • Groundnuts Seasons A and B – quantity produced • Plantains – quantity produced	• Cassava – producer price • Maize Seasons A and B – producer price • Groundnuts Seasons A and B – producer price • Plantains – producer price
Livestock production	• Cattle – quantity sold • Pigs – quantity sold • Goats – quantity sold • Sheep – quantity sold	• Cattle – producer price • Pigs – producer price • Goats – producer price • Sheep – producer price
Other food and cash income	• Cultivation labor – number of days • Charcoal/firewood sales – quantity sold • Fish – quantity caught • Petty trade – demand	• Cultivation labor – wage rates • Charcoal/firewood sales – producer price • Fish – producer price • Petty trade – daily earnings
Expenditure		• Cassava – consumer price

CD19 Livelihood Zone

Reference Year: November 2022-October 2023

River, Lagoon, and Wetlands Fishing and Staple Crops Livelihood Zone

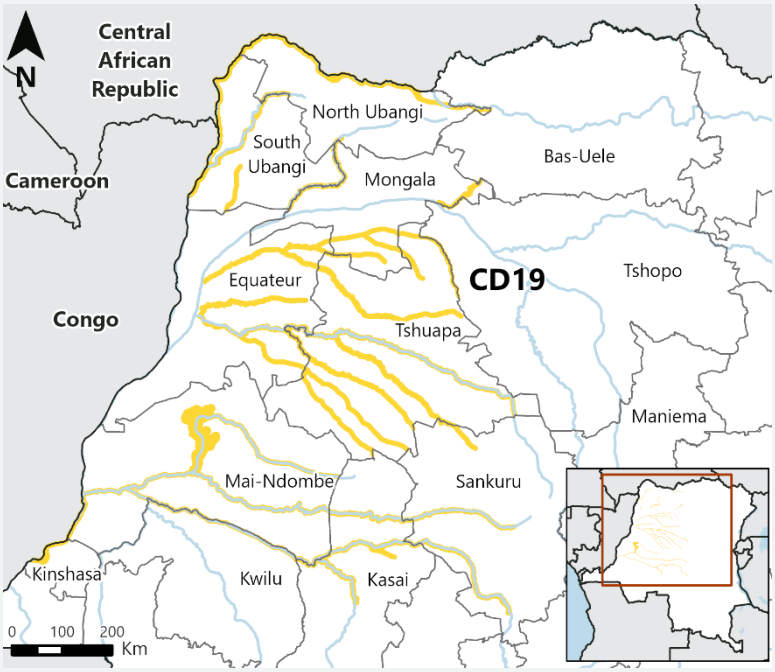


Figure 1. CD19 Livelihood Zone Map

Summary: The *River, Lagoon, and Wetlands Fishing and Staple Crops Livelihood Zone* (CD19) is located in Tshuapa Province in the northwest of the Democratic Republic of the Congo (DRC). It encompasses parts of several territories, including Ikela, Boende, Befale, and Monkoto. A dense network of rivers, tributaries, lakes, and lagoons provides year-round fishing for the local population. The climate in the zone is equatorial sub-humid, with annual rainfall of approximately 1,600 to 1,700 millimeters (mm).

The key economic activities include fishing in local rivers, selling agricultural produce, and rearing livestock. In the reference year, these activities were complemented by wild foods collection and by self-employment activities such as firewood and charcoal collection and sale, motorcycle transport, and petty trade. The main sources of food for households were their own crops and market purchases. Very poor and poor households relied on labor payments as an additional source of food and cash income. Middle and better-off households earned supplementary cash from trade and selling livestock products.

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Zone Description

The *River, Lagoon, and Wetlands Fishing and Staple Crops Livelihood Zone* (CD19)[1] is situated in Tshuapa Province in northwestern DRC. It encompasses several *groupements*, including Ilongo *groupement* and Moma *groupement* in Ikela Territory, Mpombi village in Bofoka *groupement* in Boende Territory, Mompono *groupement* in Befale Territory, Yongol village in Mpango *groupement* in Bokungo Territory, and Topoke *groupement* in Monkoto Territory.

The zone experiences an equatorial sub-humid climate with average temperatures around 29°C, typically ranging from 24°C to 30°C throughout the year with very little fluctuation. The hottest months are often during the Dry Season or during the transition periods between Wet and Dry Seasons, usually around February to March and August to September when temperatures can occasionally rise above 30°C, but still generally remain below 32°C. The cooler period corresponds with the Rainy Season between March to May, although sometimes extending into October and November when cloud cover and frequent rainfall help moderate temperatures. During this time, average temperatures drop slightly to around 24°C. Relative humidity is around 80%, and annual rainfall is approximately 1,600 to 1,700 mm. The Rainy Seasons typically follow a bimodal pattern. The first Rainy Season starts in August and ends in December. This season marks the beginning of agricultural Season A. The second Rainy Season starts in March and ends in May, supporting a second planting in Season B.

The zone's topography consists of lowland areas and undulating plains. The vegetation is predominantly equatorial forest. The main rivers in the zone include the Tshuapa, Maringa/Lowo, and Lomela, all of which are permanent watercourses and tributaries of the Ruki River, which, in turn, is a tributary of the Congo River. The zone is serviced by several key roads that connect various locations. These include the routes Boende-Ikela-Kisangani Road. Boende, Bokungu, and Ikela are the key urban centers within this zone. The population of CD19 is 1,730,078, with an average population density of 43 people per square kilometer.[2]

The livelihood activities in this zone include fishing, crop production, livestock rearing, agricultural labor, construction labor, wild foods collection, self-employment, and trade.

The dense network of rivers, tributaries, lakes, and lagoons provides year-round fishing for the local population. Men and boys fish throughout the year using nets and canoes. All household members, regardless of gender, participate in fish processing and selling, and children help their parents with this task. Moderate agricultural productivity characterizes CD19 because its clay soils that are only moderately fertile. Key crops include maize and groundnuts, which are grown during two Rainy Seasons; Season A is the most important of these seasons. In Season A, land preparation starts in

[1] Fieldwork for the current profile was undertaken from July 27 to August 17, 2024. The information presented in this profile refers to the reference year, which was the consumption year that covered the period November 2022 to October 2023. Provided there are no fundamental and rapid shifts in the economy, the information in this profile is expected to remain valid for approximately five to 10 years (i.e., until 2028-2033). All prices referred to in the document are for the reference year.
[2] FEWS NET Data Explorer, population data (2023), accessed 2025, https://fdw.fews.net/data-explorer/.

July, and harvesting is in November. In Season B, land preparation starts in January, and harvesting is in June and July. Cassava, another key crop, is harvested throughout the entire year. Additional crops include cowpeas, sweet potatoes, plantains, bananas, yams, and vegetables (tomatoes, peppers, and eggplant), which households grow only in one Rainy Season. Production of these crops relies on rain-fed agricultural methods. Several crops are intercropped, including cassava, maize, groundnuts, cowpeas, and squash. Households in this zone consume and sell cassava leaves and sweet potato leaves. Maize and cowpeas are also sold as green crops. Poorer and wealthier households both prepare land mostly by hand. Wealthier households hire members of poorer households to help with labor-intensive activities — such as land preparation, weeding, and sowing — and pay them either in cash or food, depending on the agreement. Palm trees and bananas are perennial crops. Households from all wealth groups collect palm nuts that they grow on their own plantations or collect in the wild and process into palm oil. Very poor and poor households process palm nuts manually, and middle and better-off households use oil presses. Only about 10% of households use chemical fertilizers as farming inputs. Most households store their crops in their homes. There are farmer cooperatives in the area that help members collaborate in their agricultural work.

Livestock production centers around the rearing of goats, sheep, pigs, and poultry. All animals are primarily fed through free grazing. Goats and pigs feed on grass, while poultry consume grains and earthworms. Households do not typically purchase feed for their livestock. During the Rainy Season, livestock obtain water from natural sources or household containers, while in the Dry Season, they rely on containers and water tanks. Households generally do not pay for water for livestock.

To generate cash, households sell goats, sheep, and pigs during the year. Better-off households typically secured higher prices for stock sold than very poor and poor households because their animals were in better condition and fatter. Meat is the primary livestock product sold in the zone. Households occasionally purchase animals, usually to replace those that were sold. This practice is more common among wealthier households. In this zone, livestock seasonal migration is not typical.

In addition to fishing, agriculture, and livestock, households in this livelihood zone engage in various other economic activities. Another significant activity includes small-scale commerce, such as selling wild foods and firewood. Agricultural labor, construction work, and motorcycle taxis are other income sources, especially for men, while women are involved in village-based savings and credit associations such as Moziki. Women also partake in economic activities, including small businesses and selling products gathered from the bush. Wild animals like gazelles, antelopes, and wild boars are commonly slaughtered at various times of the year, and part of the meat is sold. Honey is collected from wild hives in the forest. Wild yams, wild spinach, mushrooms, caterpillars, and snails are also collected by households for consumption and for sale.

Several hazards affect the economy and local livelihoods in CD19. The main hazards are crop and livestock diseases. The principal crop disease is the mosaic virus, which affects cassava. The main livestock disease is *peste des petits ruminants* (PPR), which affects goats and sheep. PPR poses a

significant risk to households from all wealth groups. The zone is prone to environmental risks, with frequent heavy rains occurring twice a year and extreme heat occurring three times a year due to the equatorial climate. Other risks include human disease outbreaks — especially malaria, typhoid fever, measles, and mpox — highlighting the ongoing public health challenges in the livelihood zone.

Households face diverse challenges when it comes to accessing basic services. For drinking water, poorer households typically rely on natural water sources like rivers and lakes, while wealthier households access water from boreholes or taps. For other water uses, such as washing, poorer households use rivers, ponds, or lakes, whereas wealthier households use wells, taps, or boreholes. Payment for water differs, with poorer households paying daily, while wealthier households often pay at the end of the month through rental agreements. Sanitation services also differ by wealth group, with poorer households relying on latrines without a slab while wealthier households use latrines and a slab. Regarding waste, all wealth groups mostly burn theirs. Poorer households use traditional medicine to meet their healthcare needs, while wealthier households have access to health dispensaries and medical centers.

Wealth group differences are also reflected in energy use, with poorer households using flashlights for lighting and wealthier households using electricity, batteries, and solar panels. For cooking, poorer households use firewood and wealthier households use firewood and charcoal. Mobile phone communication is primarily voice-based for households from all wealth groups. Education levels vary by wealth, with the typical maximum education level for individuals from poorer households being primary school, while individuals from wealthier households may attain secondary education. Regarding financial services, poorer households often turn to private moneylenders, while wealthier households use microfinance institutions. Some households also borrow money through microcredit institutions like FINCA DRC (Foundation for International Community Assistance), which is typically used by those involved in small-scale commerce. The credit terms often include a high interest rate of 50%, repayable within one month. Additionally, some households receive financial support from family members in other parts of the country, particularly Kinshasa.

Markets

In the *River, Lagoon, and Wetlands Fishing and Staple Crops Livelihood Zone*, market access and trade activities are highly challenging due to the poor state of transportation infrastructure. The roads leading to the zone are informal tracks and often in poor condition; mountainous terrain and poorly maintained bridges exacerbate the challenges. During the Rainy Season, road access is particularly difficult, although it is somewhat easier during the Dry Season.

Most fish is sold dried or salted. The destination markets for fish include nearby markets of Befale, Boende, Bokungu, Ikela, and Monkoto, but also larger more distant markets including Kinshasa, Mbandaka, and Congo-Brazzaville. For long-distance trade, fish traders from outside the zone purchase from fishermen at village level.

Key agricultural products such as rice, maize, groundnuts, and cassava are sold using river transportation (whalers and canoes) and road (motorcycles or vehicles). The peak selling months for key staples such as rice, maize, and groundnuts are August and September, while cassava is sold year-round. There is little difference between wealth groups in terms of the produce price for their crops, although different market locations can affect the selling price. Livestock — including pigs, sheep, and goats — are sold year-round, primarily using the same river and road routes that are used for crop sales. Other key products — such as bananas, plantains, and beans (*Nkunde*) — are also sold year-round. Staple foods purchased in the zone, such as cassava and maize, are transported using river or road routes. Cassava is planted, harvested, and purchased throughout the year. By contrast, maize is purchased on a seasonal basis in line with the Season A and Season B agricultural calendar.

Regarding labor markets, 10% of casual work occurs in rural areas within the zone, while 90% is carried out in local towns. Men leave their villages, often daily, to work in the town of Boende, especially between December and March when there can be flooding.

Timeline and Reference Year

The baseline assessment refers to a very specific period called the "reference year." In CD19, the reference year covers the consumption period from November 2022 to October 2023. During community leader interviews, informants were asked to score the last five years in terms of seasonal performance with "1" indicating a poor season and "5" indicating an excellent season. Table 1 summarizes the community leaders' responses.

Table 1. Timeline

Production Year/ Season	Score	Critical Events
2023/Season B 2022/Season A	2 3	In 2023, the first season (Season A) experienced an epizootic event (PPR). To cope, households increased self-employment activities. In the second season (Season B), caterpillar infestations occurred. The primary coping strategy was increased hunting and gathering. In the face of these factors, the overall food security rating for Season A was average, while Season B was rated below average in terms of household food security.
2022/Season B 2021/Season A	3 3	In 2022, both seasons faced caterpillar infestations. Season A saw an intensification of labor and self-employment as coping strategies, while Season B encountered rising water levels, which led households to sell livestock as an adaptation measure. Both seasons were classified as average for household food security, indicating moderate challenges but manageable conditions overall.

2021/Season B 2020/Season A	3 3	For 2021, caterpillar infestations and epizootic events (PPR) marked Season A, with hunting and gathering as response strategies. Season B encountered strong winds, with labor intensification and self-employment as coping strategies. Both seasons were classified as average for household food security.
2020/Season B 2019/Season A	4 2	In 2020, Season A was marked by caterpillar infestations and epizootic events (PPR), with a below-average food security rating as households faced challenges from these events. Season B, however, was reported without abnormal events and was classified as above average.
2019/Season B 2018/Season A	3 4	In 2019, Season A outcomes were rated above average for household food security, with no significant negative events. Season B, however, faced crop diseases, prompting labor intensification and self-employment as adaptive strategies. This season was classified as average for household food security as crop diseases posed moderate challenges.

5 = Excellent season for household food security (e.g., due to good rains, good prices, good crop yields)
4 = Good season or above average season for household food security
3 = Average season for household food security
2 = Below-average season for household food security
1 = Poor season for household food security (e.g., due to drought, flooding, livestock disease, pest attack)

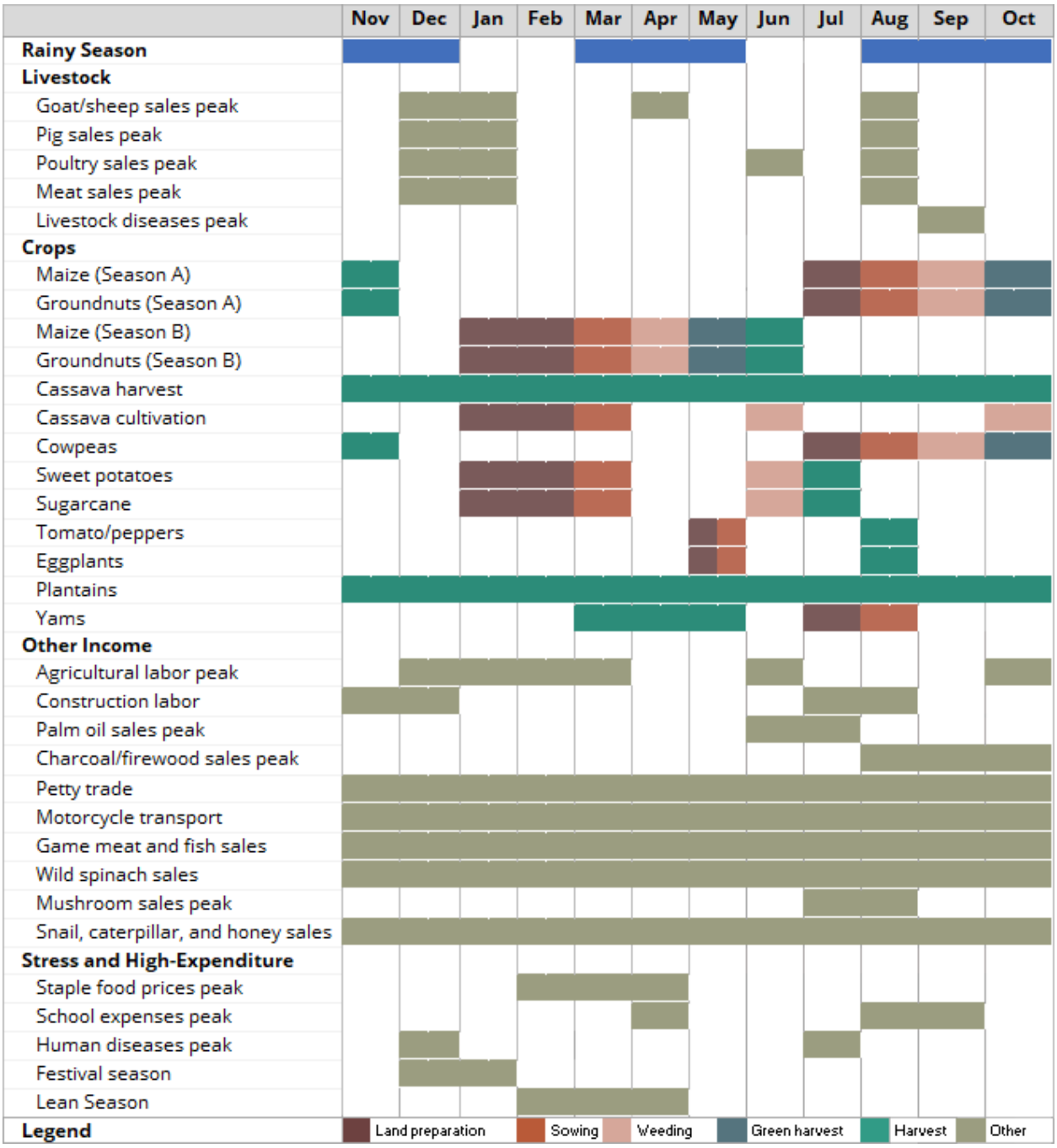
Note: "Production Year" refers to the farming year, usually beginning with the start of the main rains.

Seasonal Calendar for Reference Year

The seasonal calendar (see Figure 2) illustrates the main economic activities and events of the reference year. It indicates the rainy months, livestock activities, agricultural activities, and other important income activity periods, as well as stress and high-expenditure periods.

As noted above, the Rainy Seasons typically follow a bimodal pattern. The first Rainy Season starts in August and ends in December. This season marks the beginning of agricultural Season A. The second Rainy Season starts in March and ends in May, supporting a second planting in Season B. Cassava, the main crop, is harvested at any point during the year according to need, with new seedlings replacing the harvested tubers. Preparation for new cassava fields starts in January and ends in February, followed by planting seedlings in March and weeding in June and October. Maize and groundnuts are cultivated in two seasons. During the main season, Season A, land is prepared in July, sowing occurs in August, weeding in October, and harvesting in November (maize) and December (groundnuts). Season B starts with land preparation in January and February, sowing in March, weeding in June, and harvesting in July. Season A green consumption for groundnuts and maize occurs in December, and Season B green consumption for the same crops happens in May. Cowpeas are cultivated in the same period as maize and groundnuts in Season A.

Figure 2. Seasonal Calendar



Households in this zone take advantage of the natural lowland terrain to cultivate sweet potatoes, sugarcane, yams, plantains, bananas, and vegetables. Land preparation for sweet potato and sugarcane occurs in January and February, with sowing in March, weeding in June, and harvesting in July. Yam is sowed in August and harvested from March to May. Plantains and bananas are perennial crops that can be harvested at different times during the year. Land preparation for vegetables occurs in May, followed by immediate sowing; harvesting is done in August.

Palm tree production continues throughout the year, and fruits can be collected from households' own plantations or wild from the bush. The consumption and sale of cassava leaves and sweet potato leaves are typical for households in this zone and can occur throughout the year.

The success or failure of livestock-keeping depends largely on the outcome of the Rainy Season. During this period, the availability of surface water and pasture for livestock improves, leading to increased reproduction and productivity. Gestation periods are 5-6 months for small ruminants (goats and sheep) and almost four months for pigs. Goats and sheep are mostly sold in December and January, coinciding with the festive season, and in August, as households prepare for the school year, and in April for Easter. Pigs and poultry are mostly sold in January, August, and December. Poultry are also commonly sold in June in anticipation of disease outbreaks. Animal slaughter, primarily involving pigs and small ruminants, typically occurs in January, August, and December.

Regarding other income sources, agricultural labor is most intensive from January to March, in June, and from October to December. Construction activities primarily occur between July and August and from November to December. Palm oil sales peak between June and July, while charcoal and firewood sales see their highest demand from August to October. Meanwhile, petty trade; motorcycle transport; fishing; and the sale of fish, hunting and game meat, wild spinach, snails, caterpillars, and honey are ongoing throughout the year. Mushroom sales peak in July and August.

Households have increased expenditure demands in April, August, and September when school fees are due, and in December and January during the festival season. Livestock disease outbreaks typically occur in September, while human disease outbreaks generally peak in July and December. The Lean Season, the most challenging period in terms of food access, begins in February and extends to March. During this time, stocks of cereals and pulses are depleted, particularly for poorer households, and food prices are high.

Table 2 outlines the typical division of labor, distinguishing between shared and non-shared tasks. Shared tasks among men, women, boys, and girls include land preparation, planting, sowing, weeding, harvesting, selling crops, and collecting and selling wild foods (wild spinach, snails, caterpillars, mushrooms, and honey). Men and women participate in trade activities, such as selling agricultural products, beauty items, shoes, meat, and smoked fish in local markets.

Men are primarily responsible for tasks such as threshing, livestock-related tasks for pigs, goats, and sheep — including slaughter, meat sales, and live animal sales — house building and maintenance, bird scaring, construction labor, motorcycle transport business, charcoal production and sales, fishing and fish sales, and hunting and game meat sales. In addition, men gather caterpillars, hunt game, and fish. Women, on the other hand, are solely responsible for livestock-related tasks for poultry, including poultry sales, as well as palm oil processing and sales, watering crops, petty trade, firewood collection and sales, and most household chores, including water collection, cooking, feeding small children, laundry, and firewood collection. Women also gather mushrooms and collect water from streams.

Table 2. Typical Division of Labor

Shared Tasks	Women's Tasks	Men's Tasks
• Land preparation, planting, weeding, harvesting • Crops sales • Wild foods collection and sales • Fish processing	• Poultry rearing and sales • Household chores • Palm oil processing and sales • Crop watering • Petty trade • Firewood collection and sales	• Fishing and fish sales • Threshing • Pigs, goats, and sheep rearing, slaughter, and sales • House building and maintenance • Bird scaring • Construction labor • Motorcycle transport business • Charcoal production and sales • Hunting and game meat sales

Wealth Breakdown and Productive Assets

Wealth distribution in the zone is shaped by several key factors, including the types and quantity of fishing equipment, amount of cultivable land, availability of labor, number of livestock owned, and possession of other productive assets such as bicycles and motorcycles.

Table 3 summarizes the types and numbers of productive assets that typical households within each wealth group own and/or manage. Asset holdings are shown in a range that reflects the diversity of households' situations within a wealth group. Figure 3 shows the percentage of households within the zone that fall in each wealth group. The survey of wealth groups of households in the zone was carried out by the communities themselves.

Fishing equipment and tools are fundamental to fishing in this zone, and ownership varies with wealth. Very poor households own a maximum of two drawn nets and 5-15 fixed nets. Poor households typically possess up to two canoes, up to two drawn nets, and 10-20 fixed nets. Middle households generally own one or two canoes, 1-3 drawn nets, and 40-80 fixed nets, while better-off households own 2-3 canoes, 3-5 drawn nets, and 50-150 fixed nets. Poor female-headed households usually only own up to 10 fixed nets for fishing.

Access to land varies significantly among wealth groups, with wealthier households owning and cultivating more land than poorer households. Land access is influenced by factors such as familial background, conflict, migration, and war. Renting land is uncommon across all wealth groups in this livelihood zone.

In CD19, land is freely available, and every household cultivates according to their means and available labor. During the reference year, households across all wealth groups cultivated only a small portion of the land that they owned. Differences in crop yields reflected the types of crops grown and the quantities produced, which in turn reflected the amount of land each wealth group

cultivated. Middle and better-off households hired labor to assist with cultivation, while very poor and poor households cultivated crops primarily for their own consumption and worked as laborers for wealthier households.

Table 3. Wealth Breakdown

Household Size and Productive Assets	Very Poor	Poor	Middle	Better-Off	Poor Female-Headed
Household size	5-7	7-9	10-15	15-20	5-7
Land owned (hectares [ha])	0.5-1.5	1-2	2-5	4-8	0.5-1.5
Land cultivated (ha)	0.2-0.4	0.25-0.75	0.5-1.5	1-2	0.25-0.5
Pigs	0	0-2	2-10	5-15	0-2
Goats	0-2	0-3	4-8	5-15	0-3
Sheep	0	0	0-6	0-10	0-2
Poultry	2-10	4-8	10-25	20-30	2-10
Bicycles	0	0-1	1	1-2	0
Motorcycles	0	0	0-2	1-2	0
Canoes	0	0-2	1-2	2-3	0
Drawn nets	0-2	0-2	1-2	2-3	0
Fixed nets	5-15	10-20	40-80	50-150	0
Palm oil presser	0	0	0-1	0-2	0
Mobile phones	0	0	0-1	1	0

Very poor households cultivated 0.2-0.4 ha of land, poor households 0.25-0.75 ha, middle households 0.5-1.5 ha, and better-off households 1-2 ha; poor female-headed households cultivated 0.25-0.5 ha. There is a progressive increase in land area cultivated as wealth increases. Overall, the better-off cultivated five times the land cultivated by the very poor.

Livestock are a significant source of income in this zone, serving as an important means of saving and safeguarding against difficult years. The main types of livestock kept include goats, sheep, pigs, and poultry. Livestock provide direct access to food through meat and are a crucial source of cash income through the sale of live animals and some meat. Households from all wealth groups in the zone own livestock, with wealthier households possessing the largest herds, including pigs and

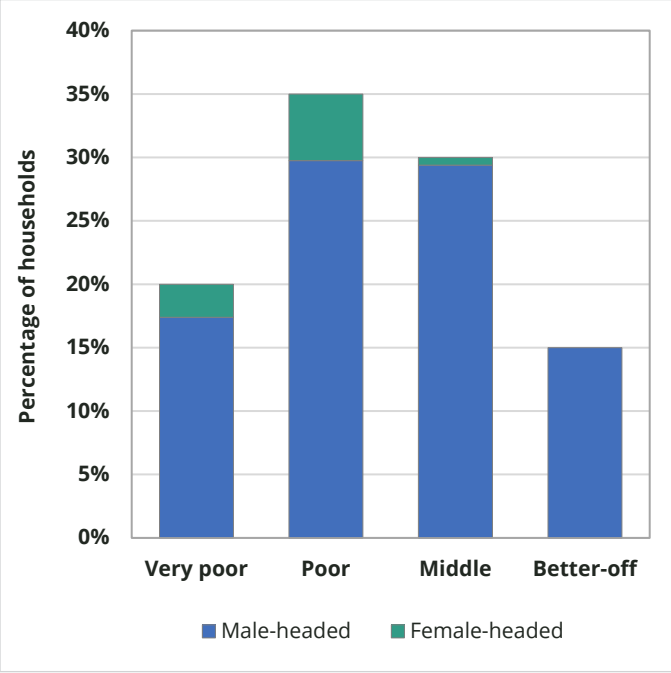
sheep. Herd sizes for very poor households generally include a maximum of two goats and 2-10 poultry. Poor households may own up to two pigs, up to three goats, and 4-8 poultry. Middle households typically possess 2-10 pigs, 4-8 goats, up to six sheep, and 10- 25 poultry. Better-off households often own 5-15 pigs, 5-15 goats, up to 10 sheep, and 20-30 poultry. In comparison, poor female-headed households usually own up to two pigs, up to three goats, up to two sheep, and 2-10 poultry.

Agricultural production varies by wealth group. Primary constraints to agricultural production include a lack of funds to purchase inputs and tools, a shortage of labor (often worsened by prevalent alcohol consumption), and a shortage of oxen. Livestock production faces similar constraints, including a lack of funds for inputs, insufficient crop residues for feeding, and inadequate grazing land. To mitigate these constraints, wealthier households sometimes provide tools and equipment to poorer households, with repayment made through agricultural products or labor during the Harvest Season. Wealth-sharing arrangements extend to livestock production, where groups may loan female animals for reproduction purposes. Women play a significant role in livestock ownership, often purchasing animals like goats and pigs independently, even when married.

In terms of other asset ownership, poor households typically own 0-1 bicycles. Middle households own one bicycle, two motorcycles, one mixer, and one mobile phone. Better-off households on average have 1-2 bicycles, 1-2 motorcycles, up to two mixers, and one mobile phone.

Figure 3. Wealth Breakdown

Note: All results are the mid-point of a range



Wealthier households have the resources to hire labor from poorer households, particularly for tasks such as land preparation, sowing, weeding, and harvesting. In contrast, poorer households possess few productive assets and primarily rely on their own labor.

Household size tends to increase with wealth. Very poor and poor female-headed households typically have 5-7 members, poor households have 7-9 members, middle households 10-15 members, and better-off households 15-20 members.

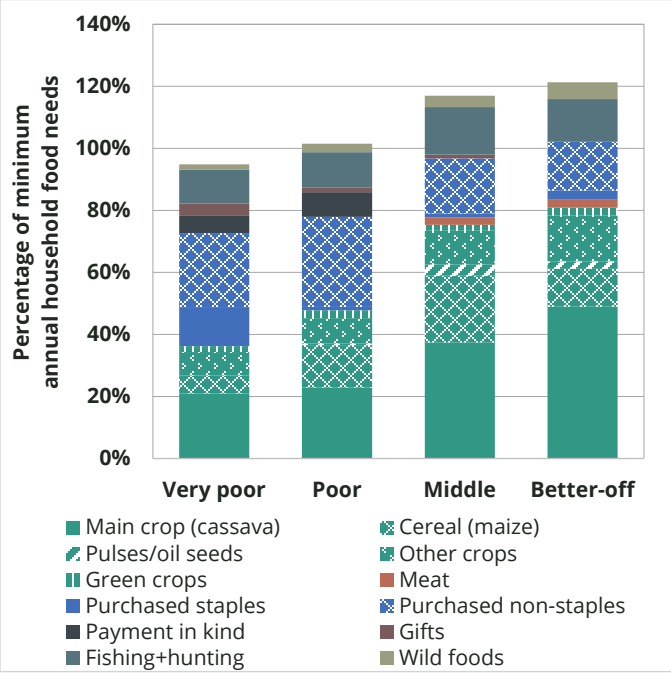
The proportion of households in the community is distributed as follows: very poor households constitute 15-25%, poor households 30-40%, middle households 20-25%, and better-off households 10-20%. The proportion of female-headed households decreases as wealth

increases. In the very poor wealth group, 5-25% of households are female headed, while in the poor wealth group, 10-20% are female-headed. Among the wealthier households, in the middle wealth group, up to 5% are female-headed households. It is important to note that in this livelihood zone, women are permitted to inherit land, and in some cases, daughters of chiefs may even become leaders. Widows can inherit their husbands' assets if they do not remarry. Furthermore, women can possess livestock if they have the means to purchase them.

Sources of Food

Figure 4 presents the sources of food for households in different wealth groups in the livelihood zone for the period November 2022 to October 2023. November represents the start of the consumption year because it is when the consumption of crops from the main harvest season starts. Food is presented as a percentage of the annual kilocalorie (kcal) needs of the household based on the internationally accepted 2,100 kcal per person per day.

Figure 4. Sources of Food



There were two main sources of food in this zone: households' own crops and market purchases. Other minor sources of food included meat, payment in-kind, fishing, gifts, and wild foods. Payment in-kind consisted of rice in September, October, and December, while maize was typically given as payment in January, February, and March. Gifts of food were cassava or plantain.

When considering total food consumption, there was a clear progressive increase in the amount of food consumed with rising wealth. Overall, the very poor consumed about 95% of their minimum annual food needs, the poor consumed 100-105%, the middle households consumed 110-125%, and the better-off consumed 115-130% of their minimum annual food needs.

Crop production was the most important source of food in the livelihood zone, with households from all wealth groups relying on it for 35-85% of their minimum food needs. For very poor households, crop consumption covered 35-40% of their minimum annual food needs, 40-55% for poor households, 70-80% for middle households, and 70-90% for better-off households.

Cassava was the main crop consumed by households. It was eaten fresh, dried, used as cassava flour, and used to prepare different dishes like *fufu, chikwangue,* and *bikaiy*. Cassava leaves were also commonly consumed, often served alongside *fufu* and *chikwangue*. In terms of minimum annual food needs from cassava, the ranges were 15-25%, 20-25%, 30-45%, and 45-55% for very poor, poor, middle, and better-off households, respectively.

Households from all wealth groups obtained 1-3% of minimum annual food needs from green consumption (mainly green maize and cowpeas in both seasons). Maize itself contributed 5-7%, 10-15%, 20-25%, and 10-15% of minimum annual food needs for the very poor, poor, middle, and better-off, respectively. Pulses and oil seeds (groundnuts and cowpeas) were important sources of vegetable protein and fat. Very poor households did not consume their own groundnuts and cowpeas, and poor households obtained less than 1% of minimum annual food needs from this source. Middle households secured 3-5%, and better-off households got 2-3%. Other crops included sweet potatoes, plantains, bananas, yams, eggplant, and palm oil. Very poor and poor households each obtained about 5-10% of their minimum annual food needs from this category, middle households obtained 10-15%, and better-off households obtained 10-20%.

Meat from households' own animals was a source of animal protein for only middle and better-off households, which covered 2-3% of the minimum annual food needs in the reference year.

Payment in-kind provided an additional source of calories for poorer households. Very poor households obtained 4-7% of their minimum annual food needs from this category, while poor households received 5-10%. Fishing and hunting were significant contributors to annual caloric intake, supplying around 10-15% of households' needs. Wild foods contributed an additional 2-5% of annual calories. Gifts accounted for approximately 4% of the total calories for very poor households, and 1-2% for poor and middle households.

Purchases were the second most important source of food in the livelihood zone. Purchased food can be divided into staple and non-staple. Only poorer wealth groups purchased staple foods, which in this zone includes small quantities of maize, rice, fresh cassava, and cassava flour. The quantity of staple foods purchased by poorer households was low compared to many other livelihood zones due to the diverse range of other food sources available in this zone. Non-staple food purchases, on the other hand — beans, cowpeas, sugar, cow meat, goat meat, pork, oil, plantains, dried fish, fresh fish, vegetables, and sweet potatoes — contributed significantly to annual food needs. However, their contribution decreased by wealth group; non-staple food purchases contributed 30-40%, 25-35%, 15-20%, and 10-20% of minimum annual food needs for very poor, poor, middle, and better-off households, respectively.

There was no food aid in the livelihood zone in the reference year. Overall, the reference year was average in terms of food security, with most of households meeting their minimum annual food-energy needs, except for very poor and poor female-headed households.

Sources of Cash Income

Fishing and crop production were the main livelihood activities in CD19. Households in different wealth groups obtained cash income by different means (see Figure 5). Crop sales were the main income source for better-off households. Fishing and hunting were the main income source for very poor, poor, and middle households.

Figure 5. Sources of Cash Income as a Percentage of Annual Cash Income

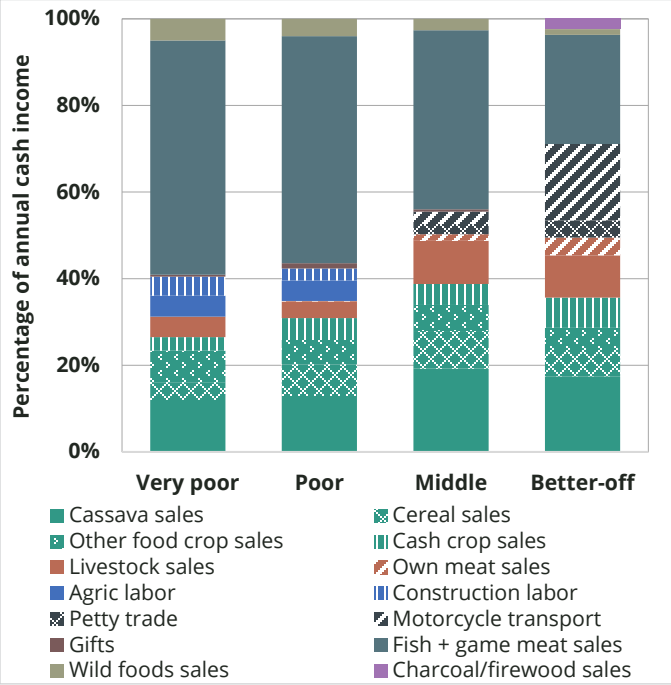
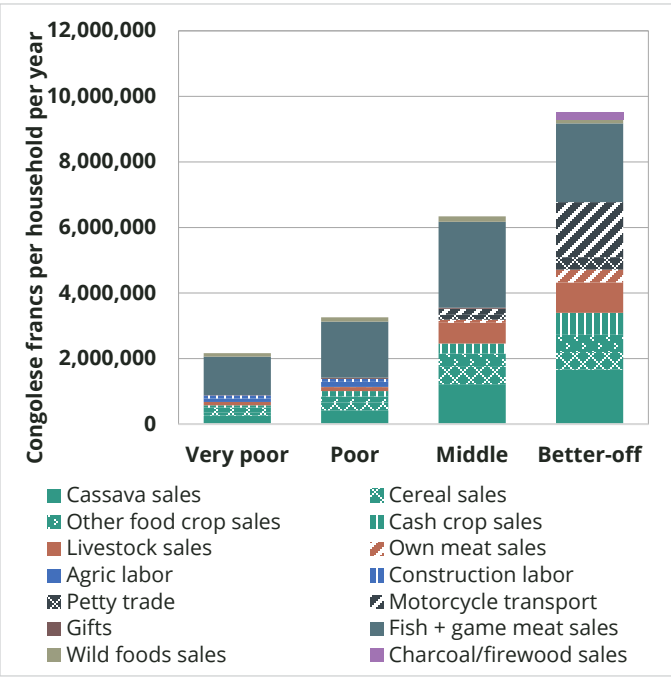


Figure 6. Total Annual Cash Income



Households also earned income from livestock sales, livestock meat sales, agricultural labor, construction labor, petty trade, charcoal and firewood sales, motorcycle taxis, gifts, and wild food sales.

Very poor households primarily obtained income from the combination of fish and game meat sales, which accounted for 50-60% of total income. This was followed by crop sales, contributing 20-30%. Livestock sales, agricultural labor, construction labor, and wild food sales each contributed an additional 5% to total income.

Like the very poor, poor households also generated about 50-55% of their cash income from fish and game meat sales. Additionally, crop sales provided 25-30% of their total annual cash income. Agricultural labor, livestock sales, and wild food sales each contributed around 4% to their income. Construction labor added 2-5%, while gifts contributed approximately 1%.

Middle households earned roughly 30-45% of their total annual cash income from crop sales and roughly 30-45% from fish and game meat sales. Livestock sales contributed an additional 10% of their income. Motorcycle transport and wild food sales provided 2-5% each. The combined contributions from petty trade, their own meat, and gifts made up less than 5% of their total income.

Better-off households in CD19 secured 30-40% of their total annual cash income from crop sales and 20-30% from the combination of fish and game meat sales. Motorcycle transport contributed 15-20% of their income. Additional cash income sources included petty trade and their own meat sales, each of which provided approximately 4%; charcoal and firewood sales, which generated about 2% of annual income; and wild food sales, which generated only about 1% of annual income.

Differences between wealth groups in the absolute amount of cash income generated during the reference year were large. This gap is illustrated in Figure 6 and Table 4. Better-off households earned more than four times the cash income of very poor households. On a per capita basis, better-off households earned about 1.5 times the annual per capita cash income of very poor households.

Table 4. Income Summary Table (Congolese Francs or CDF)

Wealth Group	Very Poor	Poor	Middle	Better-Off
Annual income per household[3]	1,600,000-2,600,000	2,800,000-3,800,000	5,000,000-8,000,000	8,000,000-12,000,000

Expenditure Patterns

Figure 7 presents expenditure patterns for the reference year November 2022 to October 2023. While absolute expenditure increases with wealth in line with total cash income, this graph's expenditure breakdown by percentage shows the *relative* amount of income spent on different wealth groups. Households in the zone need to cover a range of essential expenditures over the year. These include staple foods (maize, fresh cassava, cassava flour, and rice), non-staple foods (beans, cowpeas, sugar, cow meat, oil, plantains, bananas, fresh fish, dried fish, vegetables, sweet potatoes, pork, and goat meat), household items/services (salt, soap, tea, coffee, lighting, milling, etc.), productive inputs, social services (health and education), clothing, transport, as well as other items such as phone credit, religious contributions, beer, tobacco, festivals, house repairs, and savings . Households did not purchase water in this livelihood zone during the reference year.

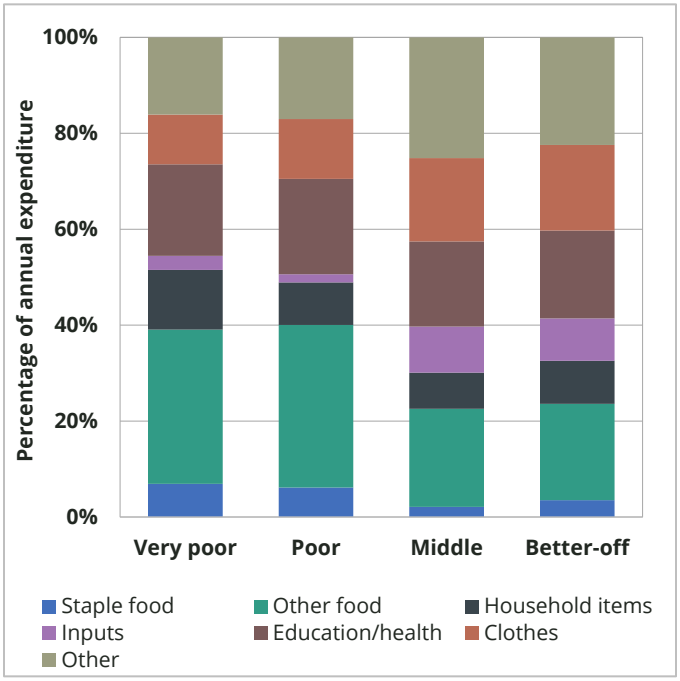
Households from all wealth groups spent significant proportions of their annual income on staple and non-staple foods. As noted in the Sources of Food section, poorer households secured 25-40% of their annual food energy needs from food purchases, while wealthier households obtained 15-25% of their annual food energy needs from this source.

Very poor household expenditure on staple foods accounted for 5-10% of annual expenditure in the reference year. Non-staple foods expenditure was 30-35% of total expenditure, household items (including lighting and grinding costs) were 10-15%, productive inputs were less than 5%, social

[3] The average exchange rate from November 2022 to October 2023 was 1 USD = 2,210 CDF.

services (health and education) were 15-25%, clothing/shoes were 5-15%, and “other” items (transportation, phone credit, festivals, etc.) were 15-18%.

Figure 7. Total Annual Cash Expenditure by Category



Poor household expenditure on staple foods accounted for 5-8% of annual expenditure. Non-staple foods expenditure was 30-40% of total expenditure, household items were 5-15%, productive inputs were also 5-15%, social services were 15-25%, clothing/shoes were 10-15%, and “other” was 15-18%.

Middle households spent approximately 2% of total annual expenditure on staple foods, 15-25% on non-staple foods, 5-15% on household items, 5-15% on productive inputs, 15-25% on social services, 15-20% on clothing/shoes, and 20-30% on “other” items.

Better-off household expenditure on staple foods was about 4% of annual expenditure and 25-35% on non-staple foods. Expenditure on household items was 5-15%, 5-15% on productive inputs, 15-25% on social services, 15-20% on clothing/shoes, and 20-25% on “other” items.

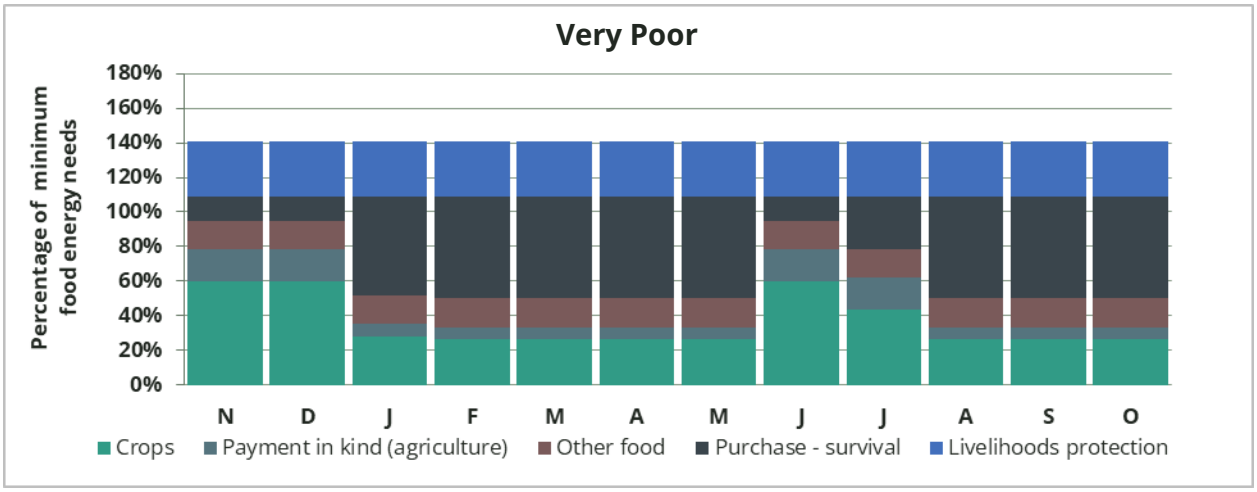
Expenditure on other food and on social services were the largest expenditure categories for poorer households in the reference year, representing about 50% of total expenditures for very poor households and about 55% for poor households. The categories of other food, social services, and “other” represented 60-65% of total expenditures for middle households, and about 60% of total expenditure for better-off households.

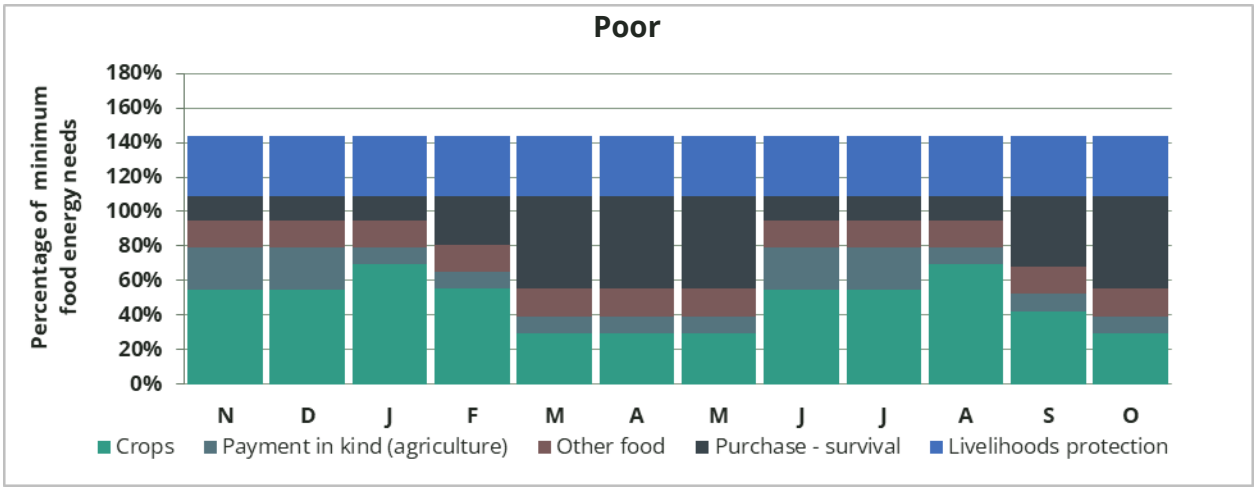
Food Access Calendars

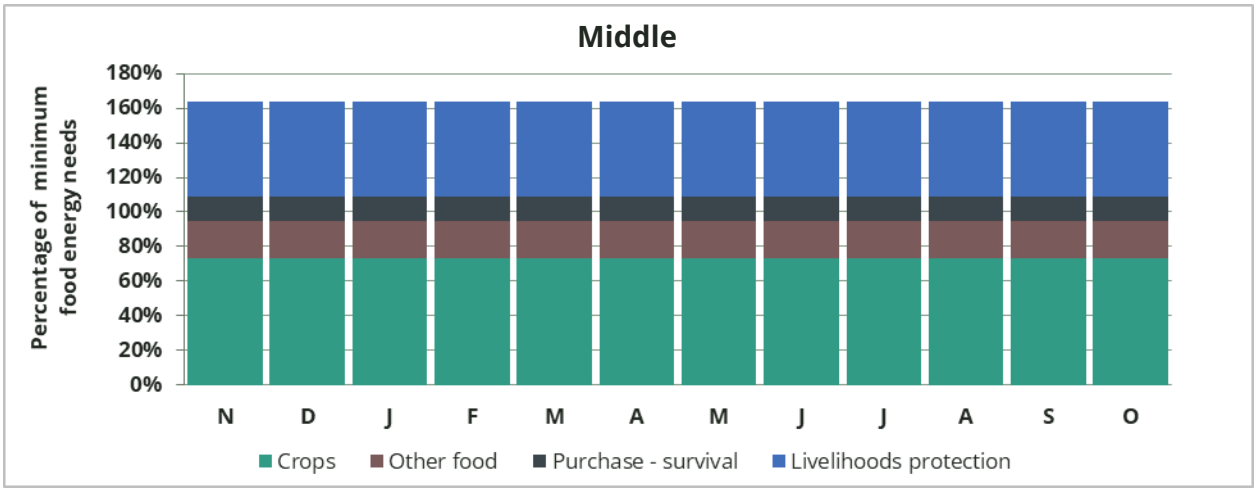
The graphs in Figure 8 present monthly food and cash access calendars for the four wealth groups.

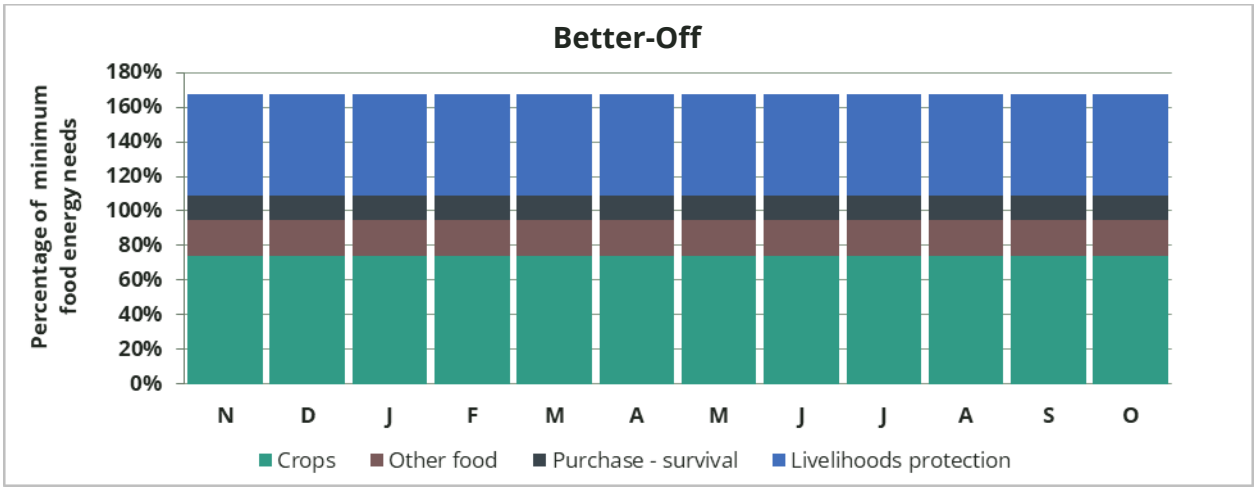
Households in all wealth groups were able to meet their survival and livelihoods protection thresholds year-round in the reference year. The main harvest period in this livelihood zone started in November and the second harvest period started in June. Very poor and poor households obtained some food from payment in-kind for casual agricultural labor (in teal). Very poor and poor households rely on market purchases to meet their needs, while middle and better-off households are more self-sufficient. The dark blue “livelihoods protection” sections of the bars increase as a proportion of the total with wealth because wealthier households can afford to spend more on productive inputs, health, and education.

Figure 8. Seasonal Food and Cash Access Calendars per Wealth Group









Poor Female-Headed Households

Female-headed households are found in the very poor and poor wealth groups, as shown in the wealth breakdown in Figure 3. During fieldwork, data collectors conducted in-depth interviews with poor female-headed households. In CD19, female-headed households are typically widows or single mothers, some in poor health and with physical limitations. This group faces similar constraints as male-headed households, but they are further disadvantaged by a lack of adult male labor, which potentially leads to additional constraints on certain types of asset ownership, productive work, or income-generating activities, including fishing. Notably, poor female-headed households had fewer household members in the reference year (5-7) compared to male-headed households (7-9).

Figure 9 shows that poor female-headed households and poor male-headed households shared a similar pattern of food access, mainly their own crops and food purchases. Poor male-headed households cultivated slightly more land than the poor female-headed households, harvested more, and had 10% more calories from crop production than the poor female-headed households. Poor female-headed households lack male labor for fishing and had limited access to fishing equipment, which consisted of only a few fixed nets, while poor male-headed households possessed up to two canoes, up to two drawn nets, and 10-20 fixed nets.

Figure 10 shows that poor male-headed households and poor female-headed households had some of the same sources of cash income in the reference year. Some exceptions were construction labor in poor male-headed households only, and petty trade and palm oil sales in poor female-headed households only. The main sources of cash income for poor female-headed households were, in order of importance, crop sales, fish and game meat sales, livestock sales (from pigs, goats, and poultry), agricultural labor, petty trade, wild food sales, meat sales, gifts, and palm oil sales.

Looking at total cash income, poor female-headed households earned about 60% of the cash income generated by poor male-headed households in the reference year. On a per capita basis, cash income was approximately 20-30% less for poor female-headed households.

Crop sales made up a higher percentage of annual cash income for poor female-headed households: 40-50% compared to 25-35% for poor male-headed households. Livestock sales and agricultural labor made up a slightly higher percentage of annual cash income for poor female-headed households: 5-8% compared to 3-5% for poor male-headed households. Gifts also made up a slightly higher percentage of annual cash income for poor female-headed households: about 2% compared to 1% for poor male-headed households. Fish and game meat sales made up a much higher percentage of annual cash income for poor male-headed households: 50-55% compared to 25-30% for poor female-headed households. For poor female-headed households and poor male-headed households, wild foods made up approximately 4% of their annual cash income.

Figure 9. Sources of Food: Poor Households vs Poor Female-Headed Households

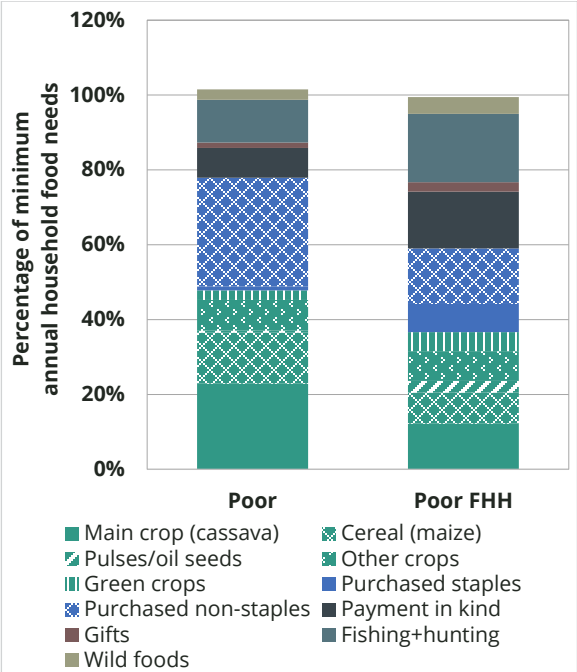
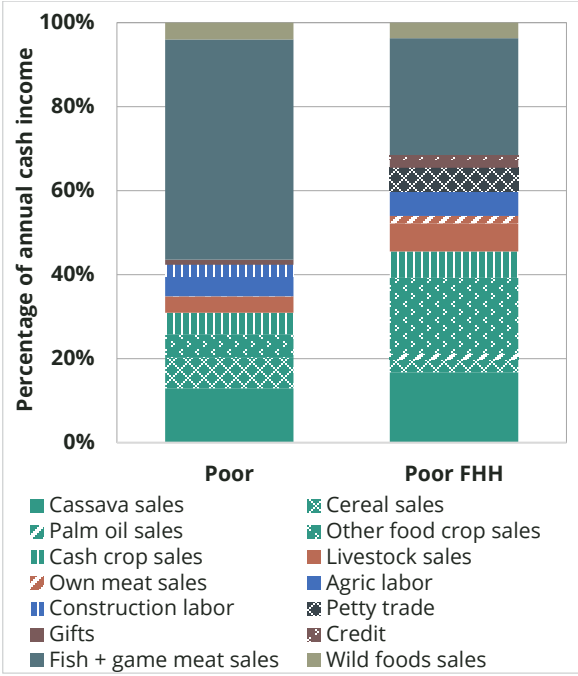


Figure 10. Sources of Cash: Poor Households vs. Poor Female-Headed Households



Response Strategies

In response to hazards and years with poor production, households attempt to meet their minimum food needs and cash requirements in several ways. Below are some common strategies employed by households.

Households from all wealth groups try to reduce expenditure on non-essential or more expensive items first, such as cutting down on festival costs or not buying clothes or utensils that year. Households consume less rice and maize in favor of cassava flour, or fresh cassava if available, which is the least expensive staple.

Very Poor and Poor Households

Very poor and poor households try to increase cash income by increasing casual labor activities. However, in bad years, as more people flood the labor market, this option quickly loses its value because wage rates drop and jobs become harder to find, pushing households to other activities such as gathering wild foods and increasing petty trade.

Middle and Better-Off Households

Middle and better-off households cope with hazards differently. Middle and better-off households sell additional livestock to cover basic food and non-food expenses in bad years. They also increase self-employment activities, such as petty trade, motorcycle transport, petty business, and wild foods collection. Some households also migrate in search of work.

Key Parameters for Monitoring

The key parameters listed in Table 5 are food and income sources that make a substantial contribution to the household economy in the *River, Lagoon, and Wetlands Fishing and Staple Crops Livelihood Zone*. These should be monitored to track potential losses or gains to local household economies through ongoing monitoring systems or periodic assessments.

Table 5. Key Parameters for Monitoring

Item	Key Parameter – Quantity	Key Parameter – Price
Crop production	• Maize Seasons A and B – quantity produced • Cassava – quantity produced • Palm oil – quantity produced • Plantains – quantity produced • Bananas – quantity produced	• Maize Seasons A and B– producer price • Cassava – producer price • Palm oil – producer price
Livestock production	• Goats – herd size • Pigs – herd size	• Goats – producer price • Pigs – producer price
Other food and cash income	• Cultivation labor – number of days worked • Harvest labor – number of days worked • Fishing – quantity caught • Wild foods – quantity • Construction – number of days worked • Petty trade – demand • Transport services – demand	• Cultivation labor – wage rates (in cash) • Harvest labor – wage rate (in food) • Fishing – sales price • Wild foods – sales price • Construction – wage rates • Petty trade – daily earnings • Transport services – daily earnings
Expenditure		• Cassava – consumer price

CD20 Livelihood Zone

Reference Year: December 2022–November 2023

Central Basin Staple Crops, Fishing, and Charcoal Livelihood Zone

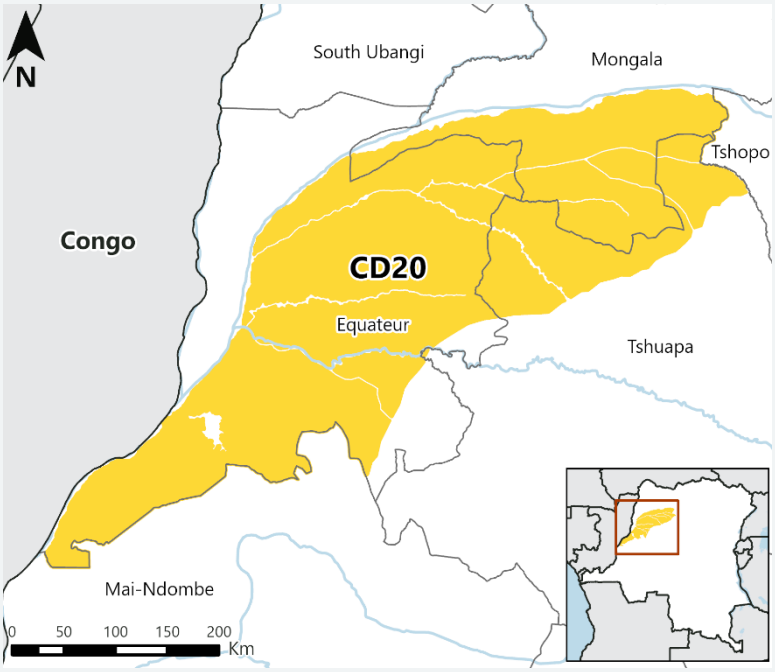


Figure 1. CD20 Livelihood Zone Map

Summary: The *Central Basin Staple Crops, Fishing, and Charcoal Livelihood Zone* (CD20) spans several administrative units in Equateur, Tshuapa, and Mongala Provinces. The zone is characterized by its equatorial climate, hot temperatures, and humid environment. The topography consists of hills, undulating plains, and riverine areas. The main livelihood activities in this zone include agriculture, charcoal production, fishing, small livestock rearing, and gathering. The primary crops are cassava, maize, plantains, groundnuts, and sweet potatoes. Small-scale livestock production primarily involves rearing pigs, goats, and sheep, which are raised through free grazing on grass and crop residues. The zone is marked by a food deficit, primarily due to climatic disruptions such as flooding and the prevalence of pests and livestock diseases, making it a region that occasionally requires humanitarian aid.

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Zone Description

The *Central Basin Staple Crops, Fishing, and Charcoal Livelihood Zone* (CD20)[1] spans several administrative units in Equateur, Tshuapa, and Mongala Provinces. Specifically, it includes Mbandaka, Bikoro, Ingende, Bolomba, and Lukolela Territories in Equateur; Befale and Djolu Territories in Tshuapa; and Bongandanga Territory in Mongala. The zone is characterized by its equatorial climate, hot temperatures, and humid environment. The topography consists of riverine areas, with some undulating plains. Prominent geographical features include the Ruki, Likelemba, Lopori, Lulonga, Irebu, and Tshuapa Rivers. The zone experiences an average annual rainfall of 1,600 millimeters, with temperatures ranging from 25°C to 39°C.[2] The Rainy Seasons occur from March to May and August to November. The zone's vegetation is a mix of equatorial forest, savannah, farmland, and bushland. While wood and fish resources are utilized by wealthier households, poorer households often rely on wild foods. Key urban centers are Mbandaka and Boende, with the Mabali Reserve and the Eala Botanical Garden serving as significant natural landmarks.

The predominant livelihood activities in this zone include agriculture, charcoal production, fishing, small livestock farming, and gathering. The population of CD20 is 2,124,215, with an average population density of approximately 21 people per square kilometer.[3]

The primary crops are cassava, maize, banana plantains, groundnuts, and sweet potatoes. These crops are typically grown in fertile clayey and sandy-clayey soils, and the agricultural practices include hand digging for soil preparation. The zone is marked by a food deficit, primarily due to climatic disruptions, such as flooding and the prevalence of pests and livestock diseases, and has received no humanitarian aid in the last five years.

Households engage in small-scale livestock production, primarily keeping pigs, goats, and sheep, which are typically raised through free grazing on grass and crop residues. Livestock water sources during both Rainy and Dry Seasons are mainly seasonal pools. Livestock sales are most frequent in April, July, September, and December, coinciding with periods of increased financial needs, such as for school fees and holiday celebrations.

Apart from agriculture and livestock, charcoal production, fishing, and gathering are significant economic activities. Charcoal is produced throughout the year by men, involving the cutting of trees and the use of ovens for burning wood. All household members participate in fishing, which occurs in lakes, rivers, and streams. Gathering wild foods and other natural products is another essential activity, conducted in forested areas.

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[1] Fieldwork for the current profile was undertaken from June 21 to July 21, 2024. The information presented in this profile refers to the reference year, which was the consumption year that covered the period December 2022 to November 2023. Provided there are no fundamental and rapid shifts in the economy, the information in this profile is expected to remain valid for approximately five to 10 years (i.e., until 2029-2034). All prices referred to in the document are for the reference year. The team was unable to visit all parts of the livelihood zone, so this profile reflects rural areas around Mbandaka and Bikoro.
[2] EWX Next Generation Viewer, https://earlywarning.usgs.gov/fews/ewx/index.html.
[3] FEWS NET Data Explorer, population data (2023), accessed 2025, https://fdw.fews.net/data-explorer/.

Other economic activities include small business operations and paid casual labor. Households in this zone do not typically borrow money, nor do they receive remittances or other forms of external financial support. The zone is distinguished by its significant agricultural and charcoal production, differing from neighboring zones like the *River Fishing, Crops, and Livestock Livelihood Zone* (CD18), where fishing plays a more central economic role. This mix of agricultural and natural resource-based livelihoods defines the economic landscape of the *Central Basin Staple Crops, Fishing, and Charcoal Livelihood Zone* (CD20).

Three primary hazards significantly impact livelihoods in CD20, collectively contributing to the vulnerability of households in the zone and posing recurrent challenges to food security and economic stability. These include crop pests and diseases, flooding, and livestock diseases. Crop pests are a frequent issue, affecting the area approximately four out of every five years. These pests pose a substantial threat to agricultural production, particularly impacting key crops, such as cassava. The African cassava mosaic virus is a notable disease that often accompanies pest infestations, further complicating crop management and reducing yields. Flooding occurs with regularity, affecting the region around three years out of five. This hazard disrupts agricultural activities, damages infrastructure, and can lead to losses of crops and property, exacerbating food insecurity and economic instability. Livestock diseases are another critical concern, occurring in two of every five years. The most prevalent diseases include swine fever and bird flu, which particularly affect small livestock populations. These outbreaks can result in significant losses for households relying on livestock as a primary source of income and nutrition.

In terms of service provision, households from all wealth groups access water for drinking and for other uses primarily from unprotected sources, such as rivers and open wells, as well as protected sources, such as drilled wells, which are available within villages free of charge. Sanitation facilities for poorer households often consist of traditional toilet facilities with some using the bush, while wealthier households typically use traditional toilet facilities. Healthcare is accessed through dispensaries, health centers, and traditional medicine, with no significant difference between wealth groups. For lighting, most poorer households use battery-operated flashlights, while wealthier households mostly use solar lighting. Cooking fuel predominantly consists of firewood, with charcoal as an additional source for wealthier households. People across all wealth groups commonly use mobile phones for voice calls. Educational attainment varies, with individuals from poorer households typically achieving primary or secondary education, while individuals from wealthier households may also have access to tertiary or vocational education. There are no formal credit sources like banks or microfinance institutions available, and savings plans are not common.

Markets

In CD20, market access is significantly hindered by poor infrastructure. During both the Rainy and Dry Seasons, transportation relies on motorcycles, bicycles, vehicles, and canoes. However, the condition of roads, which are primarily dirt, and bridges within the zone is generally poor, which hampers efficient movement and market accessibility. The region is further disadvantaged by its

remoteness from major urban centers, such as Kinshasa and Mbandaka, exacerbating challenges in reaching larger markets.

The main crops sold include cassava, maize, groundnuts, and plantain bananas. These crops are typically traded along routes connecting local markets with Bikoro, Kinshasa, or Mbandaka. Peak sales of cassava happen primarily in December and January, and peak sales of maize and groundnuts occur mostly from July through August and in December. Livestock, including pigs, goats, and sheep, follow similar trade routes; peak livestock sales are in April, July, September, and December. Charcoal and palm oil, which are significant non-food products, sell year-round and follow similar trade routes.

Staple foods, such as rice and beans, are major purchased commodities, sourced through trade routes connecting Akula, Mbandaka, and Bikoro. The purchasing of these staples occurs throughout the year, reflecting the continuous need for these basic food items.

Casual labor is predominantly local, with approximately 80% of work occurring within rural areas of the livelihood zone, 10% in local towns, and another 10% outside the zone. Migration for work, typically to urban centers like Mbandaka and Kinshasa, involves both men and women, depending on economic conditions. In bad years, migration patterns increase as people seek better opportunities.

Timeline and Reference Year

The baseline assessment refers to a specific period called the “reference year.” In the *Central Basin Staple Crops, Fishing, and Charcoal Livelihood Zone,* the reference year covers the consumption period from December 2022 to November 2023. During community leader interviews, informants were asked to score the last five years in terms of seasonal performance, using “1” for a poor season and “5” for an excellent season. Table 1 summarizes the community leaders' responses.

Table 1. Timeline

Production Year/Season	Score	Critical Events
2023/Season B	3	Flooding, early crop harvest.
2022-2023/Season A	3	Crop pests, good harvest.
2022/Season B	4	Crop pests, flooding. Households coped through use of market gardening and charcoal production.
2021-2022/Season A	3	Crop pests, livestock diseases. Households coped through use of market gardening and charcoal production.
2021/Season B	2	Crop pests, fowl plague, livestock diseases. Households coped through market gardening, charcoal production, and petty trade.

2020-2021/Season A	2	Mosaic disease in crops, crop pests, fowl plague. Households coped through market gardening, charcoal production, and petty trade.
2020/Season B	3	Crop pests, flooding. Households coped through the use of mountain fields.
2019-2020/Season A	4	Swine fever, fowl plague, normal crop harvest.
2019/Season B	2	Flooding. Households coped through vegetable growing.
2018-2019/Season A	3	Fowl plague affected poultry production.

5 = Excellent season for household food security (e.g., due to good rains, good prices, good crop yields)
4 = Good season or above average season for household food security
3 = Average season for household food security
2 = Below-average season for household food security
1 = Poor season for household food security (e.g., due to drought, flooding, livestock disease, pest attack)

Over the past five years, the zone has experienced varied agricultural and climatic conditions, influencing the timeline of events and overall food security. Across these years, climatic disruptions, such as flooding, and pest infestations have been recurrent issues impacting agricultural productivity. The reference year was characterized as average, with climatic disruptions being a significant factor in production outcomes. There were no major conflicts reported, though occasional localized disputes occur, primarily affecting access to resources.

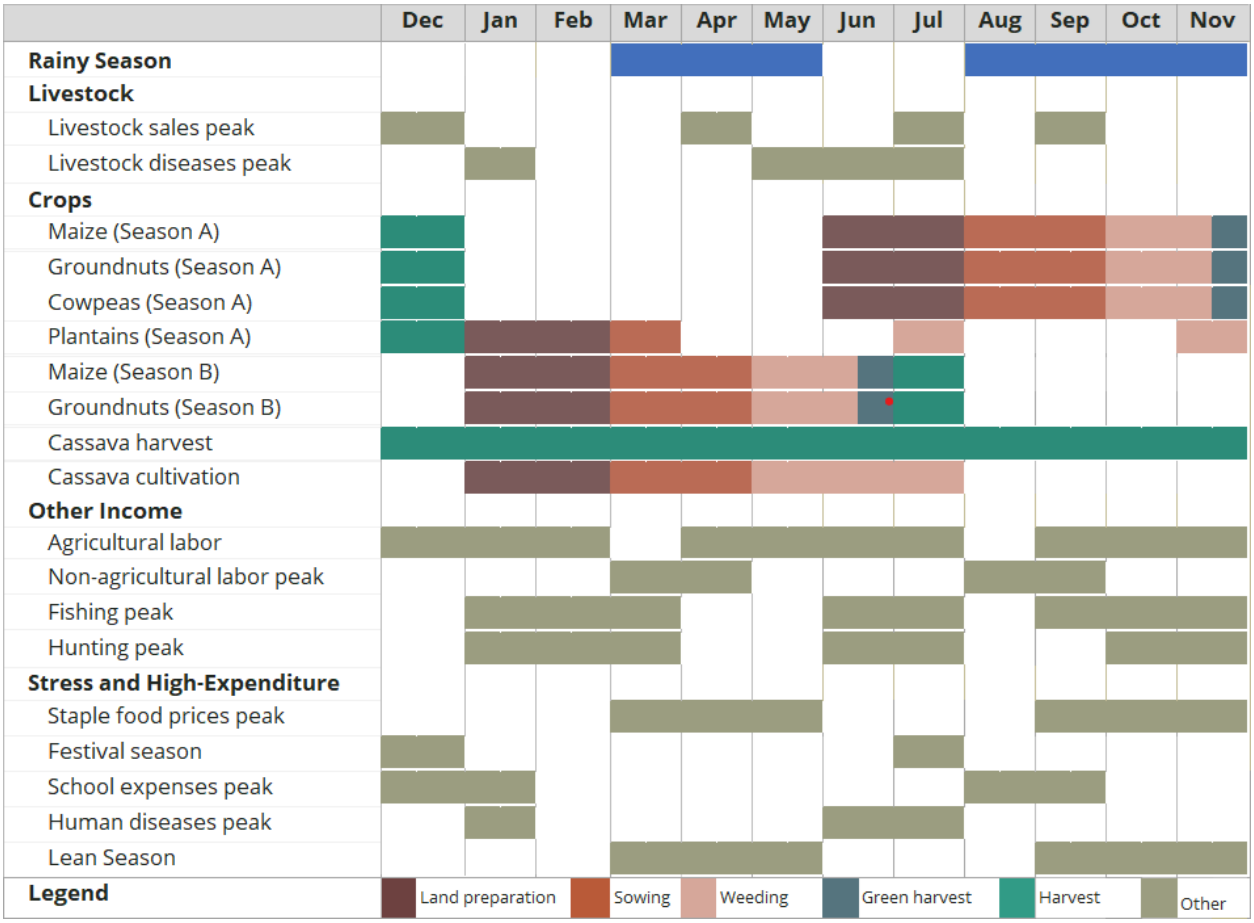
Seasonal Calendar for Reference Year

The seasonal calendar (see Figure 2) illustrates the main economic activities and events of the reference year. It provides a comprehensive overview of the cyclical nature of economic and agricultural activities in CD20, highlighting the critical periods for production, labor, and expenditure.

In the *Central Basin Staple Crops, Fishing, and Charcoal Livelihood Zone*, the seasonal calendar is defined by distinct Wet and Dry Seasons, which significantly influence agricultural and economic activities. The Rainy Seasons occur from March to May and again from August to November, while the Dry Seasons span December to February and June to July.

The main crops grown in this zone include cassava, maize, groundnuts, cowpeas, and plantain bananas. Cassava is cultivated throughout the year, with land preparation in January/February and a harvest that extends from January to December, with sales peaking in December. Maize and groundnuts have two growing seasons, with Season A beginning in June/July and Season B in January/February. Both crops have peak sales in July and December. Cowpeas follow a similar pattern as the Season A maize and groundnut seasons, with peak sales in December. Plantain bananas are prepared and planted early in the year, with weeding conducted mid-year, and a harvest in December. All crops are cultivated together, suggesting a polyculture farming system that may help mitigate risks and maximize resource use.

Figure 2. Seasonal Calendar



The peak periods for livestock sales — specifically goats, sheep, pigs, and poultry — are April, July, September, and December. There is no specific control over livestock breeding, reflecting a traditional and unregulated approach to animal husbandry. Livestock diseases are most prevalent from June to August. Fishing and hunting activities are concentrated in the months of January to March, June to July, and September to November, aligning with periods of lower agricultural labor demand. Agricultural labor is in demand during the primary growing seasons, while non-agricultural labor peaks in March/April and August/September.

The zone experiences high staple prices and lean periods from March to May and September to November, coinciding with the periods before the main harvest seasons. Festivals and related expenditures peak in July and December, alongside significant school expenses. Human diseases are more common in January and from June to July, further complicating the livelihood challenges during these periods.

Table 2 shows the typical division of labor, listing the activities shared — and not shared — by men and women. Most agricultural production activities, including market selling of crops and agricultural labor, are shared by men and women. However, men engage in land preparation and threshing, while women are more involved in weeding. Men and boys are largely responsible for

livestock production activities, except for rearing poultry, which is a women's activity. Construction labor and charcoal production and sale are predominantly men's activities. Women predominantly handle domestic tasks, such as cooking, laundry, and childcare.

Table 2. Typical Division of Labor

Shared Tasks	Women's Tasks	Men's Tasks
• Planting • Harvesting • Crop sales • Fishing • Wild foods collection • Paid agricultural labor	• Weeding • Poultry rearing and sales • Palm oil sales • Firewood collection and sales • Petty trade • Household chores	• Land preparation • Threshing • Pigs, goats, and sheep rearing, slaughter, and sales • Construction labor • Charcoal production and sale

Wealth Breakdown and Productive Assets

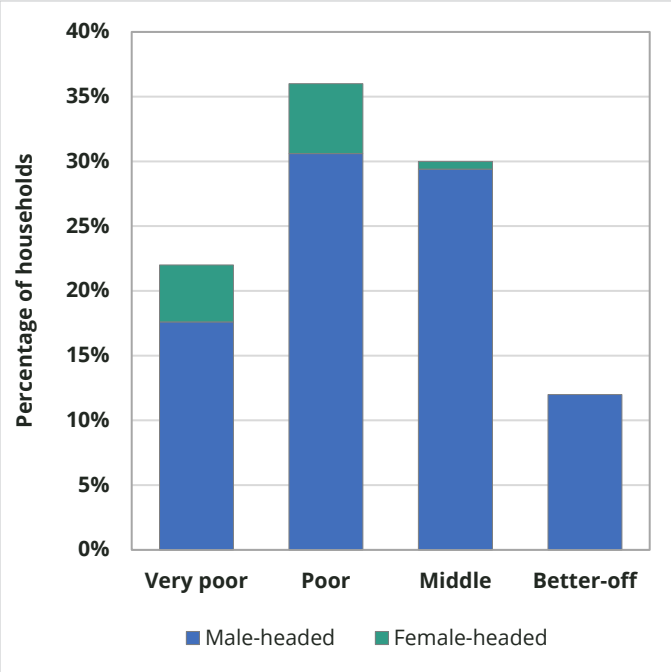
Table 3 summarizes the types and numbers of productive assets that typical households within each wealth group own and/or manage. Asset holdings are shown in a range that reflects the diversity of households' situations within a wealth group. Figure 3 shows the percentage of households within the zone that falls in each wealth group. The wealth breakdown of households in the zone was carried out by the communities themselves.

Table 3. Wealth Breakdown

Household Size and Productive Assets	Very Poor	Poor	Middle	Better-Off	Poor Female-Headed
Household size	5-7	7-9	8-12	14-16	5-7
Land owned (hectares [ha])	0.25-0.5	0.5-1.5	1-2	2-4	0.4-0.6
Land cultivated (ha)	0.25-0.5	0.5-1.5	0.75-2	1.5-3	0.4-0.6
Pigs	0	0-2	4-8	5-15	0
Goats	0	0-4	2-10	5-15	0
Sheep	0	0	2-10	3-15	0
Poultry	3-7	5-15	10-30	15-40	5-15
Motorcycles	0	0	0-1	1-2	0
Bicycles	0	0	1	1-2	0
Canoes	0	0	0-1	0-2	0
Standing nets	0	0-8	0-30	0-50	0
Mobile phones	0	0	1	1-3	0

Figure 3. Wealth Breakdown

Note: All results are the mid-point of a range



In CD20, wealth is determined by several key factors, including the area of land owned and cultivated, possession of livestock, ownership of fishing equipment, and other productive assets, such as motorcycles, bicycles, and simple canoes. Household size is also a determinant, with wealthier households generally being larger. All households have access to land, but wealthier households typically own more land, with some left fallow. Land ownership among women is common across all wealth groups, with women being able to inherit and own land, reflecting an equitable distribution practice. Very poor and poor households typically own and cultivate between 0.25-1.5 ha, while middle and better-off households own 1-4 ha and cultivate 0.75-3 ha.

Livestock is a crucial indicator of wealth. The very poor usually do not own pigs, goats, or sheep and have limited poultry, only 3-7. Poor households have up to two pigs, up to four goats and 5-15 poultry. Middle households have a more livestock, with 4-8 pigs, 2-10 goats, and 2-10 sheep. In contrast, better-off households may own up to 15 pigs, 15 goats, 15 sheep, and 15-40 poultry.

Ownership of productive assets further distinguishes wealth groups. Better-off households might own motorcycles (1-2), bicycles (1-2), and multiple standing nets, while very poor and poor households generally lack these assets. Middle and better-off households also have some form of transportation, like bicycles or canoes, which are less common among poorer households. The ownership of fishing nets varies widely, with poor households having up to eight nets, while better-off households may have as many as 50.

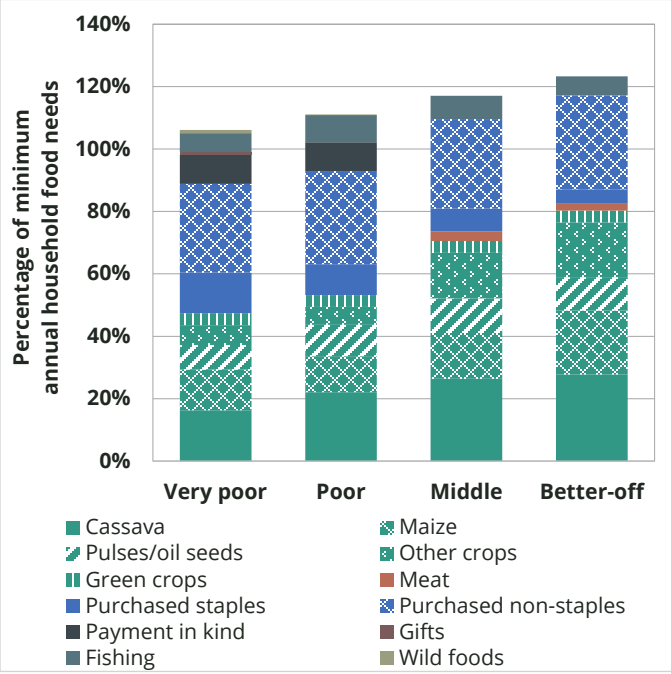
Household size increases with wealth. The very poor have a household size of approximately 5-7, poor 7-9, middle 8-12, and better-off 14-16. The wealthier the household, the larger it is, with more livestock and productive assets.

The proportion of households in the community is as follows: very poor households 20-25%, poor households 30-40%, middle households 25-35%, and better-off households 0-15%.

Sources of Food

Figure 4 presents the sources of food for households in different wealth groups in the livelihood zone for the period December 2022 to November 2023. December represents the start of the consumption year as all crops are ready for consumption and harvest. Food is presented as a percentage of the annual kilocalorie (kcal) needs of the household, based on the internationally accepted 2,100 kcal per person per day.

Figure 4. Sources of Food



Food sources are diverse and vary across different wealth groups in this zone. Crops were the primary source of food in the reference year for households in all wealth groups, with a higher reliance among wealthier households. Key crops included cassava, maize, pulses, and oil seeds. Cassava was particularly important, contributing 15-30% of the total food intake across wealth groups, with its share increasing with wealth. Maize also played a significant role, especially for better-off households.

Purchased foods formed a considerable portion of the diet for households in all wealth groups, particularly non-staple foods. Payment in-kind was an essential food source for very poor and poor households, with food such as cassava and maize as compensation for agricultural work. Fishing contributed to food sources in the reference year, particularly for poorer households. Other food sources, such as meat from households' own livestock and wild foods played a minor role in overall food intake. Meat was only a significant food source for middle and better-off households, while wild foods were only for very poor and poor households. Households did not receive food aid during the reference year.

Very poor households relied on their own crops for 45-50% of their food in the reference year, primarily cassava (15-20%) and maize (10-15%). Purchased foods contributed about 30-50% of the annual food intake, with purchased staple foods (mostly cassava and maize) contributing 10-15% of annual food needs, and purchased non-staple foods like vegetables, dried fish, vegetable oil, and sugar accounting for 25-30% of food needs. Payment in-kind and fishing contributed 5-10% each of annual food needs for very poor households. Wild foods amounted only to about 1% of annual food intake. Very poor households also received food gifts for less than 1% of their annual food needs.

Poor households obtained 50-60% of their food from crops in the reference year, with a higher reliance on cassava (20-25%) and maize (5-15%). Purchased foods accounted for 35-45% of the

annual food intake, with purchased staples contributing 5-15% and purchased non-staples accounting for 25-35%. Payment in-kind and fishing each accounted for 5-10% of annual food intake for poor households. Wild foods accounted for less than 1% of annual food needs.

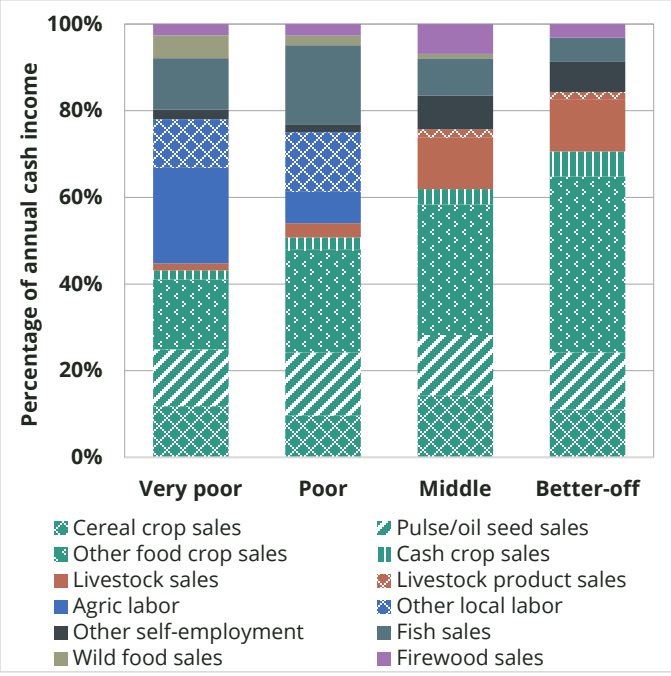
Middle households depended on crops for 60-80% of their food in the reference year, particularly cassava (20-30%) and maize (10-20%). Purchased staples only contributed 5-10% of their food while purchased non-staples accounted for 25-30%. Fishing provided 5-10% of middle households' annual food needs. Approximately 3% of their food came from livestock (meat), highlighting their ability to include meat in their diet.

Better-off households obtained 75-85% of their food in the reference year from crops, with cassava (25-30%) and maize (15-25%) being the most important. Purchased foods accounted for 30-40%, with purchased staples contributing less than 5% to the diet of better-off households, while purchased non-staples accounted for 25-35% of annual food needs. Fishing contributed 5-10% of their food. Approximately 2% of better-off households' food came from meat.

Sources of Cash Income

Cash income sources vary across different wealth groups in this zone (see Figure 5), reflecting the disparities in access to resources and economic activities. In the reference year, cash income in CD20 was primarily derived from crop sales, with significant contributions from livestock sales, fishing, and labor activities. Very poor and poor households relied heavily on agricultural labor, fishing, and firewood sales, while middle and better-off households generated most of their income from crop and livestock sales and self-employment

Figure 5. Sources of Cash Income as a Percentage of Annual Cash Income

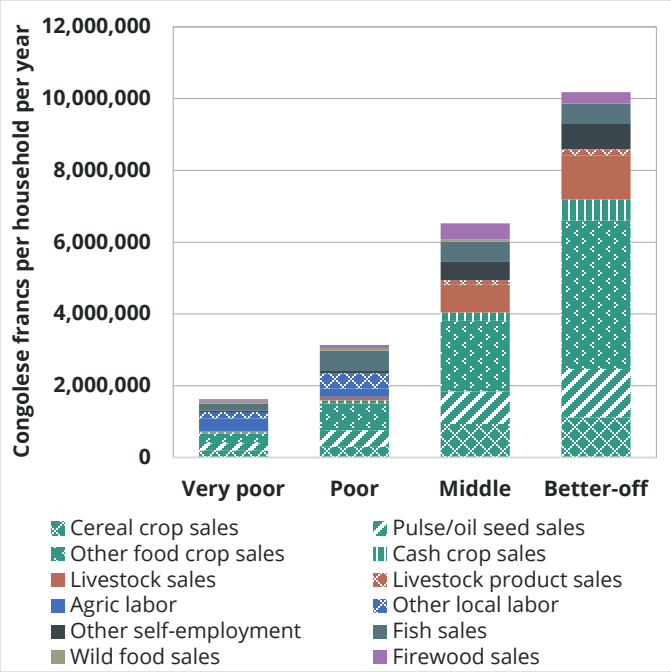


For very poor households, the primary sources of cash income in the reference year were crop sales and agricultural labor. Crop sales constituted 40-45% of their income, with agricultural labor contributing about 20-25%. Additionally, very poor households engaged in local labor and fishing, which provided supplementary income, each accounting for 10-15% of annual income. Other minor sources of cash income included firewood sales, accounting for less than 5%, and wild food sales, about 5% of annual cash income.

Poor households also relied heavily on crop sales, which accounted for approximately

45-55% of their income. Like very poor households, agricultural labor, constituting 5-10% of total income, and other local labor, contributing 10-20%, were significant income sources in the reference year. Fishing played a more important role for poor households than for very poor households, making up 15-20% of their income. Like the very poor, they also engaged in firewood sales and wild food sales, both contributing less than 5% of annual cash income.

Figure 6. Total Annual Cash Income



For middle households, crop sales were the dominant source of income in the reference year, comprising two-thirds of their earnings. These households had diversified income sources, with 10-20% of total income coming from livestock and livestock product sales and 5-15% from fishing. Unlike poorer households, middle households did not rely on agricultural or local labor but instead engaged in self-employment activities, contributing 5-10% of total cash income.

Better-off households generated most of their income in the reference year from crop sales, which accounted for 70-75% of their total earnings. Livestock and livestock product sales contributed an additional 10-20%, and self-employment activities, including small businesses, made up 5-10% of their income. These households also engaged in fishing, though it constituted a smaller portion, less than 10% of their overall income.

There is a large difference in wealth between very poor and better-off households. In the reference year, better-off households earned about six times more than the very poor and approximately three times more than poor households. This gap is illustrated in Figure 6 and Table 4.

Table 4. Income Summary Table (Congolese Francs or CDF)

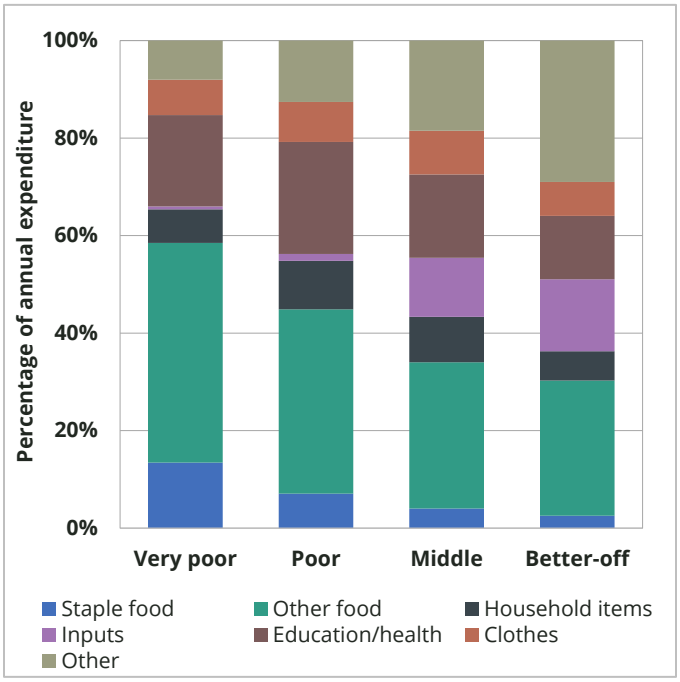
Wealth Group	Very Poor	Poor	Middle	Better-Off
Annual income per household[4]	1,400,000–1,800,000	2,500,000–3,700,000	5,500,000–7,500,000	8,000,000–12,000,000

[4] The average exchange rate from December 2022 to November 2023 was 1 USD = 2,257 CDF.

Expenditure Patterns

Figure 7 presents expenditure patterns for the reference year December 2022 to November 2023. While absolute expenditure increases with wealth in line with total cash income, this graph's expenditure breakdown by percentage shows the *relative* amount of income spent on different categories. Households in the zone need to cover a range of essential expenditures over the year. These include staple foods, non-staple foods, household items/services (salt, soap, tea, lighting, milling, etc.), productive inputs, social services (which include health and education), clothing, as well as other essential and non-essential items.

Figure 7. Total Annual Cash Expenditure by Category



Very poor and poor households in CD20 spent a large proportion of their income in the reference year on food, education, and health, with limited investment in agricultural inputs. Middle and better-off households, on the other hand, allocated more toward inputs, education, and discretionary spending, reflecting their greater economic stability and capacity for investment.

Very poor households allocated 10-15% of their total expenditure to staple foods, primarily cassava and maize, reflecting their reliance on basic food purchases. There was significant expenditure on non-staple foods in the reference year, accounting for 40-50% of annual expenditure. Purchases of household items accounted for about 5-10% of annual expenditure for very poor households. Only about 1% of their income went toward agricultural inputs, indicating limited capacity to invest in farming tools or seeds. Very poor households dedicated 15-25% of their annual expenditure to social services (education and health). Expenditure on clothing/shoes in the reference year accounted for 5-10% of annual spending. Expenditure on “other” items, including transportation, phone credit, festivals, etc., also accounted for 5-10% of annual expenditure for this wealth group.

Poor households’ expenditure on staple foods accounted for 5-10% of annual expenditure, which was lower than that of very poor households due to slightly more crop production. Expenditure on non-staple foods accounted for 35-45% of annual expenditure. Purchase of household items accounted for about 5-15% of the annual expenditure. Inputs for agriculture and livestock accounted for just about 1% of annual expenditure, like very poor households. Expenditure on social services (education and health) in the reference year accounted for 20-25% of annual expenditure,

and clothing/shoes accounted for 5-10%. Expenditure on “other” items, including transportation, phone credit, festivals, etc., accounted for 10-15% of annual expenditure for poor households.

Middle households spent less than 5% of their income in the reference year on staple foods, as they were more self-sufficient in food production than poorer households. They allocated 25-35% of their income to non-staple foods. Household items accounted for 5-10% of their expenditure and agricultural inputs 10-15%, reflecting their investment in improving productivity. Expenditure on social services (education and health) in the reference year accounted for 15-20% of annual expenditure and less than 10% on clothing/shoes. Expenditure on “other” items, including transportation, phone credit, festivals, etc., accounted for 15-20% of annual expenditure.

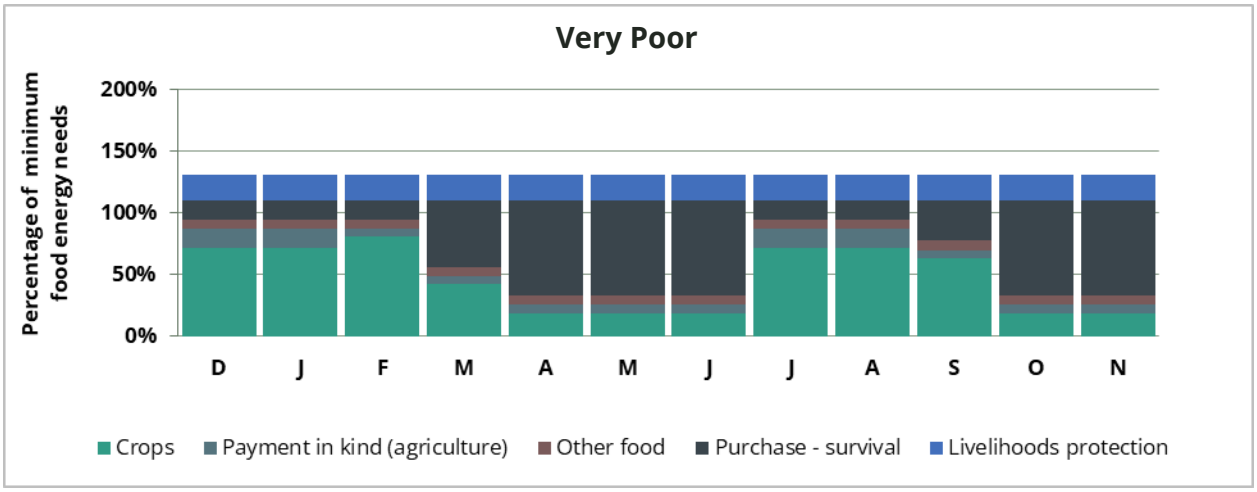
Better-off households’ expenditure on staple foods accounted for roughly less than 5% of their annual expenditure, the lowest across all wealth groups, due to higher food self-sufficiency and higher income levels. Expenditure on non-staple foods accounted for 25-30% of annual expenditure, 5-10% for household items, and 10-20% for agricultural inputs — the highest among all groups, emphasizing their focus on maximizing production. Expenditure on social services (education and health) in the reference year accounted for 10-15% of annual expenditure, a lower percentage compared to poorer wealth groups, but in absolute terms, their spending was higher. Expenditure on clothing/shoes in the reference year accounted for 5-10% of annual expenditure, and expenditure on “other” items accounted for 25-30% of annual expenditure.

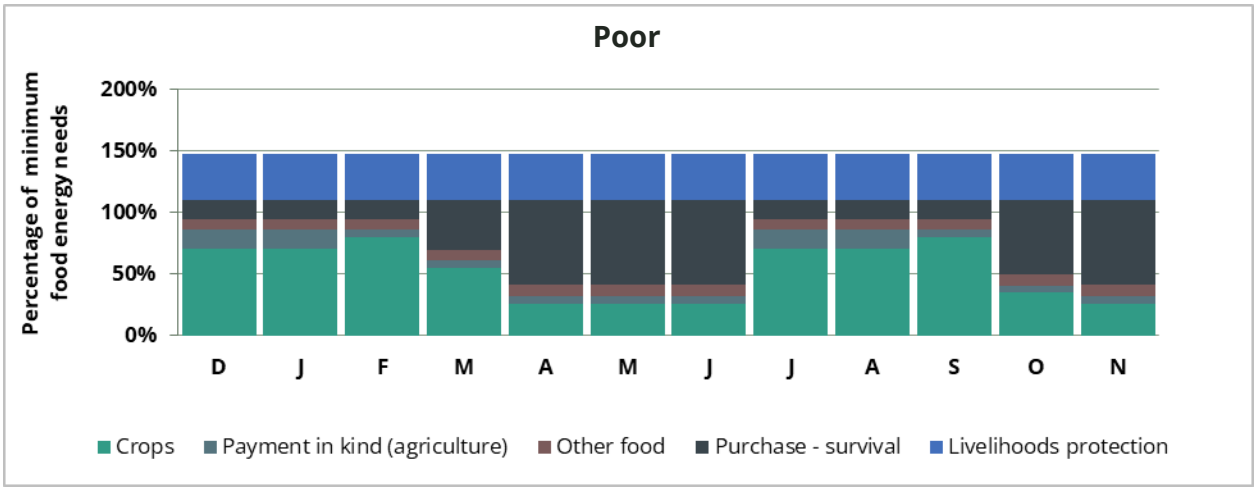
Food Access Calendars

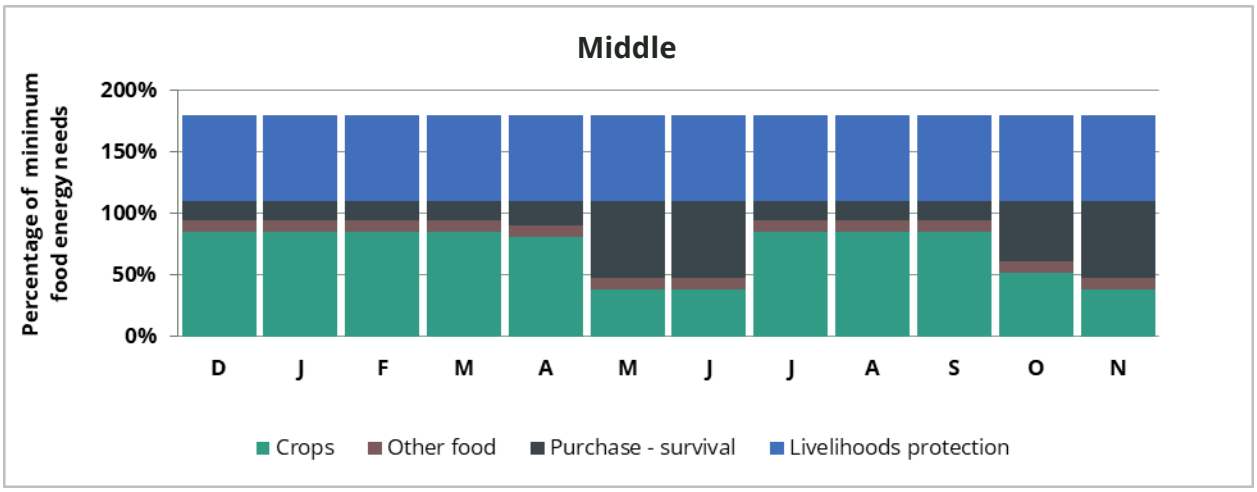
The graphs in Figure 8 present monthly food and cash access calendars for the four wealth groups.

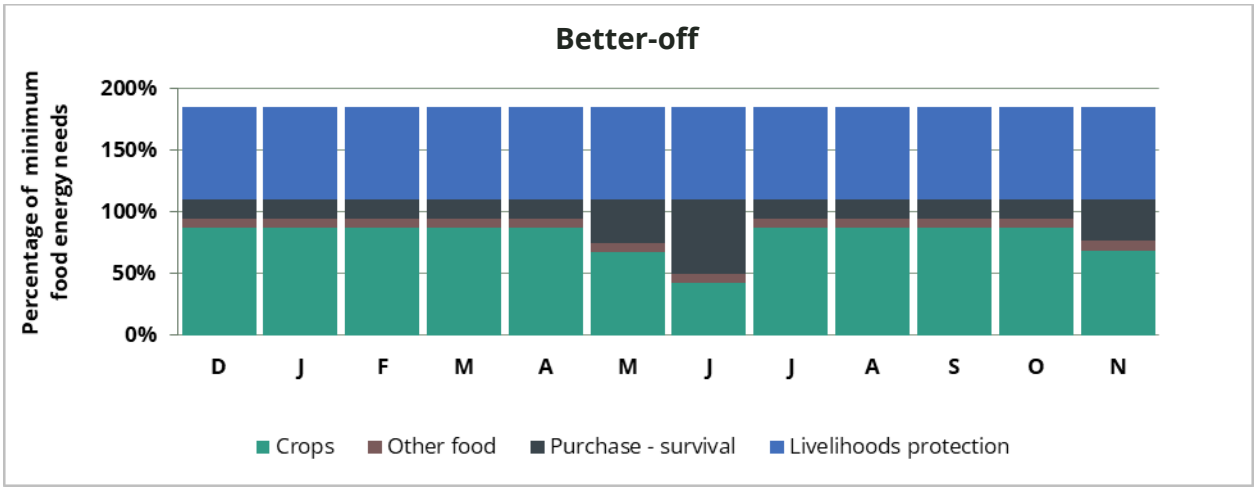
Households in all wealth groups were able to meet their minimum survival and livelihoods protection thresholds year-round in the reference year, with a peak reliance on food purchases from April to June and October to November, particularly for very poor and poor households. The Season A harvest starts in December and the Season B harvest starts in July. Very poor and poor households obtained some food from payment in-kind for casual agricultural labor (in teal). The dark blue “livelihoods protection” sections of the bars increase as a proportion of the total with wealth because wealthier households can afford to spend more on productive inputs, health, and education.

Figure 8. Seasonal Food and Cash Access Calendars per Wealth Group









Poor Female-Headed Households

Female-headed households are found in each of the wealth groups except the better-off, as shown in the wealth breakdown (Figure 3). During fieldwork, data collectors conducted in-depth interviews with poor female-headed households. This is a group that faces numerous challenges that impact their ability to secure livelihoods and sustain their families. The challenges faced by these households are similar to those faced by very poor and poor male-headed households. One of the primary challenges is the lack of financial resources, which hampers their ability to access and invest in productive assets. This lack of capital restricts their capacity to acquire essential agricultural inputs and tools, which are critical for improving productivity and income. Poor female-headed households also face challenges in animal production, particularly due to poultry epidemics that can decimate their small livestock holdings.

Figure 9 shows that poor female-headed households relied on a variety of sources to meet their food needs in the reference year. Most of the food sources were similar to those of poor male-headed households. Crops were the primary food source for poor female-headed households in the reference year, accounting for 45-50% of their diet, which was slightly less than in poor male-headed households. Purchased staples made up a significant portion of their food intake, comprising 10-20% of their diet, indicating a slightly higher reliance on market purchases compared to their male counterparts. Purchased non-staple foods contributed 20-30%, and fishing provided 5-10% of their food. Additionally, these households received some food through relief efforts, approximately 1-2%, and gifts, about 1%. They also supplemented their diet with wild foods, accounting for 1-5% of their annual food requirements. The contribution of payment in-kind was lower for poor female-headed households, at approximately 5%, compared to roughly 10% in poor male-headed households.

The income picture in Figure 10 shows that both poor male-headed households and poor female-headed households had similar sources of cash income in the reference year except for construction labor and firewood sales, which only contributed to poor male-headed households. Unlike poor male-headed households, poor female-headed households received gifts of cash.

Figure 9. Sources of Food: Poor Households vs Poor Female-Headed Households

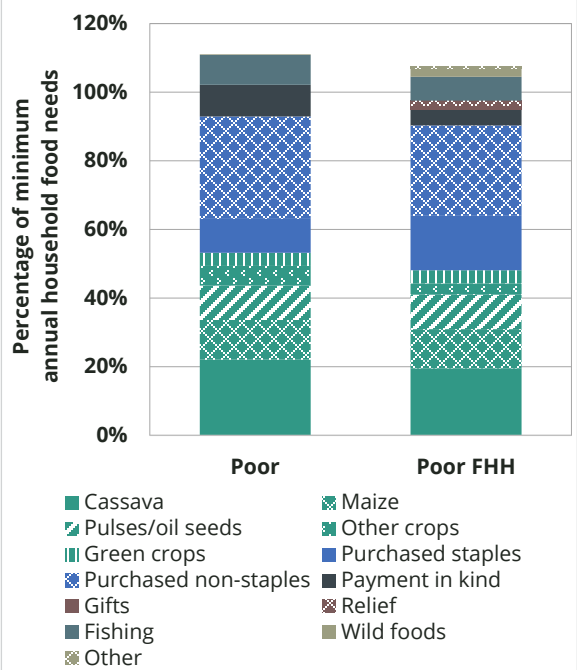
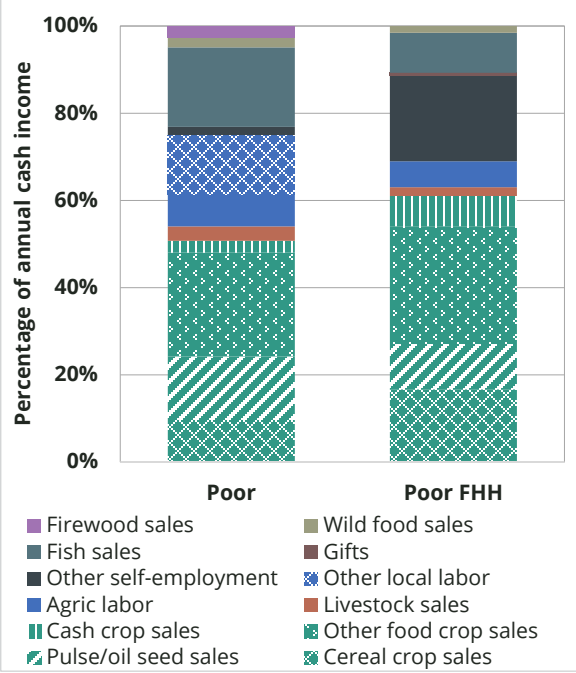


Figure 10. Sources of Cash: Poor Households vs Poor Female-Headed Households



The income sources for poor female-headed households showed a heavy reliance on crop sales, which contribute 60-65% of their total income in the reference year; this was higher than the 45-55% reliance seen in poor male-headed households. Other self-employment activities (including sale of firewood, *chikwangue* [fermented cassava food], palm oil, and petty trade) were also a significant income source, making up 15-25% of their earnings, a notably higher amount compared to less than 5% in poor male-headed households. However, income from livestock sales (about 2%), fishing (5-15%), and wild food sales (about 2%) was relatively lower for poor female-headed households.

The total income level of poor female-headed households was almost half that of poor male-headed households. However, they had a smaller household size, and per capita income was about 30% lower.

Response Strategies

In response to hazards and years with bad production, households attempt to meet their minimum food needs and cash requirements through several strategies. Below are some common strategies employed by households.

Households in all wealth groups try to reduce expenditure on non-essential or more expensive items first, such as cutting down on festival costs or not buying clothes or utensils that year. Households consume mainly cassava, which is the cheapest staple.

Very Poor and Poor Households

Very poor and poor households often resort to increased casual labor activities as a primary strategy, engaging in various forms of labor to secure income. They also rely on gathering wild foods and resources, an activity critical for supplementing their diet and reducing expenditure on food. Fishing serves as another key strategy, providing both a food source and potential income from selling surplus catch.

Middle and Better-Off Households

Middle and better-off households cope with hazards differently. They typically engage in small businesses as a significant adaptation mechanism. This includes various trading and entrepreneurial activities that can provide more stable income streams. Self-employment, such as local manufacturing or service provision, is also prevalent, allowing households to leverage available skills and resources. Additionally, livestock sales are an important strategy for these wealthier households, offering a way to liquidate assets during times of need or to generate cash flow.

Key Parameters for Monitoring

The key parameters listed in Table 5 are food and income sources that make a substantial contribution to the household economy in the *Central Basin Staple Crops, Fishing, and Charcoal Livelihood Zone*. These should be monitored to track potential losses or gains to local household economies through ongoing monitoring systems or periodic assessments.

Table 5. Key Parameters for Monitoring

Item	Key Parameter – Quantity	Key Parameter – Price
Crop production	• Maize Seasons A and B – quantity produced • Cassava – quantity produced • Groundnuts Seasons A and B – quantity produced • Cowpeas – quantity produced • Sweet potatoes – quantity produced • Tomatoes – quantity produced • Palm oil – quantity produced • Plantains – quantity produced	• Maize Seasons A and B – producer price • Cassava – producer price • Groundnuts Seasons A and B – producer price • Cowpeas – producer price • Sweet potatoes – producer price • Tomatoes – producer price • Palm oil – producer price • Plantains – producer price
Livestock production	• Pigs – herd size • Goats – herd size • Sheep – herd size	• Pigs – producer price • Goats – producer price • Sheep – producer price

Item	Key Parameter – Quantity	Key Parameter – Price
Other food and cash income	• Fishing – quantity caught • Wild foods – quantity • Harvest labor – number of days worked • Construction labor – number of days worked • Charcoal sales – quantity sold • Self-employment – quantity sold • Petty trade – number of days worked	• Fishing – producer price • Wild foods – producer price • Harvest labor – wage rates • Construction labor – wage rates • Charcoal sales – producer price • Self-employment – producer price • Petty trade – daily earnings
Expenditure		• Maize – consumer price • Cassava – consumer price • Rice – consumer price

CD21 Livelihood Zone

Reference Year: July 2022–June 2023

Equateur Forest Hunting, Fishing, and Staple Crops Livelihood Zone

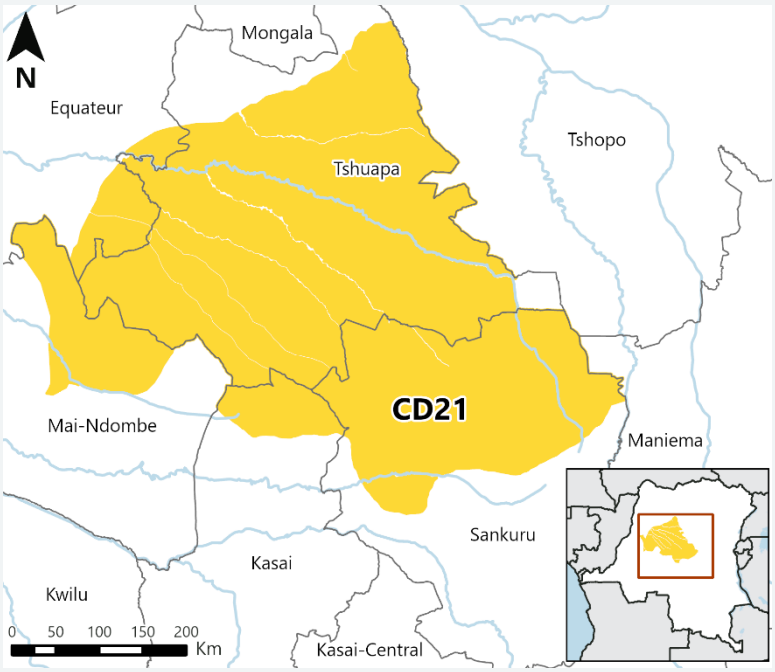


Figure 1. CD21 Livelihood Zone Map

Summary: The *Equateur Forest Hunting, Fishing, and Staple Crops Livelihood Zone* (CD21) is a large agriculture and gathering zone in the central and western part of the Democratic Republic of the Congo (DRC) that covers multiple provinces, including Tshuapa, Equateur, Sankuru, and Mai-Ndombe. This vast area is covered in dense Atlantic equatorial and tropical forests, which provide plentiful natural resources. The climate in the zone is equatorial, with annual average temperatures ranging from 25°C to 35°C and average annual rainfall between 800 and 1,000 millimeters (mm). The key economic activities are selling agricultural produce, hunting, fishing, collecting wild foods, engaging in casual labor in agriculture and construction, and trading. The main sources of food for households are their own crops and market purchases. Additionally, wild foods, including game, mushrooms, yams, caterpillars, and fish, contributed significantly to household food and cash income in the reference year. Very poor and poor households relied on casual agricultural labor payments as an additional source of food and cash income. Middle and better-off households have additional food and income from livestock.

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Zone Description

The *Equateur Forest Hunting, Fishing, and Staple Crops Livelihood Zone* (CD21)[1] is an agriculture and gathering zone that covers parts of multiple provinces: Tshuapa (Boende, Bokungu, Djolu, Ikela, and Monkoto Territories), Equateur (Ingande and Befale Territories), Sankuru (Lodja, Katako Kombe, and Kole Territories), and Mai-Ndombe (Kiri Territory). The zone experiences an equatorial climate characterized by hot temperatures and a humid environment, with average annual temperatures ranging from 25°C to 35°C. The hottest months typically occur from March to May and August to November, coinciding with the Rainy Seasons, during which temperatures can reach up to 36°C. Conversely, the coolest month is generally July, with average temperatures dropping to around 24°C. Average annual rainfall in the region ranges between 800 and 1,000 mm, with the Rainy Seasons.

CD21's topography is mostly flat and consists of riparian plains associated with a series of rivers that empty into the Congo River farther to the west. Equatorial/tropical forests make up most of the zone's vegetation. The zone is smaller than its neighbor to the east, the vast *Forest Cultivation and Collected Products Livelihood Zone* (CD12) livelihood zone. The main rivers in the *Equateur Forest Hunting, Fishing, and Staple Crops Livelihood Zone* (CD21) are the Ikelemba, Lomela, Lopori, Maringa, Momboyo, Salonga, and Tshuapa Rivers. The main roads are the Boende-Mbandaka road (RN8) and RN7, which link Lodja to Kisangani. The main urban centers in the area are Boende and Lodja, and the Salonga National Park also borders the zone. Aside from land cleared for cultivation, the natural forest resources of wood, fish, game, and wild foods are exploited to varying degrees by the local population. The population density in the zone is relatively low at around 14 people per square kilometer, with a total population of 2,584,503.[2]

The livelihoods of households in this zone are characterized by agriculture, small-scale livestock farming, forest products gathering, hunting, fishing, and small-scale trade.

Crop cultivation is reasonably productive within the bounds of traditional techniques, which are helped by primarily fertile, sandy-clay soils. Despite the fertility of the land, farm output is hampered by various problems of floods, crop pests and diseases, and livestock diseases, all of which take a toll on food production. The key crops in the zone are cassava, maize, groundnuts, cowpeas, and rice. Sweet potatoes, squash, plantains, sweet bananas, sugarcane, and chilies are also cultivated. The most important harvest period occurs in July, integrated into cultivation Season B. Land preparation, like all cultivation activity, is entirely manual. Wealthier households typically hire labor for all the main tasks, with payments made either in cash or in kind, depending on the task. Specifically, preparing land, sowing, weeding, and part of harvesting are usually paid for in cash, while payments in-kind are more common for harvesting. Apart from renewing field tools, households do not spend money on other agricultural inputs, like seeds, chemical fertilizers, or

[1] Fieldwork for the current profile was undertaken from July 25 to August 21, 2024. The information presented in this profile refers to the reference year, which was the consumption year that covered the period from July 2022 to June 2023. Provided there are no fundamental and rapid shifts in the economy, the information in this profile is expected to remain valid for approximately five to 10 years (i.e., until 2028-2033). All prices referred to in the document are for the reference year.
[2] FEWS NET Data Explorer, population data (2023), accessed 2025, https://fdw.fews.net/data-explorer/.

pesticides. There are no farmers' cooperatives in the area to support farmers. Crop storage is generally done with bags in the home, reflecting the traditional nature of agricultural practices in this zone.

Livestock production is centered around the free grazing and foraging of pigs, goats, and sheep, which also feed on crop residues. Households do not typically purchase additional livestock feed. During the Rainy and Dry Seasons, livestock access water from pools or ponds, and households do not pay for this water usage. Households in CD21 sell live animals and livestock products (essentially in the form of meat from pigs and goats). Households do not regularly purchase animals to regenerate their stock, and when they do, it is typically wealthier households who can afford to buy livestock as needed. Cattle are not typically kept in the zone, and there is no milking of small ruminants in this zone. Additionally, there is no planning of livestock breeding in the area, which means that there is no established birth calendar for livestock.

The forest is rich in edible, wild items that are gathered principally by women, including yams, amaranth, mushrooms, caterpillars in season, and honey. Game is hunted by men. Firewood is so plentiful in nearby settlements that typically it is only gathered for domestic use, not sale.

Paid agricultural and construction labor is important to the overall income of poorer households. Individuals from these households work on the farms of wealthier households in exchange for either cash or food. Fishing plays a vital role in the economy as a food and income source for households from all wealth groups. Fishing is carried out in local rivers, traditionally with nets, hooks, traps, and canoes. Another significant activity is game hunting, primarily in the equatorial forest, and involves using traps, bows and arrows, guns, and dogs to catch small game. Households in different wealth groups variously engage in other economic activities to supplement their income, like petty trade, palm oil production, motorcycle transportation, and handicrafts.

The *Equateur Forest Hunting, Fishing, and Staple Crops Livelihood Zone* experiences several hazards that significantly impact its economy and livelihoods. The most pressing challenges include crop pests, which are a recurring issue, along with the African mosaic virus that affects cassava. Additionally, livestock diseases, like swine fever and avian flu, pose substantial threats. Rainfall irregularities remain a persistent challenge, further exacerbating the difficulties in maintaining stable livelihoods. Other risks include human disease outbreaks, particularly malaria, diarrhea, respiratory infections, and conjunctivitis, underscoring the ongoing public health challenges in CD21.

For drinking water and water for other domestic uses, households from all wealth groups rely on rivers and wells, commonly fetched by women and children. As with livestock watering, human water consumption has no financial cost. In terms of sanitation facilities, households from all wealth groups use latrines. Waste is thrown into holes dug by households. Poorer households rely on health posts, while wealthier households use health posts and health centers. In terms of lighting, poorer households typically use battery-operated flashlights, while wealthier households often have access to solar-powered lighting. Households from all wealth groups rely on firewood for cooking fuel. Mobile phones are typically used by households from all wealth groups, but only for voice

communication, not data. Typically, the highest education level achieved by members of very poor and poor households is only primary school, while individuals from middle and better-off households can generally afford secondary education and sometimes higher education. There is no significant access to formal financial services, like credit sources or savings plans. Therefore, households generally do not borrow money privately. Additionally, households do not commonly receive remittances from other family members, neither from within nor outside the livelihood zone.

Markets

In the *Equateur Forest Hunting, Fishing, and Staple Crops Livelihood Zone*, market access is a major problem, particularly during the Rainy Season when road access becomes very difficult, even for links to urban centers (from which most villages are distant) as well as beyond the zone. The roads within and leading to the zone consist mostly of dirt roads and informal trails. During the Dry Season, while access improves slightly, the overall condition of these roads remains poor. Additionally, several bridges in the area are in an advanced state of disrepair, further complicating access. Some households move their produce by river, which carries risks of capsize and loss. Overall, market access in this zone is considered especially poor even by DRC standards.

The main crops sold in the area are cassava, maize, groundnuts, cowpeas, and rice. Palm oil is also a major cash earner. These crops follow a trade route that begins in villages; moves through Monkoto, Boende, and Djolu; and eventually reaches the urban centers of Mbandaka and Kinshasa. The peak sales months for cassava are January, July, and December. Maize, groundnuts, and rice are sold primarily during July, August, and December. The main animals sold — pigs, goats, and poultry — follow a similar trade route from villages to urban centers, with peak sales occurring in September and December. Other products, like caterpillars, game, and fish, are also traded, with peak sales varying seasonally by product: caterpillars in July and August and game and fish in January, February, and July through September. Beans are the primary item purchased from beyond the zone, brought in from Mbandaka to Boende. The peak months for buying beans are March, April, and September.

Regarding the casual labor employment market, roughly 75% of the employment is found locally in rural areas and 25% in nearby towns. Some men migrate seasonally to work in cities like Mbandaka, Kinshasa, or Kisangani, but this is not typical. There is no significant labor migration into the zone.

Timeline and Reference Year

The baseline assessment refers to a specific period called the reference year. In the *Equateur Forest Hunting, Fishing, and Staple Crops Livelihood Zone,* the reference year covers the consumption period from July 2022 to June 2023. During community leader interviews, data collectors asked informants to score the last five years in terms of seasonal performance with “1” indicating a poor season and “5” indicating an excellent season. Table 1 summarizes the response of the community leaders.

Table 1. Timeline

Production Year/ Season	Score	Critical Events
2023/Season B 2022/Season A	3 4	Season A was very favorable to agriculture production. Season B was marked by a human epidemic (conjunctivitis) and cattle disease. Coping strategies during Season B included prophylaxis and out-of-season cultivation.
2022/Season B 2021/Season A	3 3	Season A faced livestock diseases, which reduced sales profits and led to intensified harvesting efforts and increased self-employment activities. During Season B, crop pests and mosaic disease were prevalent.
2021/Season B 2020/Season A	2 3	Season A suffered from crop pests and cattle disease, leading to similar coping strategies as in previous years. Season B also experienced both a human epidemic (conjunctivitis) and crop pests.
2020/Season B 2019/Season A	4 3	Season A was notably clear of major disruptions. However, Season B saw the continuation of human epidemics and crop pests, forcing households to intensify harvesting efforts and labor as a coping mechanism.
2019/Season B 2018/Season A	3 2	Season A was particularly challenging due to rain failure and mosaic disease on cassava, leading to a rise in self-employment as a coping mechanism. Season B suffered from crop pests and mosaic virus outbreaks, prompting households to intensify labor efforts, increase picking, and expand self-employment to counteract the adverse effects on food security.

5 = an excellent season for household food security (e.g., due to good rains, prices, crop yields)
4 = a good season or above average season for household food security
3 = an average season for household food security
2 = a below average season for household food security
1 = a poor season for household food security (e.g., due to drought, flooding, livestock disease, pest attack)
Note: Production year refers to the farming year, usually beginning with the start of the main rains.

Key informants ranked Season A of 2018 and Season B of 2021 as "2" (below average) in terms of household food security. Season B of 2019, Season A of 2019, Season A of 2021, Season B of 2022, and Season B of 2023 were ranked as "3" (average), whereas Season B of 2020 and Season A of 2022 were ranked "4" (above average). Crop production is the most defining factor in acute food insecurity in the zone. Recent shocks to crop production included an unusual incidence of endemic crop pests and diseases in Season B of 2021 and low rainfall in Season A of 2018. In terms of livestock, the number of births and sales generally met expectations. Conflict within the region was minimal and generally localized, with limited impact on different wealth groups. Households considered the reference year, from 2022 to 2023, an average to above-average year in terms of household food security, and households also considered crop production during the reference year as average. Despite the usual hazards, all wealth groups were able to meet their minimum food needs, with some exceptions for households facing unique or idiosyncratic challenges.

Seasonal Calendar for Reference Year

The seasonal calendar (see Figure 2) illustrates the main economic activities and events of the reference year. It traces the rainy months, activities related to crop and livestock production, other important income-generation periods, and stress and high expenditure periods.

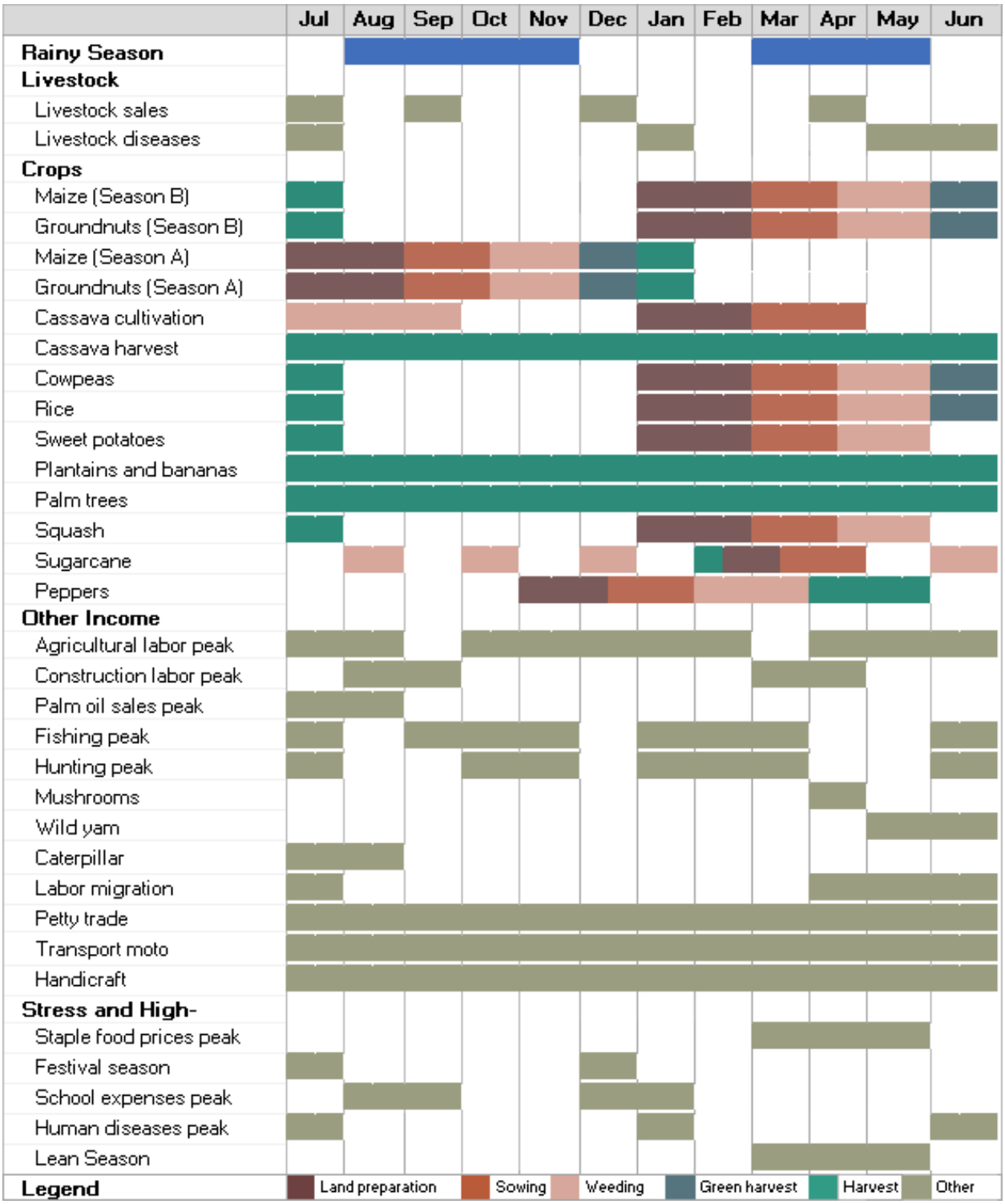
In the *Equateur Forest Hunting, Fishing, and Staple Crops Livelihood Zone*, the Rainy Seasons follow a bimodal pattern. The first Rainy Season starts in March and ends in May, supporting crop production in the main agricultural Season B. The second Rainy Season starts in August and ends in November, supporting the second planting in Season A. Cassava, the main crop in the zone, is stored in the field and is harvested year-round. Preparing land for cassava starts in January and extends into February. Planting takes place in March and April. Weeding occurs in July, August, and September. The cassava harvest can start 12 months after planting, from March onward.

Maize and groundnuts are cultivated twice, in Seasons A and B. Crops like cowpeas, rice, sweet potatoes, and squash are cultivated only during Season B. Land preparation for all these crops cultivated in Season B happens in January and February. Then, sowing/planting occurs from March to mid-April, weeding from mid-April through May, and harvesting in January. Maize and groundnuts cultivated in Season A follow the process of preparing land in July and August, sowing in September and October, weeding in October and November, and harvesting in January. “Green harvest” means the cutting or pulling up of crops before full maturity for “fresh” consumption. Green consumption for Season B maize, groundnuts, cowpeas, and rice takes place in June, whereas green consumption for Season A maize and groundnuts occurs in December.

Households in CD21 also cultivate perennial plantains and bananas and harvest them at different times throughout the year. Households collect palm nuts from the zone’s other perennial, oil palm, at plots on site in villages and on plantations. Preparing land for sugarcane occurs from February to March, and planting takes place from March to April. Weeding occurs in June, August, October, and December, and harvesting happens once in February. Sugarcane is typically cultivated throughout the year. Households usually harvest chilies about three to four months after planting. The primary planting seasons for chilies are around March (Season B) and September (Season A), so the main harvesting periods for chilies are from June to July and from December to January, respectively.

During the Rainy Season, the availability of surface water and pasture for livestock improves, leading to increased reproduction and productivity. Gestation periods are 5-6 months for small ruminants (i.e., goats and sheep) and almost four months for pigs. Livestock sales and slaughter peak in December to pay for seasonal festival costs, in September for the start of school year fees and materials, in July for the end of the school year when outstanding costs are paid, and in April for the Easter festival.

Figure 2. Seasonal Calendar



Agricultural labor is most intensive from April to July and from September to February, which means almost the entire year except for August and March. Construction activities primarily take place from March to April and from August to September. Palm nuts are collected regularly to produce palm oil,

which is mostly sold from July to August. Fishing increases at various times: from January to March, from June to July, and from September to November. Hunting increases during the same periods as fishing, except for September. Different types of wild foods are gathered from April to August. Self-employment activities, like petty trade, motorcycle taxis, and handicrafts, take place throughout the year. Livestock and human disease outbreaks typically occur in January and from May to July. The Lean Season, the most challenging period in terms of food access, occurs from March to May and from September to November, before the harvest periods. During these times, food stocks are depleted, particularly for poorer households, and food prices are high.

Table 2 outlines the typical division of labor, distinguishing between shared and non-shared tasks. Shared tasks among men, women, boys, and girls include planting, sowing, harvesting, selling market crops, livestock tasks including livestock market sales, petty trade, collecting palm nuts and selling palm oil, and gathering and selling wild foods. Hunting is predominantly carried out by men and boys. Men are primarily responsible for preparing the land, threshing, bird scaring, handicrafts, construction labor, house construction and maintenance, motorcycle transport, fishing, and fish sales. Women, on the other hand, are solely responsible for weeding and doing most household chores, including collecting water, cooking, feeding small children, laundering clothes, and collecting firewood. In terms of livestock labor division, men are responsible for tasks like building animal shelters and caring for pigs, goats, and sheep, while women are primarily responsible for poultry.

Table 2. Typical Division of Labor

Shared Tasks	Women's Tasks	Men's Tasks
• Planting, sowing, and harvesting • Crop sales • Petty trade • Palm nuts collecting and palm oil sales • Wild foods gathering and sales	• Weeding • Household chores	• Land preparation and threshing • Bird scaring • Livestock rearing and sales • Handicrafts • Construction labor • House construction and maintenance • Motorcycle transport • Fishing and fish sales • Hunting

Wealth Breakdown and Productive Assets

Table 3 summarizes the types and numbers of productive assets that typical households within each wealth group own and/or manage. Asset holdings are shown in a range that reflects the diversity of households' situations within a wealth group. Figure 3 shows the percentage of households within the zone that falls in each wealth group. Communities in the zone carried out the wealth group categorization themselves.

Wealth distribution in the zone is determined by several key factors, including the amount of cultivable land, labor availability, the number of livestock owned, and the possession of other

productive assets, like motorcycles and hunting and fishing equipment. Middle and better-off households typically own and cultivate more land, have more labor, greater numbers of livestock, and more productive assets than poorer households. Wealthier households have the land and capacity to hire labor that allows them to increase cash crops as well as staple crops, including oil palms, sugarcane, and chilies. Renting land is not a common practice among the different wealth groups. Although everyone has access to land, wealthier households tend to have some surplus land to leave fallow. Regarding land inheritance, women generally inherit land through their deceased husbands or through either donation or loan by their families. Women can own and share land independently of male relatives.

Table 3. Wealth Breakdown

Household Size and Productive Assets	Very Poor	Poor	Middle	Better-Off	Poor Female-Headed
Household size	5-7	7-9	10-12	14-16	6-8
Land (hectares [ha])	0.5-1	0.5-1.5	1-3	2-4	0.5-1.5
Land cultivated (ha)	0.3-0.5	0.5-1	1-2	2-3	0.5-1
Pigs	0-2	0-4	4-10	6-12	0
Goats	0	0-6	3-7	4-12	0
Sheep	0	0-4	0-6	5-9	0
Poultry	0-10	5-15	10-20	15-25	5-10
Motorcycles	0	0	1	1-3	0
Dogs	0	0-2	0-2	0-4	0
Shotguns/rifles	0	0	0-1	0-2	0
Bows and arrows	0-10	0-10	0-10	0-10	0
Canoes	0	0-1	0-2	0-2	0
Fishing nets	5-15	10-20	20-40	30-50	0
Traps	20-50	50-100	100-250	100-300	0
Hooks	100-250	200-300	250-400	300-800	0

In terms of crop production, there are no significant differences in either the types of crops produced or the methods used across different wealth groups. Crop production across all wealth groups relies on traditional, manual methods, with no significant differences in the techniques used. A common arrangement between farmers is to exchange seeds — essentially, one farmer who has extra maize seeds will exchange them for groundnut seeds from another. However, crop production is constrained by a lack of technical and financial support in the form of equipment, work tools, and inputs. Similarly, livestock production faces challenges like disease, lack of veterinary products, and straying livestock. It is common for wealthier livestock owners to lend a female animal to a poorer

household that will maintain it and receive a share of the offspring in return. This arrangement allows poorer households to establish or increase livestock ownership. Women do not typically buy or inherit livestock. While agriculture and livestock breeding are the main livelihood activities in the region, fishing is important for consumption and cash income.

In the CD21 livelihood zone, land is freely available to those who can afford the effort to clear and maintain it, and every household cultivates according to its means and available labor. During the reference year, very poor households cultivated 50-60% of the land they owned, poor female-headed households cultivated 65-75%, poor and middle households 70-80%, and better-off households 80-90%. Differences in crop production among wealth groups were due to the amount of land they cultivated rather than differences in yield, since none of the groups used inputs like chemical fertilizers. Middle and better-off households contracted labor, while very poor and poor households primarily cultivated for consumption, as they had less land. Food and cash crops were combined in the same fields (i.e., intercropped). Very poor households cultivated 0.3- 0.5 ha of land, poor households cultivated 0.5-1 ha, middle households cultivated 1-2 ha, and better-off households cultivated 2-3 ha; poor female-headed households cultivated 0.5-1 ha. There is a progressive increase in land area cultivated with increasing wealth. Overall, the better-off cultivated more than six times the land cultivated by very poor households. However, because of the difference in household sizes, better-off households cultivated about two-and-a-half times the land per capita than very poor households.

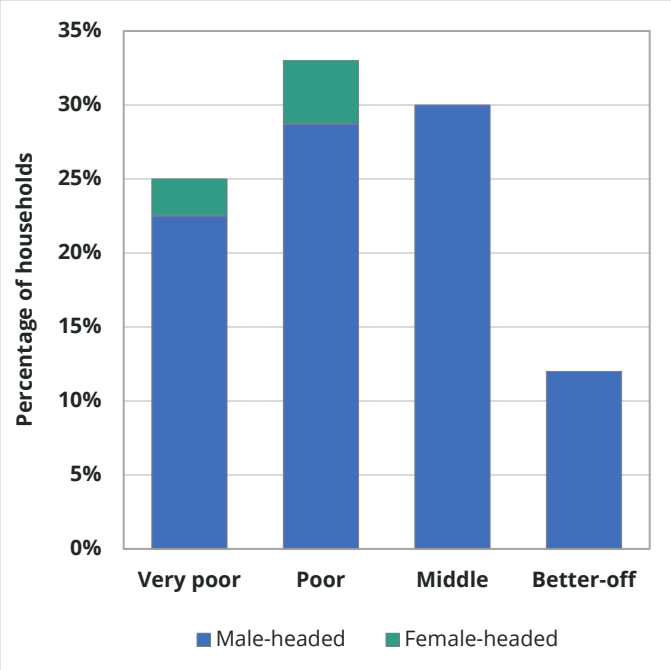
Livestock are a significant source of income in this zone, serving as an important means of investing, saving, and safeguarding against difficult years. The main types of livestock kept include goats, pigs, sheep, and poultry. Animals are sold live, and the occasional slaughter, especially of pigs, is essentially for domestic consumption. Households from all wealth groups own some livestock, with wealthier households owning larger numbers. Very poor households typically own up to two pigs and a maximum of 10 poultry. Poor households own up to four pigs, six goats, four sheep, and 5-15 poultry. In contrast, poor female-headed households are usually limited to owning up to 10 poultry. Middle households own 4-10 pigs, 3-7 goats, up to six sheep, and 10-20 poultry. Better-off households possess 6-12 pigs, 4-12 goats, 5-9 sheep, and 15-25 poultry.

In terms of other assets, households across all wealth groups own up to 10 bows and arrows for hunting. Very poor households have 5-15 traps, while poor households own 50-100 traps and up to two dogs. Middle households usually have 100-250 traps, also with a maximum of two dogs, and some may have one shotgun or rifle. Better-off households may own 100-300 traps, up to four dogs, and 1-2 shotguns or rifles. Ownership of fishing equipment also varies among wealth groups. Very poor households may have 5-15 fishing nets and 100-250 hooks. Poor households often own 10-20 fishing nets and 200-300 hooks. Middle households may have 20-40 fishing nets and 250-400 hooks, while better-off households may have 30-50 fishing nets and 300-800 hooks. Additionally, some middle households own one motorcycle, while better-off households may have 1-3 motorcycles.

Wealthier households have the resources to hire labor from poorer households for all agricultural tasks. In contrast, poorer households rely on their own labor. Household size increases with wealth. Very poor households have 5-7 members, poor female-headed households 6-8 members, poor households 7-9 members, middle households 10-12 members, and better-off households 14-16 members.

Figure 3. Wealth Breakdown

Note: All results are the mid-point of a range



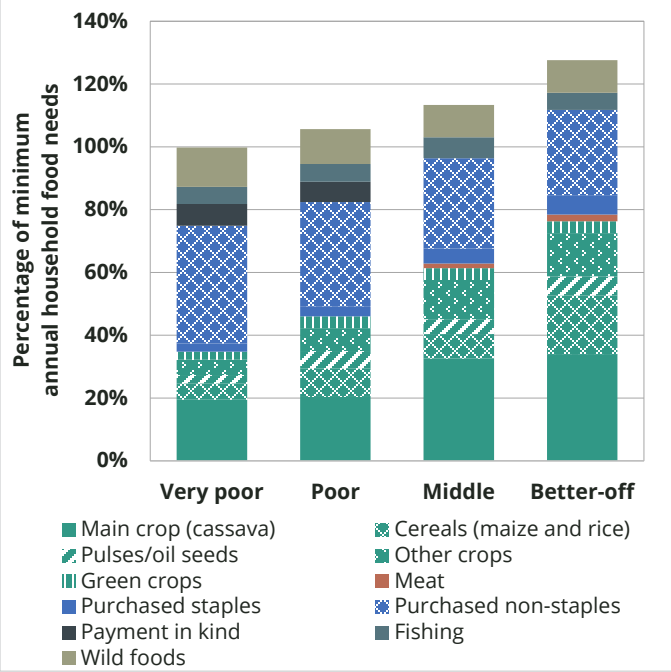
The proportion of households in the community is distributed as follows: very poor households make up 20-30%, poor households 30-35%, middle households 30-35%, and better-off households 10-15%. Female-headed households are found within the very poor and poor wealth groups. In the very poor wealth group, 5-15% of households are female-headed, while in the poor wealth group, 10-15% are female-headed. Among wealthier households, there are typically no female-headed households. Notably, in this livelihood zone, land is not a limiting resource, and women can own land. The livelihoods of poor female-headed households are addressed later in this profile.

Sources of Food

Figure 4 presents the sources of food for households in different wealth groups in CD21 for the period from July 2022 to June 2023. January represents the start of the consumption year because it is when the consumption of crops from the main harvest season starts. Food is presented as a percentage of the annual kilocalorie (kcal) needs of the household, based on the internationally accepted standard of 2,100 kcal per person per day.

There were two main sources of food in this zone for households from all wealth groups: their own crops and market purchases. For very poor and poor female-headed households, the primary source of food was from purchases. For poorer households, payments in-kind were an additional source of staples. Other food sources were wild forest items, fish, and very modest meat consumption by wealthier households.

Figure 4. Sources of Food



When considering total food consumption, there was a clear progressive increase in the amount of food consumed with rising wealth. Overall, very poor households consumed 95-105% of their minimum annual food needs, poor households consumed 105-110%, middle households consumed 110-120%, and better-off households consumed 120-130%. This means that in the reference year, considered average in terms of food security conditions, some 25% of households in the zone (i.e., very poor households) were just at the margin of their minimum food requirements.

For very poor households, consumption of their own crops covered 30-40% of their minimum annual food needs, 40-50% for poor households, 55-60% for middle households, and 70-80% for better-off households. Middle and better-off households produced substantial surpluses of staple crops but chose to sell a large proportion of them.

Whether from their own production or from purchases, cassava was overwhelmingly the main staple crop consumed by households; it is used in various forms, including fresh or dried chips, boiled flour (*fufu*), or fermented (*chikwangue*). Cassava leaves are also commonly consumed. In the reference year, very poor and poor households obtained 15-25% of minimum annual food needs from their own cassava, middle households obtained 30-35%, and better-off households obtained 30-40%. Very poor households met 2-3% of their minimum annual food needs through green consumption from maize cultivated in Seasons A and B, compared to 3-5% for poor, middle, and better-off households. Very poor households obtained 4-6% of minimum annual food needs from cereals (e.g., maize and rice), poor households obtained 5-15%, middle households obtained 5-10%, and better-off households obtained 15-20%. Pulses and oil seeds (groundnuts) were important in varying the diet with vegetable protein and fat. Very poor households derived 2-3% of their annual food needs from their own production of pulses and oil seeds, poor and middle households obtained 4-6%, and better-off households obtained 5-10%. Additionally, crops from poorer households' own production, like sweet potatoes, plantains, bananas, squash, and palm oil from harvested palm nuts, contributed 3-6% of their caloric requirements. Middle households' own production of these crops contributed 10-15% of their caloric needs, and 10-18% for better-off households. Animal protein was limited to a very small amount of meat for wealthier households, providing 1-3% of minimum caloric needs.

Purchases were the most important source of food for very poor households and the second most important source for poor, middle, and better-off households in CD21. These foods can be divided into staple and non-staple categories. Staple foods include maize, rice, and cassava flour. Poorer households obtained 2-4% of their minimum annual food needs from staples, middle households obtained 4-6%, and better-off households obtained 5-7%. Non-staple food purchases included items like cowpeas, beans, squash, sugar, fresh cassava, fermented *chikwangue* (made from dried cassava), palm oil, dried fish, fresh fish, fresh game meat, dried game meat, pork, and goat meat. Very poor households obtained 35-40% of their minimum annual food needs from non-staple purchases, poor households obtained 30-35%, and middle and better-off households obtained 25-30%.

Payments in-kind provided additional food for poorer households, who commonly received cassava as payment for harvest labor. Payments in-kind contributed 5-8% of the minimum annual food needs for poorer households. Fishing supplied 4-6% of the annual caloric needs for very poor, poor, and better-off households and 5-8% for middle households. Wild foods, which include game meat from hunting as well as gathered foods, contributed 10-15% of the annual calorie needs for poorer households and 10-11% for wealthier households. Private food donations also played a role in supporting the population, with maize, cassava, and plantains being distributed at specific times of the year. Donations accounted for less than 1% of the annual caloric intake for poor female-headed households.

There was no food aid in CD21 in the reference year. Overall, the reference year was average in terms of food security, with households from all wealth groups meeting their minimum annual food energy needs.

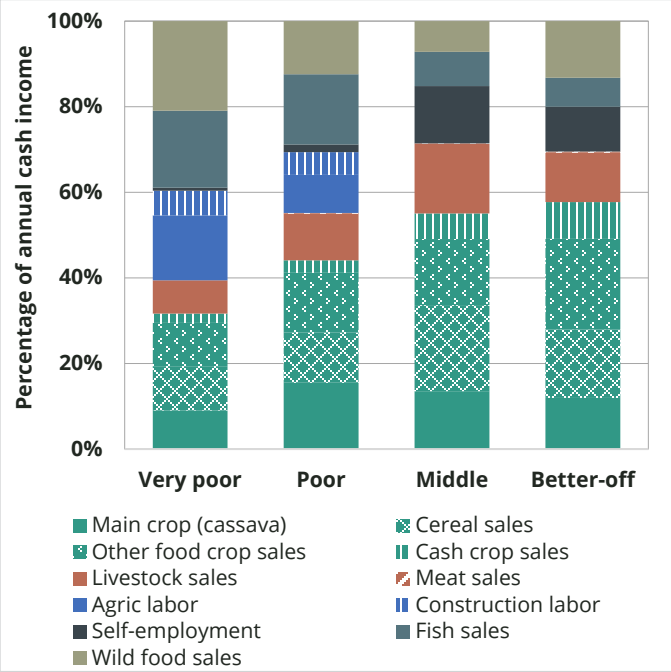
Sources of Cash Income

Households from different wealth groups obtained cash income through various means (see Figure 5). Crop sales were the single biggest income source for households from all wealth groups. In addition to crop sales, households earned income from other sources, including livestock sales, agricultural paid labor, and self-employment activities like motorcycle transportation, handicrafts, and petty trade. Additionally, households earned income from fish sales and from the sale of wild foods.

Very poor households primarily earned their income from crop sales, which accounted for 30-35% of their total income. This category was followed by wild foods sales, contributing 10-25%, agricultural paid labor 10-15%, and fish sales 10-20%. Livestock sales and construction labor each contributed 5-10% of total cash income, while self-employment provided less than 1%.

For poor households, crop sales were the main income source, representing 40-50% of total income. Fish sales followed, contributing 15-18%. Wild foods sales, livestock sales, and agricultural labor each contributed 5-15%. Construction labor accounted for approximately 5%, and self-employment contributed around 2%, with their own livestock meat sales providing less than 1% of total income.

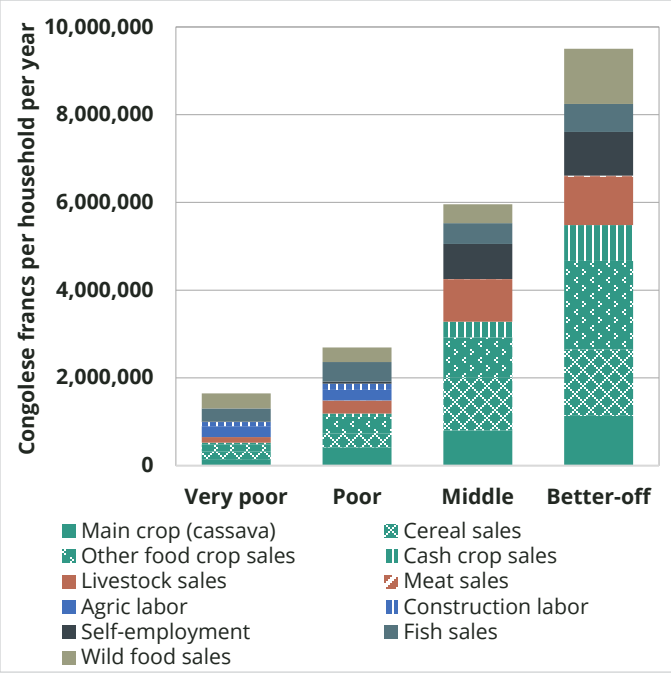
Figure 5. Sources of Cash Income as a Percentage of Annual Cash Income



Middle households also primarily relied on crop sales, which accounted for 50-60% of their income. Livestock sales contributed 15-18%, followed by self-employment at 10-15%. Fish and wild foods sales each added 5-10%, while livestock meat sales made up less than 1% of total income.

For better-off households, crop sales were the primary income source, comprising 55-60% of total income. Livestock and wild foods sales each contributed 10-15%, self-employment about 10%, and fish sales 5-10%. Livestock meat sales provided less than 1% of total income, barely visible in Figures 5 and 6. To some extent, wealthier households can sell crops at higher prices than poorer households because they can afford to store items for a longer time and wait for higher market prices; also, they may transport stocks to larger markets where prices are higher than in local markets. They sometimes buy from their poorer neighbors at harvest for this purpose. By the same token, poorer households are forced by pressing cash needs to sell their produce mainly at harvest, when prices are at their lowest.

Figure 6. Total Annual Cash Income



Differences between wealth groups in the absolute amount of cash income generated during the reference year were large. This gap is illustrated in Figure 6 and Table 4. Better-off households earned more than five times the cash income of very poor households. However, given the substantial differences in household sizes between wealth groups, better-off households earned two to three times the per capita cash income of very poor households. There was a progressive increase in annual per capita cash income with increasing wealth.

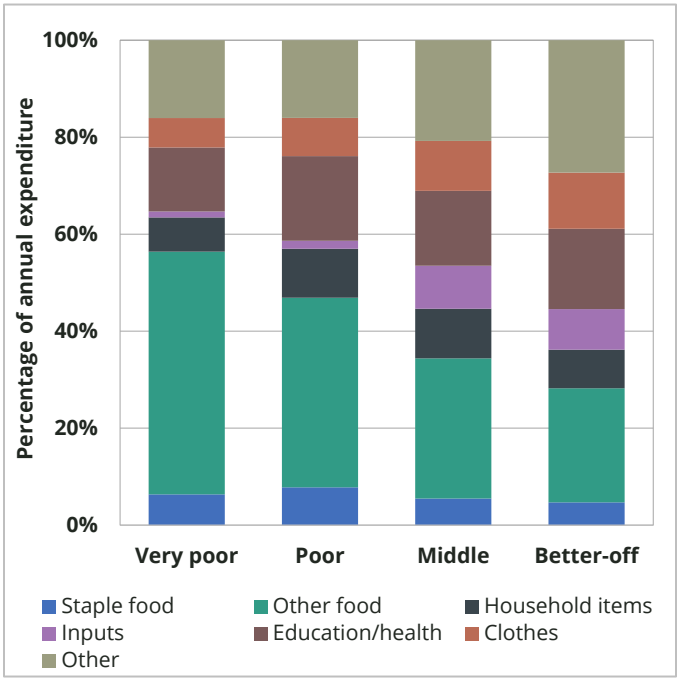
Table 4. Income Summary Table (Congolese Francs or CDF)

Wealth Group	Very Poor	Poor	Middle	Better-Off
Annual income per household[3]	1,200,000–2,000,000	2,200,000–3,200,000	4,000,000–8,000,000	8,000,000–11,000,000

Expenditure Patterns

Figure 7 presents expenditure patterns for the reference year from July 2022 to June 2023. While absolute expenditure increases with wealth in line with total cash income, this graph's expenditure breakdown by percentage shows the *relative* amount of income spent on different categories. Households in the zone need to cover a range of essential expenditures over the year. These include staple foods (maize, plantain, rice, squash, and fresh cassava), other foods (beans, cowpeas, sugar, oil, *chikwangue*, dried and fresh fish, dried and fresh game meat, pork, and goat meat), household items/services (including salt, soap, tea, coffee, lighting, milling, etc.), productive inputs, social services (which include health and education), clothing, transportation, as well as other essential and non-essential items. Households did not purchase water.

Figure 7. Total Annual Cash Expenditure by Category



What immediately stands out in the graph is the large proportion of expenditure on "other food" — that is, non-staple food, especially by poorer households — and the small proportion of expenditure on staples. Of these categories, maize was the least purchased; cassava was purchased mainly in its processed, fermented form (*chikwangue)*; and rice was a preferred item for all wealth groups, purchased at a price several times that of cassava when compared calorie-for-calorie. For the most part, "other" foods are not considered luxury items. Beans, cowpeas, oil, and notably dried fish are all basic for nutrient diversity and palatability. On the other hand, wealthier households spent around seven times more on sugar than poorer households.

As noted in the Sources of Food section, poorer households secured 30-45% of their annual food needs from food purchases, while wealthier households obtained 30-35%. Poorer households tend

[3] The average exchange rate from July 2022 to June 2023 was 1 USD = 2,382 CDF.

to sell their main crops at lower prices than wealthier households, to the extent that the poorer need to sell at harvest. It is also notable that poorer households tend to *purchase* basic food at higher prices than wealthier ones, as they often need to buy later in the year when prices are elevated. They also usually purchase in smaller quantities compared to better-off households (which can afford to purchase in bulk).

Inputs in Figure 7 refer to payment for productive items: in this case, for renewing farm tools, and for wealthier households only, hiring labor on the fields — the overwhelming part of their input expenditure. “Other” in the graph includes payment for transportation, phone credit, and festival costs. Transportation and mobile phones are more than a personal convenience; they are important for pursuing trading and other business, including maintaining and fueling motorcycle taxis.

Very poor household expenditure on staple foods accounted for 5-8% of annual expenditure in the reference year. However, the proportion would have been higher if they had not received payments in-kind, which effectively substituted for extra food purchases. “Other food” expenditure was around half of total expenditure, household items (including lighting and milling costs) 5-10%, production inputs about 1%, social services (health and education) 10-15%, clothing/shoes 5-8%, and “other” items were 10-20%.

Poor household expenditure on staple foods accounted for 5-10% of annual expenditure; as with very poor households, the proportion would have been higher if not for payments in-kind. Other food expenditure was 35-45% of total expenditure, household items 5-15%, productive inputs about 2%, social services 15-20%, clothing/shoes 5-10%, and “other” 10-20%.

Middle households spent about 5% of total annual expenditure on staple foods; 25-30% on other food; 5-15% each on household items, productive inputs, clothing/shoes; 10-20% on social services; and 15-25% on “other” items.

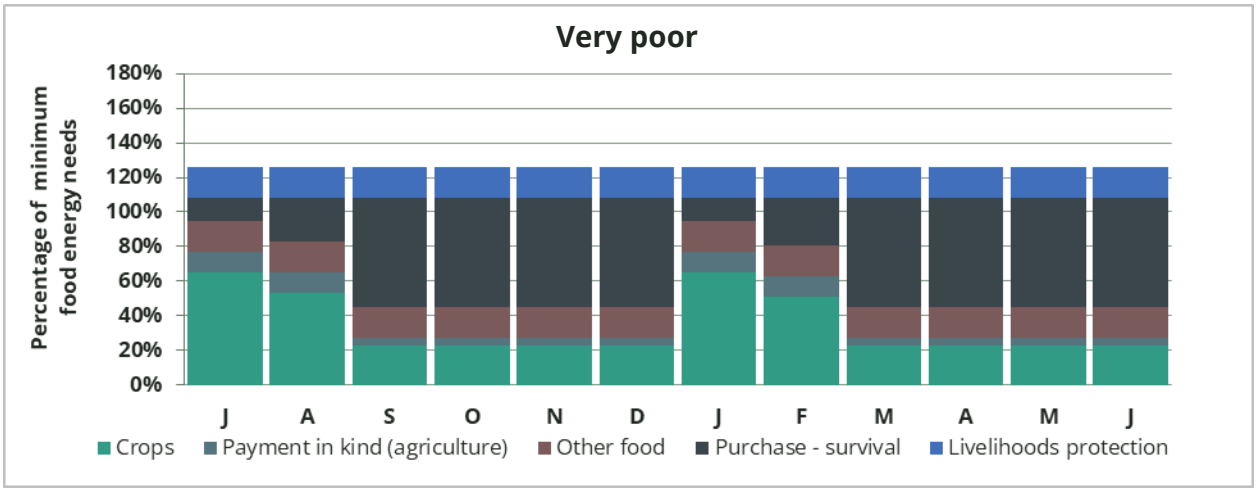
Better-off household expenditure on staple foods was about 5% of annual expenditure, other food was 20-30%, household items 5-10%, productive inputs 5-15%, social services 15-20%, clothing/shoes 10-15%, and “other” items 25-30%.

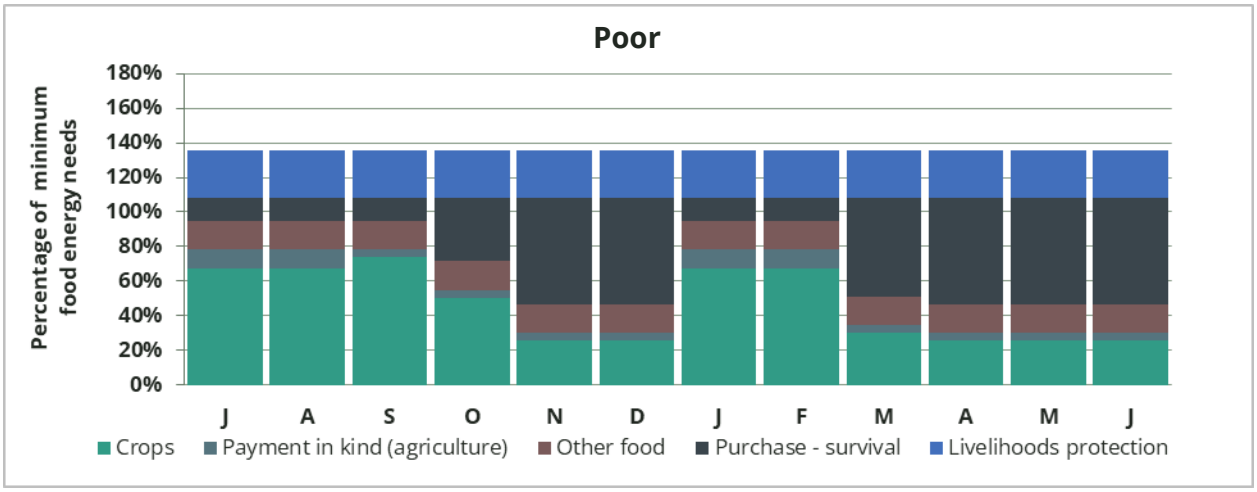
Food Access Calendars

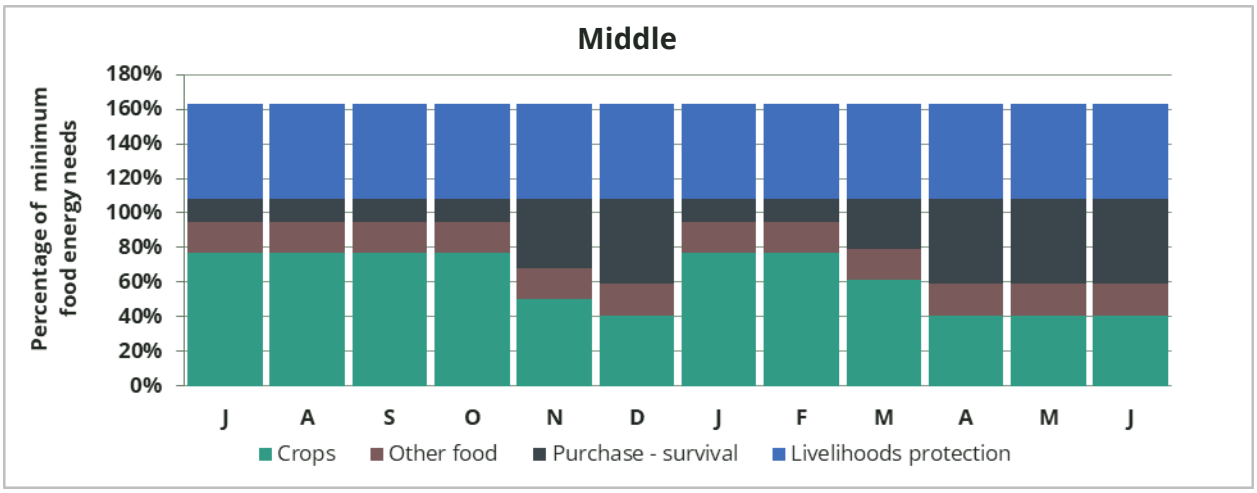
The graphs in Figure 8 present monthly food and cash access calendars for the four wealth groups.

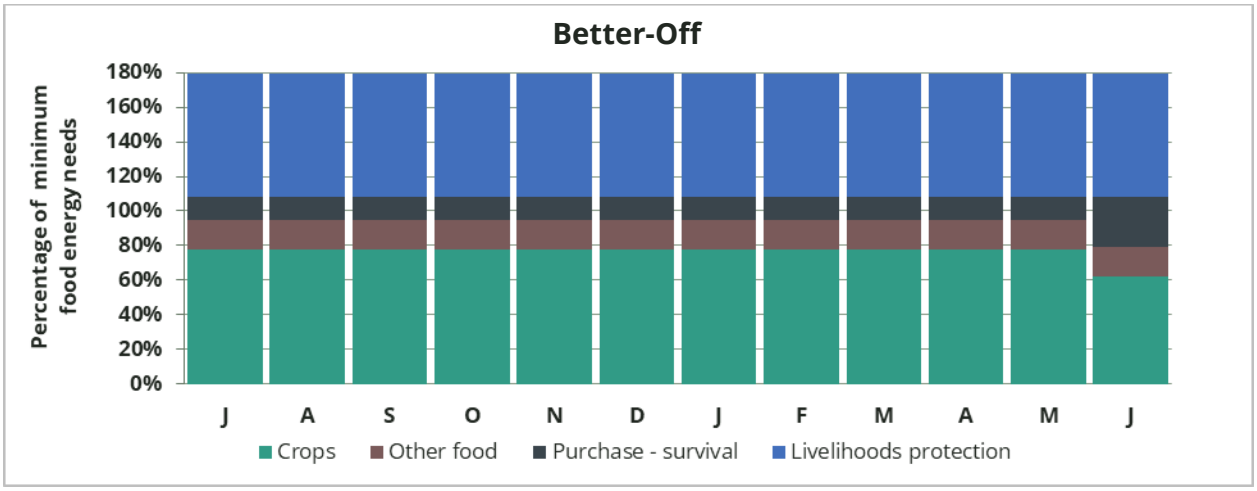
Households in all wealth groups were able to meet their minimum survival and livelihoods protection thresholds year-round in the reference year, with a peak reliance on food purchases from September to December and March to June, particularly for very poor and poor households. The Season B harvest starts in July, and the Season A harvest starts in January. Very poor and poor households obtained some food from payment in-kind for casual agricultural labor (in teal). Wild foods and fishing (in orange) made a substantial contribution for all wealth groups.

Figure 8. Seasonal Food and Cash Access Calendars per Wealth Group









Poor Female-Headed Households

Female-headed households are found in the very poor and poor wealth groups, as shown in the wealth breakdown (Figure 3). During fieldwork, data collectors conducted in-depth interviews with poor female-headed households. In the *Equateur Forest Hunting, Fishing, and Staple Crops Livelihood Zone,* female-headed households are led by widows or single mothers. This group faces similar constraints and characteristics to male-headed households in the same wealth group, but they are usually further disadvantaged by a lack of adult male labor.

Figure 9 shows that in the reference year, poor female-headed households and poor male-headed households consumed slightly more than their minimum calorie requirement and at virtually the same level. They shared a similar pattern of food access, except for a small amount of food donations (of maize, cassava, and plantain) for female-headed households, just visible in the graph at the top of their column. They similarly met their needs mainly from their own crops and food purchases, although the male-headed households could rely somewhat more on their own crop consumption than female-headed households.

Figure 10 shows that both poor male-headed households and poor female-headed households had the same sources of cash income in the reference year, although in different proportions. However, construction labor only concerned poor male-headed households. The main sources of cash income for poor female-headed households were, in order of importance, crop sales, self-employment (e.g., petty trade, mainly the sale of household items), fish sales, and agricultural labor, with minor contributions from wild foods and livestock sales.

In terms of total cash income, poor female-headed households earned about 20-30% less than poor male-headed households in the reference year. Poor female-headed households had fewer members (6-8) than male-headed households (7-9) in the reference year, so per capita cash income was approximately 10-20% lower for poor female-headed households.

Figure 9. Sources of Food: Poor Households vs Poor Female-Headed Households

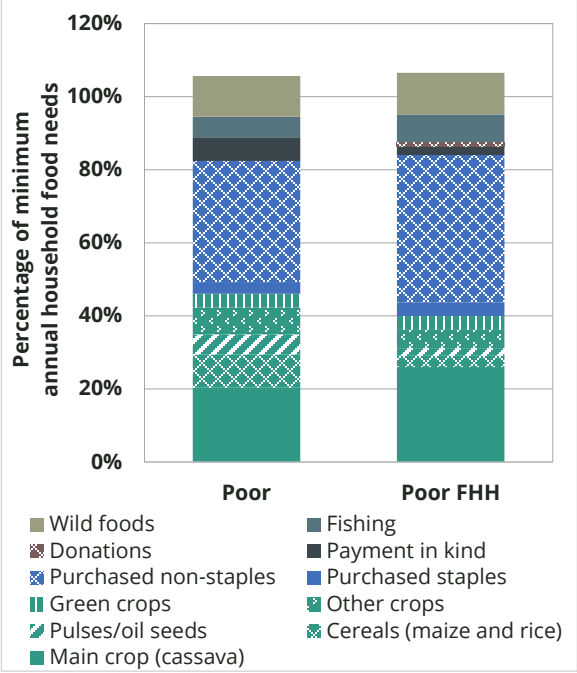
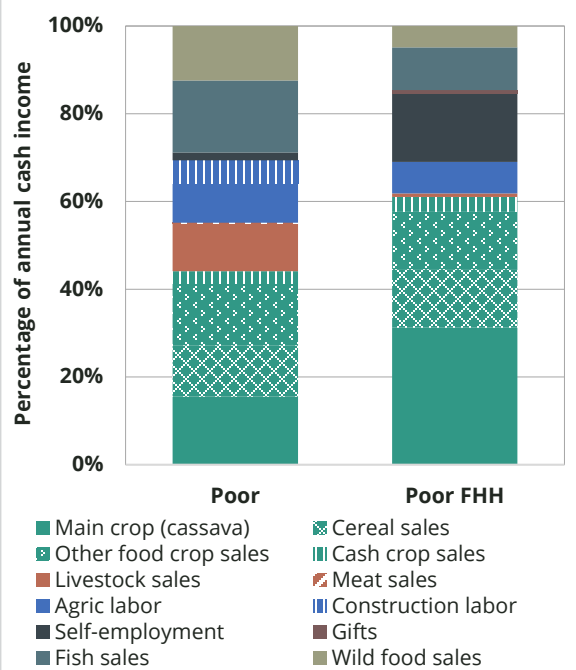


Figure 10. Sources of Cash: Poor Households vs Poor Female-Headed Households



Crop sales accounted for a slightly higher percentage of annual cash income for poor female-headed households, contributing 55-65%, compared to 40-50% for poor male-headed households. The lack of significant livestock income stands out for poor female-headed households, while on the other hand, self-employment was an important income source, at 15-25% of total income for female-headed households; poor male-headed households did not earn much from self-employment. In contrast, fish sales contributed a much higher share to the annual cash income of poor male-headed households, ranging from 15-18%, compared to approximately 10% for poor female-headed households. Additionally, wild food sales made up a larger share of income for poor male-headed households, at 10-15%, compared to approximately 5% for poor female-headed households. Agricultural paid labor contributed similarly to the annual cash income of both male-headed and female-headed households, at 5-10%.

Response Strategies

In response to hazards and years with lean production, households attempt to meet their minimum food and cash requirements through several strategies. Below are some common strategies employed by households.

Households from all wealth groups try to reduce expenditure on non-essential or more expensive items first, like cutting down on festival costs or not buying clothes or utensils that year. Households consume less rice and maize in favor of cassava, which is the least expensive staple.

Very Poor and Poor Households

Very poor and poor households try to increase cash income through the intensification of casual labor activities in agriculture and construction to earn more cash. However, in bad years, as increasing numbers of people seek labor opportunities, this option quickly loses its value because wage rates drop, and jobs are harder to find, pushing households to other activities, like collecting wild foods.

Middle and Better-Off Households

Middle and better-off households cope with hazards differently than poorer households. Middle and better-off households sell additional livestock to cover basic food and non-food expenses in lean years. They also increase self-employment activities, like petty trade and other trade activities.

Key Parameters for Monitoring

The key parameters listed in Table 5 are food and income sources that make a substantial contribution to the household economy in the *Equateur Forest Hunting, Fishing, and Staple Crops Livelihood Zone*. These should be monitored to track potential losses or gains to local household economies through ongoing monitoring systems or periodic assessments.

Table 5. Key Parameters for Monitoring

Item	Key Parameter – Quantity	Key Parameter – Price
Crop production	• Maize Seasons A and B – quantity produced • Cassava – quantity produced • Groundnuts Season B – quantity produced • Cowpeas – quantity produced • Rice – quantity produced • Vegetables – quantity produced	• Maize Season A and B – producer price • Cassava – producer price • Groundnuts Season B – producer price • Cowpeas – producer price • Rice – producer price
Livestock production	• Pigs – herd size • Goats – herd size	• Pigs – producer price • Goats – producer price
Other food and cash income	• Palm oil – quantity produced • Fishing – quantity caught • Wild foods – quantity collected • Cultivation labor – number of days worked • Construction labor – number of days worked • Petty trade – demand	• Palm oil – producer price • Fishing – collector price • Wild foods sales – collector price • Cultivation labor – wage rates • Construction labor – wage rates • Petty trade – daily earnings
Expenditure		• Cassava – consumer price

CD22 Livelihood Zone

Reference Year: January 2023–December 2023

Lighter Forest with Rice and Cassava Livelihood Zone



Figure 1. CD22 Livelihood Zone Map

Summary: The *Lighter Forest with Rice and Cassava Livelihood Zone* (CD22) is an agricultural zone covering the territories of Dimbelenge, Kole, Dekesse, Lodja, Lubefu, Lusambo, and Kakenge in Sankuru Province in the central area of the Democratic Republic of the Congo (DRC). The zone's climate is tropical, with annual average temperatures ranging from 22°C to 28°C and average annual rainfall between 1,500 and 2,000 millimeters (mm). Key economic activities include selling surplus agricultural produce, livestock raising, trade, and paid agricultural labor on which poor and very poor households rely heavily to make ends meet. The main food sources for households are their own crops along with market purchases. Only middle and better-off households benefit substantially from livestock sales and trading. An unusual zone feature is coffee production, which together with watermelon seeds, brings some cash to all wealth groups. Many very poor households were unable to meet their minimum food requirement in a year considered average for food security.

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Zone Description

The *Lighter Forest with Rice and Cassava Livelihood Zone* (CD22) is an agricultural zone located in the central area of the DRC covering the territories of Dimbelenge, Kole, Dekesse, Lodja, Lubefu, Lusambo, and Kakenge in Sankuru Province.[1] The zone experiences a tropical rainforest climate characterized by warm and humid conditions, with little temperature variation between the seasons. Average annual temperature ranges from 22°C to 28°C, with the hottest months from February to April and the coolest period from June to August. Average annual rainfall ranges from 1,500 to 2,000 mm, and relative humidity remains consistently high, typically 75% to 90% throughout the year.

CD22 falls within an agro-ecological zone characterized by a mix of lighter equatorial forest, savannah marshlands, and basin ecology. The topography includes mountains, valleys, and riverine areas, and the natural vegetation is diverse. Common species include woody varieties, such as okoumé (*Aucoumea klaineana*), mahogany (*Entandrophragma spp*.), and ebony (*Diospyros spp.*), which are commonly used in handicrafts. In areas where the rainforest transitions to savannah, grasses, and scattered trees like baobab (*Adansonia digitata*) are present. Drainage includes the Sankuru River and its tributaries — Lomami, Lubefu, Ololo, Lulua, Nyangela, and Kole Rivers. The Sankuru River, a major tributary of the Kasai River, is a permanent watercourse that plays a crucial role in the region's hydrology and supports a variety of ecosystems, including those within the Sankuru Nature Reserve. The reserve, supporting Indigenous communities who preserve traditional environmental knowledge and practices, is renowned for its rich biodiversity, harboring numerous endemic species, and serves as a critical habitat for the bonobo (*Pan paniscus*), an endangered great ape species found in the wild only in the DRC. The livelihood zone is rich in natural resources variously exploited by the local population, including forest wood, wild plant foods and game, and minerals.

Infrastructure in the zone includes National Highway RN7, running roughly north-south via the main town and commercial center of Lodja on the Lukenie River. Lusambo, to the southeast, is the other main town on the Sankuru River. Roads are generally in poor condition. The population of CD22 is 1,988,870, with a moderate population density of approximately 26 people per square kilometer.[2]

The main livelihoods for households in this zone include crop production and livestock rearing, with associated paid labor. House construction (including brick making), domestic work, self-employment (especially in trade), fishing, and forest exploitation complement these activities.

Agricultural productivity is moderate given heterogeneity in soils, including more-fertile and less-fertile (sandy) soils. The main crops are cassava, maize, groundnuts, cowpeas, rice, and squash. Crops rely on rainfall, with precipitation over nine and a half months, enabling an annual harvest of the long-cycle staples cassava, rice, and squash and two harvests of maize, groundnuts, and

[1] Fieldwork for the current profile was undertaken July 20-August 8, 2024. The information presented in this profile refers to the reference year, which was the consumption year covering January 2023-December 2023. Provided there are no fundamental and rapid shifts in the economy, the information in this profile is expected to remain valid for approximately 5-10 years (i.e., until 2028-2033). All prices referred to in the document are for the reference year.
[2] FEWS NET Data Explorer, population data (2023), accessed 2025, https://fdw.fews.net/data-explorer/.

cowpeas. Farmers can produce amaranth leaves under rainfed or irrigated conditions. Perennial plantains and sweet bananas are modest additional items, as are robusta coffee beans from small plantations. The more important perennial is the wild palm tree from which farmers collect palm nuts year-round and process it into palm oil manually or using a mechanical presser. Households typically practice intercropping to maximize land use and improve soil fertility. For instance, farmers commonly intercrop maize with groundnuts or cowpeas. However, they usually cultivate coffee, plantains, and sweet bananas separately. Agricultural practices rely almost exclusively on manual work, with hand tilling using hoes as the primary method for soil preparation. The main tasks are, therefore, all labor intensive: land preparation, sowing, weeding, and harvesting. Wealthier households commonly use hired labor for these activities, paid either in cash or in kind, to cultivate more land than family labor will allow. None of the wealth groups typically use chemical fertilizers, pesticides, or herbicides, although wealthier households with more animals have the advantage of organic fertilizer from their droppings. Regarding the storage of agricultural produce, households typically use two main methods. The first, more common method among households involves storing produce in their kitchen structures, spreading products on wooden racks (called *tresses*) just below the roof. Heat and smoke from cooking help to dry the products, preventing spoilage. The second method, used by those with more resources, involves constructing small huts or storage structures (known as *chamba* or *buvack*) near the fields. There are no farmer cooperatives in the zone.

Livestock production centers around goat, pig, and poultry rearing. Small animals, like guinea pigs and rabbits, are also common. Households generally allow these animals to roam freely to graze and forage. Goats and sheep primarily feed on grass and bushes, while pigs rely on crop residues and household food waste. Guinea pigs and rabbits feed on grass and crop residue. Poultry rely on open pasture and household waste. Households do not purchase feed for their livestock. During the Rainy Season, households water livestock using household water sources and occasional pools of rainwater, while in the Dry Season, they rely solely on household water. There is no payment for water for humans or animals. Despite efforts to control livestock breeding, the lack of technical knowledge results in poor monitoring of the birth calendar for animals.

Apart from agricultural labor and house construction, the most common paid work for members of poorer households is fetching and carrying water and small loads of food and non-food products and construction materials. Self-employment activities include gathering and selling firewood, producing charcoal for sale, local beer brewing, handicrafts, and petty retail trading of food and non-food items. Wealthier households take part in somewhat larger forms of trading. Poorer households sell wild foods as well. Poorer households use nets, canoes, and hooks for fishing in dikes.

The zone faces several hazards that significantly affect its economy and livelihoods. Damaging rainfall irregularities, including late onset and long breaks during growing cycles, are the most frequent threat, occurring every other year. Land conflicts, crop disease, and livestock disease arise approximately every three years. Lack of market access is a persistent, annual issue. Common crop diseases include root rot, mosaic virus on cassava, downy mildew, and a local disease known as

bobolenge in Tshiluba that affects cassava and maize. Livestock diseases frequently affecting the area include verminosis, coccidiosis, porcine and caprine plague, avian diseases (including Newcastle disease), and colibacillosis. These risks collectively challenge the stability and productivity of livelihoods in the region. Other significant risks include human disease outbreaks, particularly malaria and colds, highlighting the ongoing public health challenges in the zone.

Poorer households primarily rely on spring water, rainwater, and river water for drinking and other uses. In contrast, wealthier households have access to drilled wells and boreholes for drinking water, and they also use river water for other purposes. In terms of sanitation, all wealth groups use traditional latrines, constructed with wood and bamboo for the poorer households and wood and bricks for the wealthier households. All households dispose of other physical waste in nature. Healthcare access varies slightly, with very poor and poor households using traditional healthcare methods and local health centers, whereas wealthier households depend on health centers but also hospital treatment, which incurs transport costs and higher fees. For lighting, very poor and poor households use flashlights, while wealthier households use candles, lanterns with batteries, and solar panels. For cooking fuel, poorer households exclusively use firewood, while wealthier households use firewood and the more expensive charcoal. For communication technology, poorer households have voice-only cell phones, while wealthier households enjoy internet access. Educational levels increase with wealth. The typical maximum education level for poorer households is primary and, to some extent, secondary school, while wealthier households commonly achieve secondary and often higher education. Savings practices differ, with poorer households maintaining available cash savings at home, while some wealthier households use mobile money and banks. However, livestock are the chief repository of savings for all. Borrowing money is an uncommon practice in the zone, and credit access is not typical. There are no formal credit sources.

Markets

Market access in the zone is challenging due to consistently poor road conditions and the near absence or poor state of bridges. The lack of road maintenance severely hinders travel. During the Rainy Season, roads often become impassable, and even in the Dry Season, sandy conditions prevail, complicating travel and requiring detours to reach markets.

Key trade routes connect local markets to big market centers like Kananga, Mbuji-Mayi, and Kinshasa. The main commercial crops are rice, maize, groundnuts, and cassava. Farmers primarily sell rice, maize, and groundnuts from January to March, sell maize in June, and sell cassava throughout the year. Animals like pigs, goats, and poultry are also sold along the same routes. In addition, palm oil and local beer are important products, with peak sales during the latter half of the year. On the market-purchase side, maize and cassava are the main staples that households buy, with purchases increasing from July to the end of the year before the main cereal harvests.

The casual labor market within the zone is largely local, with 90% of employment occurring in the local rural area, 5% in nearby towns, and 5% as migrant labor outside the zone. Men are the primary

migrants who leave the area to work seasonally in cities like Kinshasa, Mbuji-Mayi, and Tshikapa. There is no significant labor migration into the zone.

Timeline and Reference Year

The baseline assessment refers to a specific period called the "reference year." In the zone, the reference year covers the consumption period from January 2023 to December 2023. During community leader interviews, we asked informants to score the last five years in terms of seasonal performance, with "1" indicating a poor season and "5" indicating an excellent season. Table 1 summarizes the response of the community leaders.

The term "average rainfall" in the table requires comment, because reports of coping behavior accompany it. An overall theme from key informants was the experience, over a period of years, of a changing trend in rainfall patterns, with frequent deficits or irregularities in timing that are damaging to crops. Informants now appear to consider these conditions a "new normal." They differentiated the lean years, ranking both seasons of 2019 and Season B of 2021 as "2" (below average) in terms of household food security. They ranked Season A of 2020 as "4" (good), whereas Season B of 2020, and both seasons of 2022 and 2023 received a ranking of "3" (average). In the reference year, despite rainfall challenges in both seasons and the lingering impacts of the preceding years 2019 to 2022, such as irregular rainfall, crop production remained relatively stable, resulting in average household food security.

Table 1. Timeline

Production Year/ Season	Score	Critical Events
2023/Season B	3	Average rainfall in both seasons. Primary adaptive strategies included the formation of farmers' associations and an increase in the sale of livestock and labor. These factors contributed to an overall average year for food security among households.
2022-2023/Season A	3	
2022/Season B	3	Average rainfall in both seasons. The community responded with similar strategies, including the formation of farmers' associations, and increased livestock and labor sales resulted in a year of average food security for households.
2021-2022/Season A	3	
2021/Season B	2	Average rainfall in Season A, with adaptive strategies focusing on the consumption of cassava reserves, gathering, and fishing. Households' food security was below average. However, Season B experienced delayed rains, prompting the continued use of cassava reserves, gathering, and fishing as survival strategies, reflecting an average year for household food security in both seasons.
2020-2021/Season A	3	

2020/Season B	3	Good rainfall in Season A, resulting in above-average household food security. However, Season B experienced moderate rainfall, leading to the formation of farmers' associations and an increase in livestock and labor sales. Household food security in this season was average.
2019-2020/Season A	4	
2019/Season B	2	Substantial rainfall deficit conditions in Season A forced the community to rely on cassava reserves and forest gathering as coping mechanisms. Season B was equally challenging, marked by conflicts over land. Households employed coping strategies, such as using cassava reserves, gathering, and moving into the forest to mitigate the impact of conflicts. Household food security was below average in both seasons.
2018-2019/Season A	2	

5 = Excellent season for household food security (e.g., due to good rains, good prices, good crop yields)
4 = Good season or above-average season for household food security
3 = Average season for household food security
2 = Below-average season for household food security
1 = Poor season for household food security (e.g., due to drought, flooding, livestock disease, pest attack)

Seasonal Calendar for Reference Year

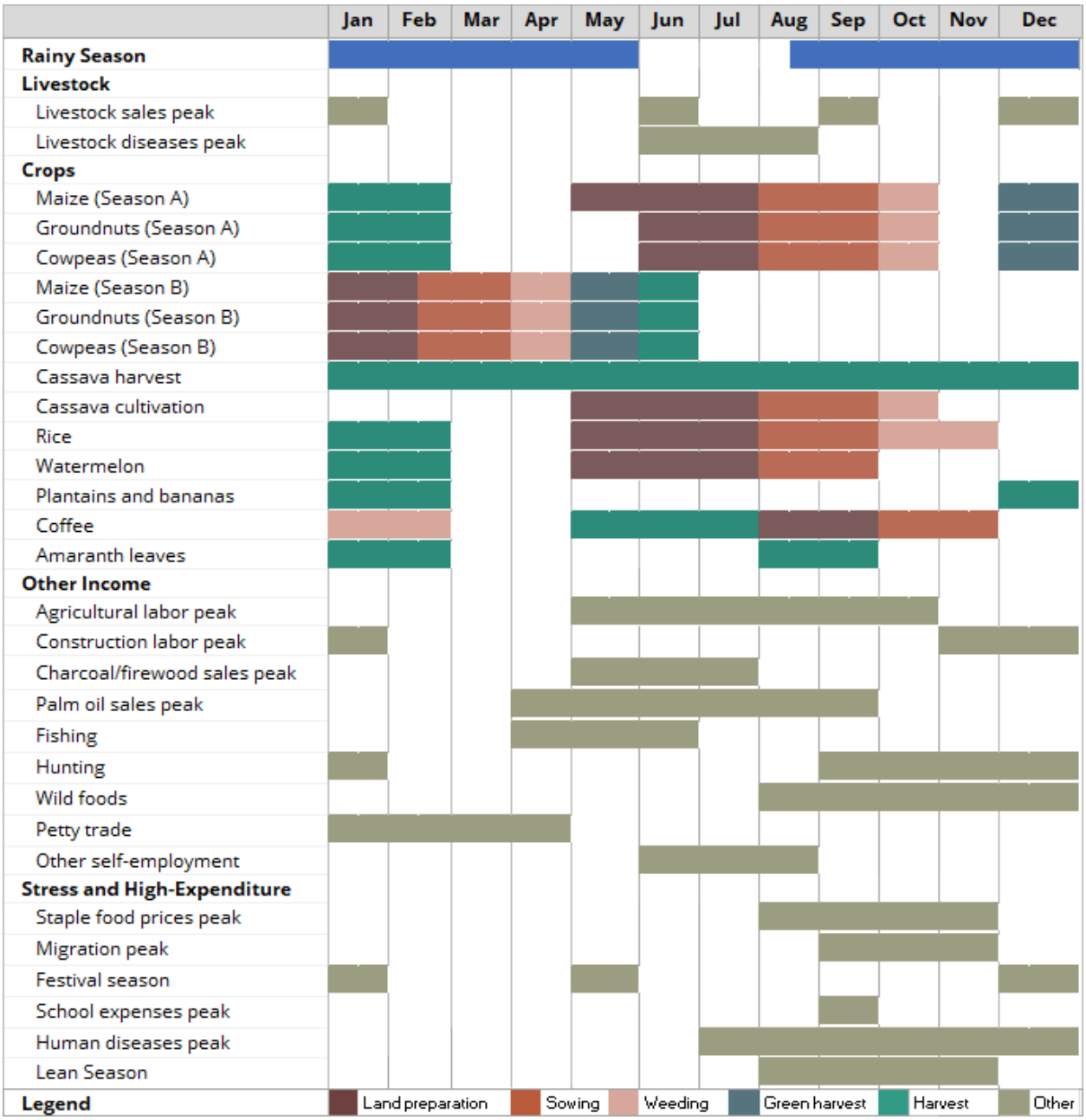
The seasonal calendar (see Figure 2) illustrates the main economic activities and events of the reference year. It traces the rainy months, livestock activities, agricultural activities, other important income activities periods, and stress and high-expenditure periods.

The Rainy Season in the zone follows a unimodal pattern. The rains start in mid-August and continue through May, with lighter showers occurring in January and February. For crops with two cycles in 12 months, Season A starts with land preparation in May and ends with harvest in January-February. Season B starts in January, and the harvest is in June. Cassava is a particular case. Land preparation starts in May and goes until July, followed by the planting of stems in a staggered manner from August, with weeding beginning in October. Upon maturation, cassava can be left in the ground for months and harvested when required (including before tubers are mature, if there is a pressing need). Therefore, there is effectively a year-round cassava harvest in the zone, while individual farmers time their own cassava calendar according to capacity and need. Farmers cultivate maize, groundnuts, and cowpeas in two seasons. Season A is the main season and includes land preparation from May to July, sowing in August to September, weeding in October, green in December, and harvesting from January to February. Season B starts with land preparation from January to February, sowing from February to March, weeding in April, green consumption in May, and harvesting in June.

Households in the zone take advantage of lowland terrain to cultivate rice in Season A. Land preparation for rice occurs from May to July, sowing from August to September (no seedling planting), weeding from October to November, and harvesting from January to February. The gathering of wild palm nuts continues throughout the year. However, palm oil sales peak from April

to September. The main harvest of plantains and bananas occurs from December to February. Households harvest amaranth leaves from January to February and from August to September. Coffee plantations are subject to weeding maintenance, mainly from January to February, and the harvest occurs from May to July. New coffee plantations start with land preparation from August to September and planting from October to November.

Figure 2. Seasonal Calendar



During the Rainy Season, the availability of surface water and pasture for livestock promotes increased reproduction and productivity. Gestation periods are 5-6 months for small ruminants (goats and sheep) and almost four months for pigs. Households sell various livestock, with sales

peaking in June, September, and December. June is significant due to the need for cash to pay for school exams. September coincides with the start of the new school year and the beginning of farming activities, while December to January is the holiday season. Households occasionally purchase animals, especially from wealthier households, as a way of investing savings or to replace lost livestock. Goats and pigs are the main types of animals slaughtered, usually during festival periods.

Agricultural paid labor intensifies from May to October. Construction activities primarily take place between November and January. Migration peaks during the Dry Season, from September to November. Firewood and charcoal production intensify from May to July in the Dry Season. Local beer is produced from maize and is brewed year-round. The peak period for gathering wild food typically occurs from August to December. Human disease outbreak generally occurs from July to December. The lean season, the most challenging period in terms of food access, begins in August and extends to November. During this time, food stocks are depleted, particularly for poorer households, and food prices are high. Some households may cut or dig up immature “green” crops in December.

Table 2 outlines the typical division of labor, distinguishing between shared and non-shared tasks. Shared tasks among men, women, boys, and girls include land preparation, planting, sowing, weeding, harvesting, threshing, crop sales, palm oil production and sales, livestock tasks, petty trade, other self-employment (e.g., food sales, production and sale of local beer and handicrafts), as well as wild food gathering and sales. Men are primarily responsible for bird scaring; livestock tasks related to goats, sheep, and pigs; construction labor (e.g., house construction, roofing, and brickmaking); merchandise transport using the bicycles of middle and better-off households; charcoal production; and fishing and fish sales. Women are solely responsible for tasks related to poultry, rabbits, and guinea pigs; threshed-grain transportation; firewood collection and sales; domestic labor (including wood collection and sales and water transportation and sales); and household chores like water collection, cooking, feeding small children, laundry, and firewood collection for domestic use.

Table 2. Typical Labor Division

Shared Tasks	Women’s Tasks	Men’s Tasks
• Cultivation labor pre-harvest (land preparation, planting, sowing, and weeding) • Harvest labor (harvesting and threshing) • Crops sales • Palm oil production and sales • Livestock tasks • Petty trade • Other self-employment • Wild foods gathering and sales	• Firewood collection and sales • Domestic labor • Transportation of threshed grains • Transportation and sale of water • Household chores	• Bird scaring • Construction labor • Charcoal production and sales • Transport of merchandise • Fishing and fish sales • Livestock sales

The roles in livestock tasks are divided by gender. Men are typically responsible for constructing shelters, weaning young animals, and feeding, watering, and selling livestock at the market. Women primarily handle feeding and watering animals. Specific types of animals fall also under the responsibility of women, such as poultry, rabbits, and guinea pigs, while men are mainly responsible for goats, sheep, and pigs. In terms of wild food gathering and sales, women and men also have different responsibilities. Hunting and game sales are under men's responsibilities; caterpillar collection and sales, mushroom picking and sales, and wild yam collection and sales are mainly women's tasks.

Wealth Breakdown and Productive Assets

Several key factors determine wealth distribution in the zone, including the amount of cultivable land, labor availability, the number of livestock owned, and the possession of other productive assets, such as bicycles, motorcycles, and palm oil pressers. Middle and better-off households typically own and cultivate more land, have access to more labor, possess greater numbers of livestock, and hold more productive assets compared to poorer households. Access to land varies significantly among wealth groups, with wealthier households owning and cultivating larger portions of land for food and cash crops. Wealthier households can afford to pay for labor, and they leave more land under fallow, while poorer households cannot exploit all their land, primarily because of labor constraints, including the alternative use of their time for paid work. In this livelihood zone, renting land is not a common practice among the different wealth groups. Women typically inherit land through their fathers, while their husbands may also give them some land to cultivate on their own account, and they may also inherit land upon a husband's death.

Crop production across all wealth groups relies on traditional manual methods, with no significant differences in the techniques used. Apart from available labor, the main constraints to crop production are climate issues, crop disease and pests, land disputes, and the lack of improved seeds and more efficient farming tools. Livestock production faces its own set of challenges, including animal disease, the lack of veterinarians and veterinary products, and financial limitations. Wealthier groups do collaborate in livestock production, with women typically purchasing or inheriting goats, pigs, and poultry. To overcome these constraints, wealthier households may offer materials in exchange for labor or form work associations, facilitating resource sharing among different wealth groups.

Table 3 summarizes the types and numbers of productive assets that typical households within each wealth group own and/or manage. Asset holdings are shown in a range that reflects the diversity of household situations within a wealth group. Figure 3 shows the percentage of households within the zone that falls in each wealth group. The communities themselves created the socioeconomic categorization of households in the zone.

Household size tends to increase with wealth. Very poor households typically have 5-7 members, poor households have 6-8 members, middle households 9-13 members, and better-off households

12-16 members. The proportion of households in the community is distributed as follows: very poor households make up 20-40%, poor households 35-55%, middle households 10-25%, and better-off households 5-10%. The proportion of female-headed households decreases as wealth increases. In the very poor wealth group, 60-75% of households are female-headed, while in the poor wealth group, 35-55% are female-headed. Among middle-wealth groups, female-headed households make up 20-30%, but there are typically no poor female-headed households among better-off households. In the zone, land is freely available for clearing and cultivation, and every household cultivates according to their means and available labor.

Table 3. Wealth Breakdown

Household Size and Productive Assets	Very Poor	Poor	Middle	Better-Off	Poor Female-Headed
Household size	5-7	6-8	9-13	12-16	4-6
Land (ha)	1-1.5	1-3	3-5	5-7	1-2
Land cultivated (ha)	0.25-0.5	0.3-1	1.5-2.5	2-3	0.3-0.5
Land cultivated – food crops (ha)	0	0	1-2	1.5-2.5	0
Land cultivated – cash crops (ha)	0	0	0-1	0-1	0
Pigs	0	0-2	2-6	3-10	0
Goats	0-2	0-2	2-6	3-10	0
Sheep	0	0	0-4	0-6	0
Rabbits	0-15	0-15	0-25	0-30	0-2
Guinea pigs	0-5	0-10	0-15	0-20	0
Poultry	5-15	5-20	10-25	15-30	0-15
Motorcycles	0	0	0-2	0-2	0
Bicycles	0	0	1-2	1-5	0
Palm oil pressers	0	0	0-2	0-2	0

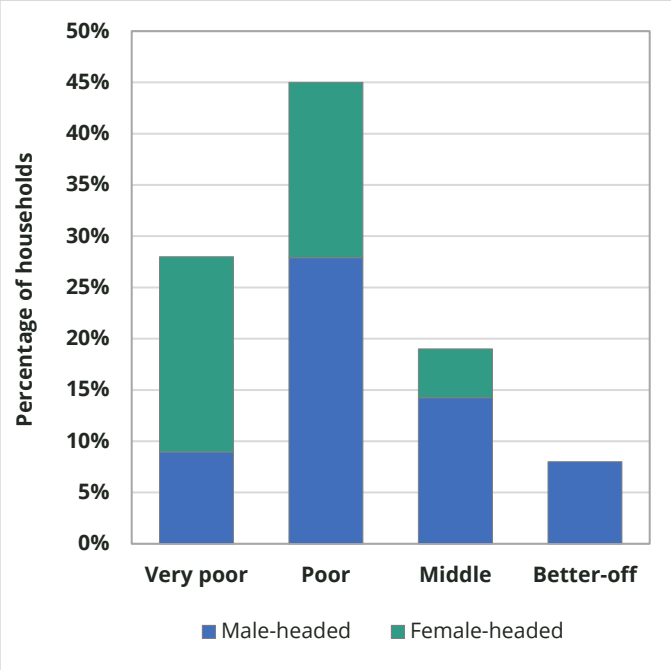
During the reference year, poorer households cultivated approximately 30% of the land they owned, middle-income households cultivated about 50%, and better-off households cultivated around 40% of their land. Differences in volumes of crops produced were essentially due to the amount of land cultivated rather than increases in yields per hectare: neither wealthier nor poorer farmers typically used chemical fertilizers. The wealthier farmers hired labor to cultivate their greater landholdings

and produce surpluses for household consumption. Poorer households could not produce enough to feed the household for the year, but even so, they sold some crops at harvest to meet pressing cash needs. They also sold more later for essential cash needs that had to be met during the year until they received money for paid work.

Very poor households cultivated 0.25-0.5 ha of land, planting food crops and cash crops using an intercropping system. Poor households cultivated 0.3-1 ha, also using intercropping. Middle households cultivated 1.5-2.5 ha, divided into 1-2 ha for food crops and up to 1 ha for cash crops. Better-off households cultivated 2-3 ha, with 1.5-2.5 ha for food crops and up to 1 ha for cash crops. The wealthier households used intercropping and single cropping. Poor female-headed households cultivated 0.3-0.5 ha, with only food crops. Overall, better-off households cultivated almost five times the land cultivated by very poor households, but given the different household sizes, the per capita difference was about half.

Figure 3. Wealth Breakdown

Note: All results are the midpoint of a range



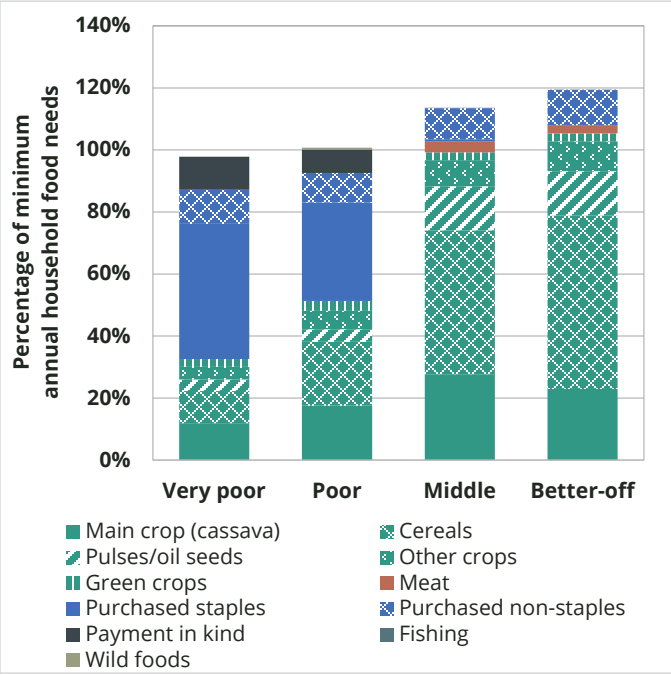
Livestock are a significant income source in this zone, serving as an important means of investing, saving, and safeguarding food security during difficult years. The main types of livestock include goats, pigs, guinea pigs, rabbits, and poultry. Livestock provide direct access to food through meat and eggs and are a crucial source of cash income through the sale of live animals. All households in the zone own livestock, with wealthier households possessing larger herds. Pigs, goats, and sheep are particularly valuable due to their high economic value and the financial security they provide. Middle and better-off households raise many types of livestock and have larger numbers than poorer households. The herd sizes for very poor households typically include a maximum of two goats, 15 rabbits, five guinea pigs, and 15 poultry. Poor households may own up to two pigs, two goats, 10 guinea pigs, 15 rabbits, and 20 poultry. In contrast, poor female-headed households are usually limited to owning up to two rabbits and up to 15 poultry.

In terms of other asset ownership, very poor, poor, and poor female-headed households do not own bicycles. Middle households generally own 1-2 bicycles, while better-off households may own up to five bicycles. Some middle and better-off households also own up to two motorcycles and up to two palm oil pressers.

Sources of Food

Figure 4 presents the sources of food for households in different wealth groups in the zone from January 2023 to December 2023. January represents the start of the consumption year because it is when crop consumption from the main harvest season starts. The figure presents food as a percentage of the annual kilocalorie (kcal) needs of the household, based on the internationally accepted minimum standard of 2,100 kcal per person per day.

Figure 4. Sources of Food



Households from all wealth groups have two main food sources in this zone: their own crops and market purchases. Other minor sources of food included livestock products (meat), in-kind payment, and wild foods.

When considering total food consumption in Figure 4, there was a clear, progressive increase in the amount of food consumed with rising wealth. Overall, the very poor consumed 95-100% of the minimum annual food needs, the poor consumed 95-110%, the middle group consumed 105-120%, and the better-off consumed 115-130% of minimum annual food needs. This means that some very poor households were unable to fully meet their minimum food needs in a year considered average for food security. There was no food aid or school-feeding program in the zone.

The wealthier households consumed most of their food from their harvests, choosing to buy preferred foods. For very poor households, given what they sold for reasons discussed above, consuming their own crops covered 30-35% of their minimum annual food needs, while for poor households, this figure ranged 45-55%. Cassava was the main crop consumed by households, mainly from dried cassava chips, which were used to prepare different dishes like *fufu* after grinding. Very poor households obtained 10-15% of minimum annual food needs from cassava, poor households obtained 15-20%, middle households obtained 25-30%, and better-off households obtained 20-25%.

Households from all wealth groups obtained 2-4% of minimum annual food needs from green consumption, which included maize and beans cultivated in Seasons A and B. Very poor households obtained 5-15% of minimum annual food needs from cereals (maize and rice), poor households obtained 15-25%, while middle households obtained 40-50%, and better-off households obtained 50-60% of minimum annual food needs in this category. Pulses and oil seeds, including cowpeas,

groundnuts, and watermelon seeds, provided significant sources of vegetable protein and fat. Poorer households derived approximately 4% of their annual food needs from these crops, whereas wealthier households obtained 10-20%. Other crops, such as plantains, bananas, and palm oil, also contributed to food needs, with poorer households obtaining 4-6% and wealthier households 8-10% of their annual requirements from these sources.

Meat from households' own pigs as well as purchased meat and dried fish were a source of animal protein but relatively few calories for only wealthier households, covering 2-5% of minimum annual calorie needs.

Purchased food was overall the second most important source of food in the livelihood zone. This food can be divided into staple and non-staple categories. Households from poorer and middle wealth groups purchased staple foods, like maize, rice, and cassava flour. Very poor households obtained 40-50% of minimum annual food needs from purchased staple foods, while poor households obtained 30-35%, and middle households obtained approximately 1% in this category. The category of non-staple food purchases included groundnuts, watermelon seeds, sugar, meat, oil, dried fish, fresh fish, and vegetables. Households from all wealth groups obtained 5-15% of minimum annual food needs from this category.

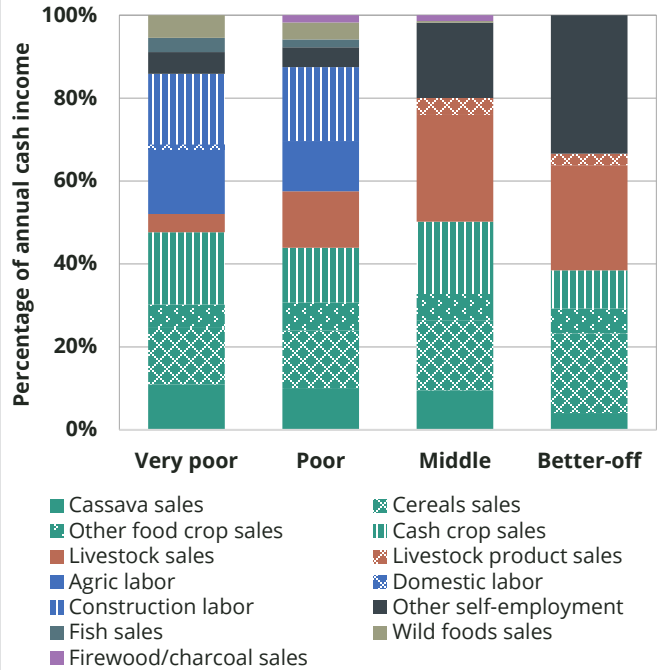
In-kind payment was an additional and important source of calories for poorer households. It was most common for households to receive cereals as payment. Very poor households obtained 5-15% of their minimum annual food needs from this source, while poor households obtained 5-10% of their minimum annual food needs from this source. Wild foods, including game meat, mushrooms, wild yams, and caterpillars, contributed less than 1% to the annual caloric intake of poorer and middle households (therefore not visible in the graph), but these items added to the quality of their diet.

Sources of Cash Income

Crop production, livestock rearing, and trading were the main livelihood activities in the zone. Households in different wealth groups obtained cash income by different means (see Figure 5). Crop sales were the main income source for households from all wealth groups. Besides crop sales, households earned income from various other sources, including the sale of livestock and related products, agricultural paid labor, and other local labor, such as construction and domestic work. They also generated income from firewood and charcoal sales, other forms of self-employment, fish sales, and the sale of wild foods like game meat, mushrooms, caterpillars, and wild yams.

Very poor households obtained income from crop sales, which accounted for 45-50% of their total income. Labor payments contributed 30-40%, with other self-employment contributing around 5%. Wild food sales also contributed around 5%. Livestock sales accounted for 4% of total income, while fish sales contributed an additional 2-5%.

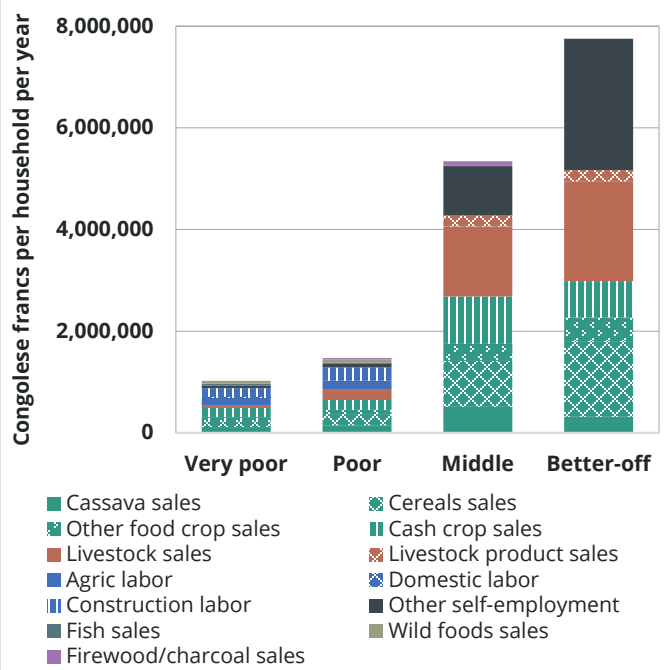
Figure 5. Sources of Cash Income as a Percentage of Annual Cash Income



Poor households generated 40-50% of their cash income from crop sales. They earned 25-35% of their total annual cash income from labor, 12-16% from livestock sales, about 5% from other self-employment, 3-5% from wild foods, and 2% from fish sales.

By contrast, middle-income households secured 45-55% of their total annual cash income from crop sales, 20-30% from livestock sales, 15-20% from other self-employment, 4% from livestock products, and less than 1% from firewood and charcoal sales. Better-off households secured 35-40% of their total annual cash income from crop sales, 30-35% from other self-employment (mainly trading), 20-30% from livestock sales, and 3% from the sale of livestock products.

Figure 6. Total Annual Cash Income



Differences between wealth groups in the absolute amount of cash income generated during the reference year were large. Figure 6 and Table 4 illustrate this difference. Better-off households earned more than five times the cash income of very poor households. However, the differences between wealth groups in per capita cash income were smaller than for total income. Better-off households earned two to three times the annual per capita cash income of very poor households. There was a progressive increase in annual per capita cash income with increasing wealth.

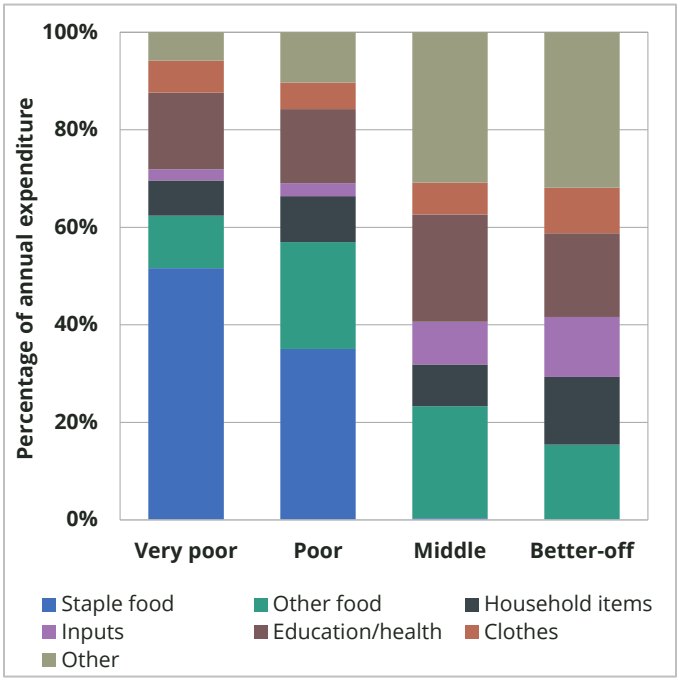
Table 4. Income Summary Table (Congolese Francs or CDF)

Wealth Group	Very Poor	Poor	Middle	Better-Off
Annual income per household[3]	800,000–1,200,000	1,200,000–1,700,000	4,500,000–6,500,000	6,500,000–9,000,000

Expenditure Patterns

Figure 7 presents expenditure patterns for the reference year. Although absolute expenditure increases with wealth in line with total cash income, this graph's expenditure breakdown by percentage shows the relative proportions of income spent on the different categories. Households in the zone need to cover a range of essential expenditures over the year. These include staple foods, non-staple foods, household items/services (e.g., salt, soap, tea, coffee, lighting, milling, etc.), productive inputs, social services (e.g., health and education), clothing, transport, and other essential and non-essential items. Households did not need to pay for water.

Figure 7. Total Annual Cash Expenditure by Category



Households in all wealth groups spent significant proportions of their annual incomes on staple and non-staple foods. As noted in the Sources of Food section, very poor households secured 50-60% of their annual food energy needs from food purchases, poor households secured 35-45%, and wealthier households obtained 5-15% of their annual food energy needs from this source. Food expenditure by poorer households would have been significantly higher without the substitution of in-kind payments.

In very poor households, expenditure on staple foods accounted for 50-55% of annual expenditure during the reference year, non-staple-food expenditure was 5-15% of total expenditure, household items (e.g., lighting and grinding costs) 5-10%, production inputs about 2%, social services (health and education) 10-20%, clothing/shoes 5-10%, and "other" items (e.g., transportation, phone credit, festivals) were 4-8%.

[3] The average exchange rate from January 2023 to December 2023 was 1 USD = 2,382 CDF.

In poor households, expenditure on staple foods accounted for 30-40% of annual expenditure during the reference year, expenditure on non-staple foods was 20-25% of total expenditure, household items expenditure was 5-15%, and expenditures on productive inputs, social services, clothing/shoes, and "other" categories were 3%,10-20%, 5%, and 5-15%, respectively.

Middle and better-off households did not spend on staple foods. Middle households spent 20-25% of total annual expenditure on non-staple foods, 5-15% on household items, 5-15% on production inputs (overwhelmingly to hiring field labor), 20-25% on social services, 5-10% on clothing/shoes, and 25-35% on "other," including investment in trading.

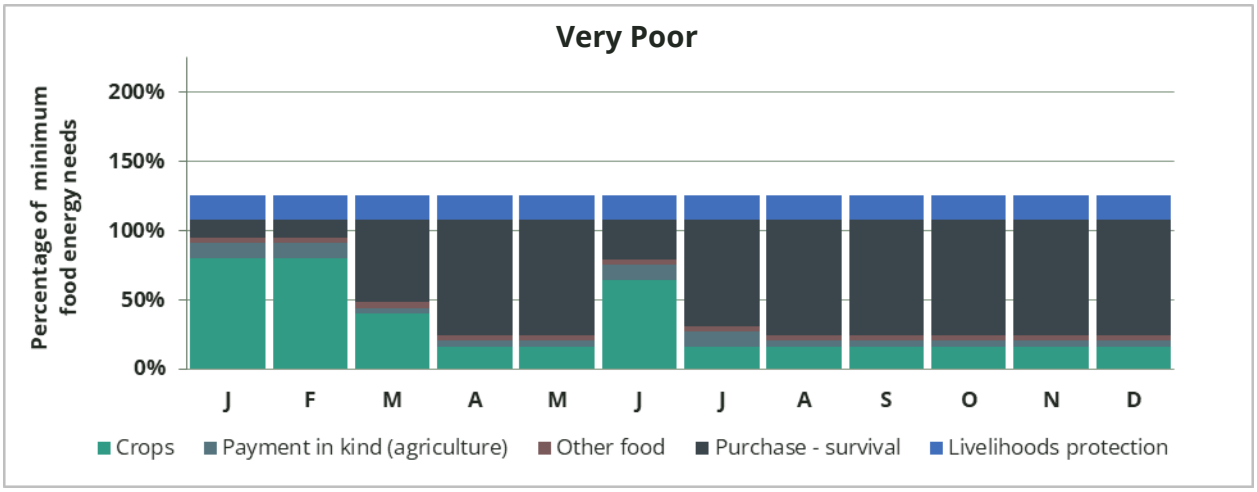
Better-off household expenditure was 10-20% of annual expenditure on non-staple foods, 10-20% on household items, 10-15% on productive inputs (mainly hiring field labor), 15-20% on social services, 5-15% on clothing/shoes, and 20-30% on "other," including investment in trading.

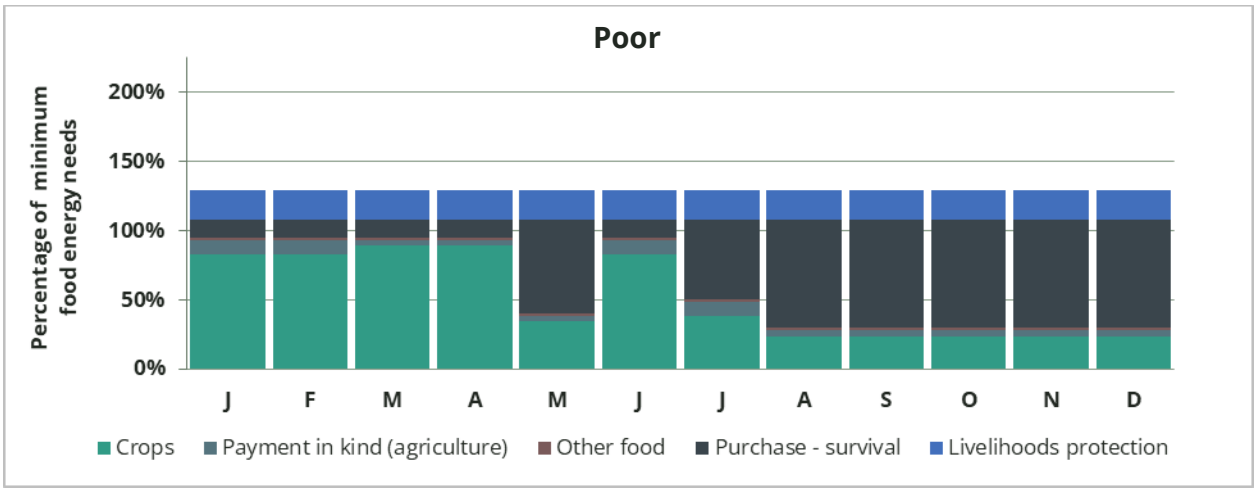
Food Access Calendars

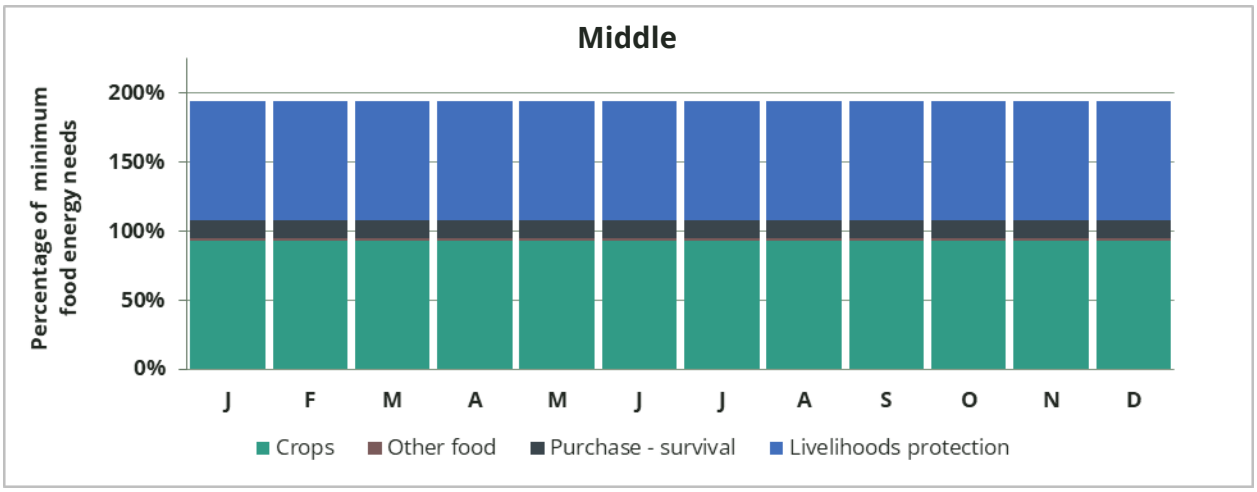
The graphs in Figure 8 present monthly food and cash access calendars for the four wealth groups.

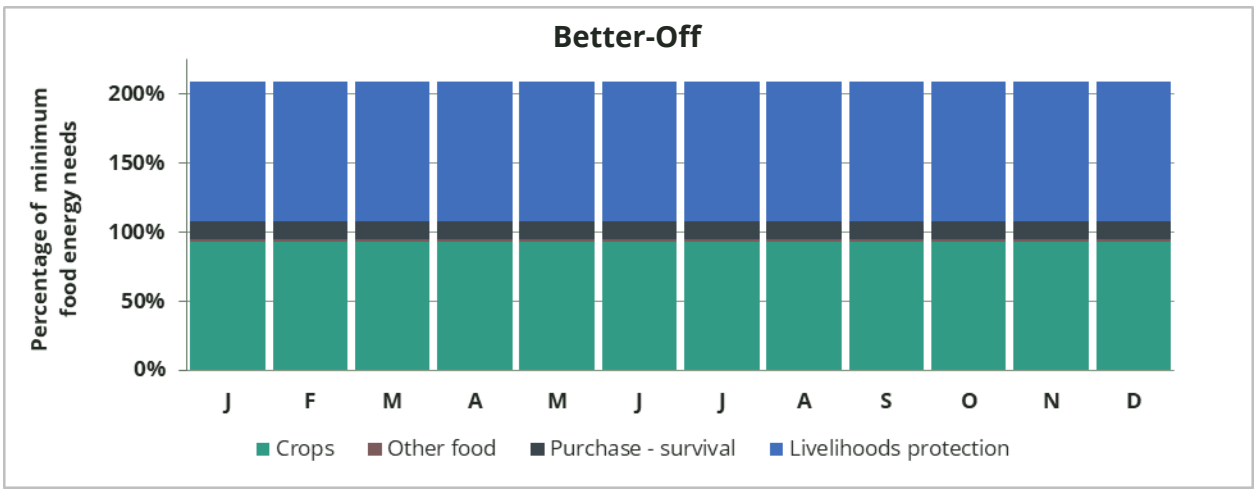
Households in all wealth groups were able to meet their minimum survival and livelihood protection thresholds year-round in the reference year, with a peak reliance on food purchases from April to May and August to December, particularly for very poor and poor households. Middle and better-off households obtained almost all their food needs from their own crops. The Season A harvest started in January and the Season B harvest started in June. Very poor and poor households obtained some food from in-kind payment for casual agricultural labor (in teal). The blue "livelihoods protection" bars increase as a proportion of the total with wealth because wealthier households can afford to spend more on productive inputs, health, and education.

Figure 8. Seasonal Food and Cash Access Calendars per Wealth Group




Poor
Percentage of minimum food energy needs
200%
150%
100%
50%
0%
J F M A M J J A S O N D
Crops
Payment in kind (agriculture)
Other food
Purchase - survival
Livelihoods protection


Middle
Percentage of minimum food energy needs
200%
150%
100%
50%
0%
J F M A M J J A S O N D
Crops
Other food
Purchase - survival
Livelihoods protection


Better-Off
Percentage of minimum food energy needs
200%
150%
100%
50%
0%
J F M A M J J A S O N D
Crops
Other food
Purchase - survival
Livelihoods protection

Poor Female-Headed Households

Female-headed households are found in the very poor and poor wealth groups, as shown in the wealth breakdown (Figure 3). During field work, in-depth interviews were conducted with poor female-headed households. In the zone, the female-headed households were widowed or divorced women and women separated from their husbands. This is a group that faces similar constraints and characteristics as male-headed households in the same wealth group, but they are further disadvantaged by a lack of adult male labor.

Figure 9 indicates that poor female-headed households and poor male-headed households share similar food access patterns except for other crops (palm oil and banana), which were only relevant to poor male-headed households. Poor male-headed households cultivated slightly more land than the poor female-headed households and thus harvested slightly more and had slightly more calories from crop production.

Figure 9. Sources of Food: Poor Households vs Poor Female-Headed Households

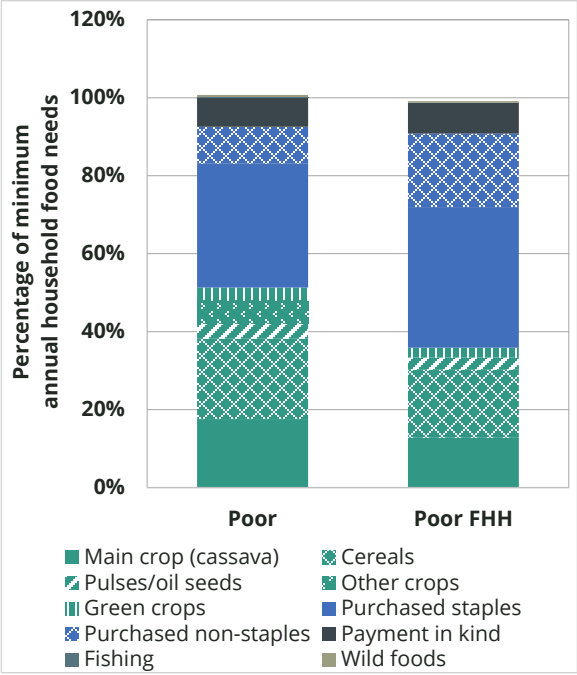
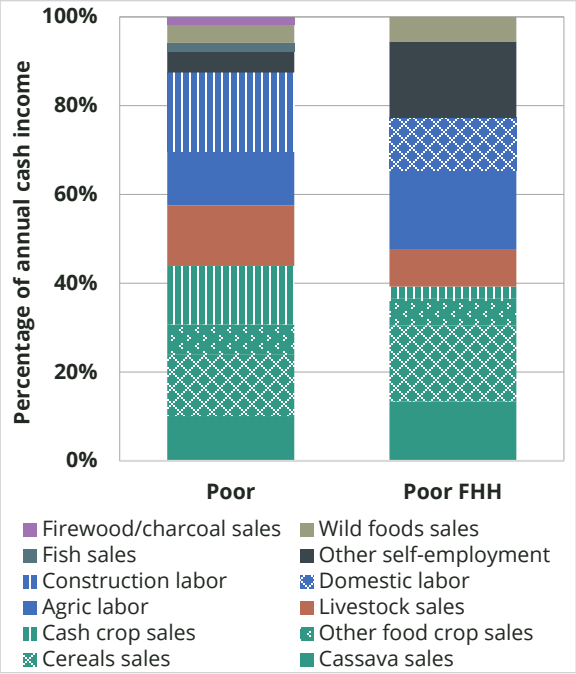


Figure 10. Sources of Cash: Poor Households vs Poor Female-Headed Households



The income picture in Figure 9 shows that poor male-headed households and poor female-headed households had many of the same sources of cash income in the reference year. But important exceptions were construction labor, firewood and charcoal sales, and fish sales, which only concerned poor male-headed households and which could not begin to be matched by the paid domestic labor that female-headed households engaged in. The main sources of cash income for poor female-headed households were, in order of importance, crop sales, cultivation labor

payments, and other self-employment and minor contributions from domestic labor, livestock sales, and wild food sales.

Comparing total cash income, poor female-headed households earned about 40% less than poor male-headed households in the reference year. However, poor female-headed households had a smaller number of members (4-6) than male-headed households (5-7). Thus, per capita cash income was approximately 15% less for poor female-headed households.

Crop sales made up a slightly higher percentage at 40-50% of annual cash income for poor male-headed households compared to poor female-headed households at 35-45%. Livestock also made up a higher percentage for poor male-headed households at 10-20% compared to 5-10% for poor female-headed households. Similarly, wild foods contributed a higher percentage to the poor male-headed households at 4-8% compared to poor female-headed households at 2-6%.

In contrast, agricultural paid labor made up a larger share of the annual cash income for poor female-headed households at 15-25% compared to 10-15% for male-headed households. For other self-employment, poor female-headed households obtained nearly the same percentage of their annual cash income (15-20%) as poor male-headed households.

Response Strategies

In response to hazards and years with poor production, households attempt to meet their minimum food needs and cash requirements through several strategies.

All households try to reduce expenditure on nonessential or more expensive items first, such as cutting down on festival costs or not buying clothes or utensils that year. Households consume less rice and maize in favor of cassava flour, which is the cheapest staple.

Very Poor and Poor Households

Very poor and poor households try to increase cash income by intensifying casual labor activities to earn more cash. However, in bad years, as increasing numbers of people flood the labor market, this option loses its value because wage rates drop, and jobs are harder to find, pushing households to do other activities, such as selling products from fishing and hunting and collecting wild foods.

Middle and Better-Off Households

Middle and better-off households cope with hazards differently. Middle and better-off households sell additional livestock to cover basic food and non-food expenses in bad years. They also increase their efforts in trading activities.

Key Parameters for Monitoring

The key parameters listed in Table 5 are food and income sources that substantially contribute to the household economy in the *Lighter Forest with Rice and Cassava Livelihood Zone*. Ongoing monitoring systems or periodic assessments should track these parameters to monitor potential losses or gains for local household economies.

Table 5. Key Parameters for Monitoring

Item	Key Parameter – Quantity	Key Parameter – Price
Crop production	• Green consumption Season A – quantity produced • Maize Seasons A and B – quantity produced • Cassava – quantity produced • Groundnuts Seasons A and B – quantity produced • Rice – quantity produced • Watermelon seeds – quantity produced • Coffee – quantity produced	• Maize Seasons A and B – producer price • Cassava – producer price • Groundnuts Seasons A and B – producer price • Rice – producer price • Watermelon seeds – producer price • Coffee – producer price
Livestock production	• Pigs – herd size • Goats – herd size • Sheep – herd size • Poultry – flock size	• Pigs – producer price • Goats – producer price • Sheep – producer price • Poultry – producer price
Other food and cash income	• Palm oil sales – quantity • Wild foods – amount collected • Cultivation labor – number of days worked • Harvest labor – number of days worked • Construction labor – number of days worked • Self-employment – demand • Petty trade – demand	• Palm oil sales – producer price • Wild foods – gatherer price • Cultivation labor – wage rates • Harvest labor – wage rates • Mining labor – wage rates • Construction labor – daily earnings • Self-employment – daily earnings • Petty trade – daily earnings
Expenditure		• Maize – consumer price • Cassava – consumer price • Rice – consumer price

CD23 Livelihood Zone

Reference Year: January–December 2023

Kasai-Lomami Savannah: Maize, Cassava, and Small Livestock Livelihood Zone



Figure 1. CD23 Livelihood Zone Map

Summary: The *Kasai-Lomami Savannah: Maize, Cassava, and Small Livestock Livelihood Zone* (CD23) is located within the Kasai region and is characterized by a diverse range of livelihoods and a rich agro-ecological environment. Agriculture is the dominant economic activity, supplemented by animal husbandry, wild food gathering and hunting, small-scale trade, and the transportation of food products by bicycle. Fishing and hunting also contribute to the livelihoods of many households. The zone's economic activities are distinct from neighboring zones, with a notable emphasis on the production and sale of local beer and palm oil alongside traditional agriculture. This combination of activities forms the backbone of the local economy, driving subsistence and small-scale trade within the region. Small pockets of diamond mining exist in some parts of the zone. The zone has moderately productive agricultural output and typically experiences food deficits one year out of every two due to climate change impacts.

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Zone Description

The *Kasai-Lomami Savannah: Maize, Cassava, and Small Livestock Livelihood Zone* (CD23)[1] is located within Kasai region and is characterized by a diverse range of livelihoods and a rich agro-ecological environment. The primary administrative units within this zone include Demba, Dibaya, Kananga, Kazumba, Luebo, and Mweka Territories. The zone is known for its warm plains and tropical climate, with high humidity and annual precipitation ranging from 1,400 to 1,900 millimeters. The area experiences a long Rainy Season from mid-August to mid-May, with temperatures fluctuating between 16°C and 21°C.[2] The topography features a combination of rivers, hills, valleys, forest, savannah, and swampy areas. The zone is traversed by several important rivers — like the Kaluebo, Kasai, Kashinde, Katusenga, Lombelu, Lubudi, Lubi, Luekeshi, Lueta, Lukula, Lulua, Lutshatshia, Miao, Mofwayi, Moyo, Muanzangoma, Tshibashi, Tshibungu, and Tshimayi — as well as by major roads including the RN1, RN27, and RN7. The main cities within this zone are Kananga and Tshimbulu. The population density is relatively high, with an average of 52 inhabitants per square kilometer, and a total population of 4,832,101.[3] The zone is rich in natural resources, including wild products like aquatic plants, game, caterpillars, mushrooms, and various wild vegetables, which are used by many households.

The CD23 zone is characterized by sandy, moderately fertile soils, which contribute to a moderately productive agricultural output. The zone typically experiences a food deficit every other year.

Agriculture is the dominant economic activity, supplemented by animal husbandry, gathering, small-scale trade, and transportation of food products by bicycle. Fishing and hunting also contribute to the livelihoods of many households. Notably, small pockets of diamond mining exist in the Luebo and Demba areas.

The primary crops cultivated in this zone include cassava, maize, cowpeas, groundnuts, rice, and pistachios. While cassava and pistachio are harvested once a year, maize, cowpeas, and groundnuts are harvested twice annually.

Land preparation in the zone is mainly done using hoes or spades, with wealthier households employing individuals from poorer households as laborers for all types of agricultural work. The most labor-intensive activities include preparing soil and harvesting; compensation for these tasks is typically provided in cash or in kind. Men are generally responsible for clearing forest land and handling tasks like threshing and harvesting, while women focus on savannah land preparation, planting, and selling at markets. There is no use of chemical fertilizers or farming cooperatives in the area. Crops are stored in houses, either in attics or on wooden racks inside kitchens or bedrooms.

[1] Fieldwork for the current profile was undertaken June 26 to July 19, 2024. The information presented in this profile refers to the reference year, which was the consumption year covering the period January-December 2023. Provided there are no fundamental and rapid shifts in the economy, the information in this profile is expected to remain valid for approximately five to 10 years (i.e., 2028-2033). All prices referred to in the document are for the reference year.
[2] Statistical Yearbook, 2013.
[3] FEWS NET Data Explorer, population data (2023), accessed 2025, https://fdw.fews.net/data-explorer/.

Livestock farming in CD23 includes goats, pigs, guinea pigs, and rabbits, which are mainly fed through free grazing and stable feeding on grass, brush, and crop residues. There is no commercial purchase of livestock feed, and animals are watered using local, readily available sources that are close to or within the household premises. This might include drawing water from nearby wells, rivers, streams, or rainwater collection systems.

Livestock sales peak during the April to July school examination period, the September back-to-school season, and the December to January holiday period. Goats and pigs are usually slaughtered during the holiday season. Men are primarily involved in market sales and maintenance of livestock, with women also contributing to maintenance. There is no milking of animals, and no significant migration patterns were noted for livestock in this zone.

Other major economic activities include transporting products by bicycle (*buyanda*), brewing local beer, producing palm oil, fishing, casual employment in agriculture and construction, and wild food gathering/hunting. Transporting products by bicycle involves moving goods from one point to another within the zone. It is carried out by men, often accompanied by their household members, and occurs year-round.

Brewing local beer involves distilling fermented agricultural products such as corn, rice, and cassava peelings in the villages. The activity is primarily carried out by men and is a year-round practice. Producing palm oil involves collecting palm nuts, boiling them, and processing them into oil using a mixer. This activity involves all household members and is conducted throughout the year. Men in this zone engage in fishing, hunting, and employment. Women's activities include wild foods collection, handicrafts, and casual employment.

The borrowing of money is not typical in this zone, and there are no established credit systems. Additionally, households in all wealth groups do not usually receive financial support from other households or family members.

This zone's economic activities are distinct from neighboring zones, with a notable emphasis on the production and sale of local beer and palm oil, alongside traditional agriculture. This combination of activities forms the backbone of the local economy, driving both subsistence and small-scale trade within the region.

The *Kasai-Lomami Savannah: Maize, Cassava, and Small Livestock Livelihood Zone* is affected by several significant hazards that impact the livelihoods of its inhabitants. These hazards occur with varying frequency and have different levels of impact on agriculture, livestock, and overall community stability. The main hazards include drought, local and broader conflicts over land and leadership, crop diseases, and livestock diseases. Drought occurs approximately in one year out of every two, reducing crop yields and availability of water resources for both crops and livestock. Rural conflicts over land and local leadership, or "country conflicts," occur approximately one out of every two years; they can disrupt daily life, access to markets, and agricultural activities, leading to instability and uncertainty in the zone and the country in general. "Customary conflicts" also occur

approximately one out of every two years; they often involve disputes over land and resources, affecting social cohesion and access to essential resources. Crop diseases occur approximately one out of every two years and include diseases such as rot, rosette, and mosaic that impair crop health and reduce agricultural productivity. Livestock diseases also occur approximately one out of every two years and include plagues, Newcastle disease, tuberculosis, dermatophytosis (Dermato), parasitic infections, and coccidiosis. These diseases can lead to significant losses in livestock populations.

In terms of service provision, access to essential services varies slightly between poorer (very poor and poor) households and wealthier (middle and better-off) households, but overall service availability remains limited. Households in all wealth groups primarily rely on spring water sources for drinking water. Water for other uses, like domestic uses, is drawn from rivers. All water access is free. In terms of sanitation, traditional pit latrines are common for households in all wealth groups, indicating limited access to modern sanitation infrastructure. Primary healthcare is accessed through community health centers and dispensaries by households from all wealth groups, and households do not access hospitals or more advanced medical facilities. For lighting, most poorer households use battery-operated torches, while wealthier households may also use solar panels in addition to battery-operated torches. Firewood is the main source of cooking fuel for households in all wealth groups, with wealthier households also using charcoal. Mobile phone service and use is widespread in this zone, with communication predominantly via voice calls through mobile phones for all wealth groups. For education, the typical maximum level of education for poorer households is primary and secondary, whereas wealthier households may access secondary school and college/university education.

Markets

Market access in this zone is challenging, primarily due to poor road infrastructure. The roads, mostly made of dirt, are sandy and in very poor condition, which significantly hampers transportation. During the Rainy Season, accessibility worsens, making travel and transportation of goods nearly impossible. Even in the Dry Season, the roads are difficult to navigate because of excessive sand. While there are bridges in the zone, they are described as being in mediocre condition, further complicating transportation.

The primary trade routes within the zone connect villages to Kazumba or Ndekesha, and to Kananga. These routes facilitate the movement of various agricultural products, livestock, and other goods. Key crops like maize, cassava, cowpeas, groundnuts, and rice are predominantly sold from August to October. The main animals sold, including pigs, goats, rabbits, and poultry, see peak sales during April to June and September, as well as in December and January. Other products such as palm oil, local beer, and charcoal also have significant trade, particularly during the mid-year months from June to August for palm oil and local beer and from May to August for charcoal.

Palm oil, local beer, and charcoal flow from flow from the villages to Kazumba or Ndekesha to Kananga; palm oil then goes on to Kasai-Oriental, whereas local beer goes on to Angola.

Households in the zone primarily purchase staples like maize and cassava from the Kasai-Oriental-Kananga-Kazumba/Ndekesha to village trade route, with peak buying occurring from August to October. This pattern indicates a reliance on external markets for essential food supplies.

Labor sales are mostly carried out within the livelihood zone. A significant portion of casual work (90%) occurs within the local rural area, with minimal employment in local towns (7%) and outside the zone (3%). In adverse years, men from CD23 migrate to Angola for work, typically leaving during June and July and staying for a number of months, depending on how bad the year is. This migration pattern is primarily a response to economic hardship.

Timeline and Reference Year

The baseline assessment refers to a very specific period called the "reference year." In the *Kasai-Lomami Savannah: Maize, Cassava, and Small Livestock Livelihood Zone*, the reference year covers the consumption period from January to December 2023. During community leader interviews, data collectors asked informants to score the last five years in terms of seasonal performance with "1" indicating a poor season and "5" indicating an excellent season. Table 1 summarizes the responses of the community leaders.

The historical timeline for zone CD23 outlines significant events and conditions affecting agricultural and animal production, as well as socioeconomic factors like conflict and migration. The region has experienced varied seasonal performances, impacted by environmental and sociopolitical factors. Conflicts, often related to land access and leadership issues, affected the zone occasionally and were typically localized. The main impacts included population movements, reduced access to land, and restricted market access. Migration patterns showed that during bad years, men emigrated for work, particularly to Angola, between June and July. Crop production and overall household food security was average in the 2023 reference year, though delayed rainfall presented challenges.

Table 1. Timeline

Production Year/ Season	Score	Critical Events
2023/Season B	3	Drought, livestock diseases. Households coped through working with farmers' associations, replacing crops, staggering sowing periods, and livestock sales.
2022-2023/Season A	3	Drought, livestock diseases. Households coped through working with farmers' associations, replacing crops, staggering sowing periods, and livestock sales.

2022/Season B	2	Drought, reduced crop production.
2021-2022/Season A	4	Good rains, good crop production. Support provided by Action for the Promotion of Social Well-Being (*Action pour la Promotion du Bien Être Social* [APPROBES]) in the form of seeds and guidance.
2021/Season B	2	Conflict in the countryside, drought. Households coped through abnormal migrations and movements through forests.
2020-2021/Season A	3	Characterized by a period of social appeasement, with normal agricultural activities resuming.
2020/Season B	2	Conflict in the countryside. Households coped through cassava reserves, harvesting, and picking as survival strategies, alongside movement through the forest.
2019-2020/Season A	2	Conflict in the countryside. Households coped through cassava reserves, harvesting, and picking as survival strategies, alongside movement through the forest.
2019/Season B	1	War. Households coped through cassava reserves consumption.
2018-2019/Season A	1	War. Households coped through cassava reserves consumption.

5 = an excellent season for household food security (e.g., due to good rains, good prices, good crop yields)
4 = a good season or above average season for household food security
3 = an average season for household food security
2 = a below average season for household food security
1 = a poor season for household food security (e.g., due to drought, flooding, livestock disease, pest attack)

Seasonal Calendar for Reference Year

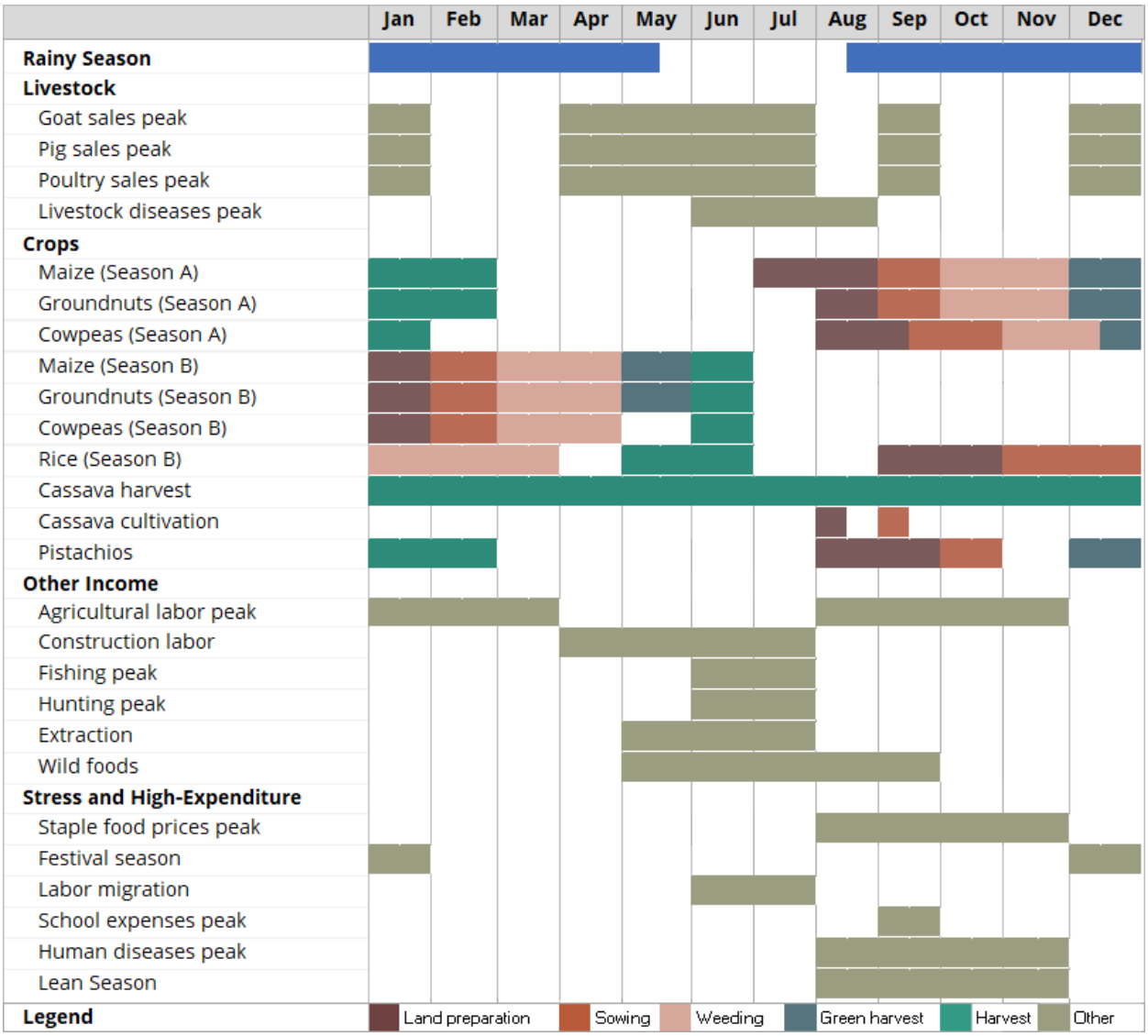
The seasonal calendar (see Figure 2) illustrates the main economic activities and events of the reference year. It traces the rainy months, agricultural activities, non-agricultural activities, food purchasing periods, periods of increased economic strain, etc.

The zone experiences distinct Rainy and Dry Seasons, which significantly influence agricultural and economic activities. The Rainy Season occurs from mid-August to mid-May while the Dry Season occurs from mid-May to mid-August.

The rains experienced in the zone allow two cropping seasons for crop production, Season A and Season B, with Season A dominating. Crops cultivated include cassava, rice, maize, groundnuts, cowpeas, and pistachios. Maize, groundnuts, and cowpeas are cultivated in both seasons. Land preparation for cassava begins in August, with planting in September. Harvesting spans nearly the entire year, from January to December. Land preparation for rice starts between September and October, planting between November and December, with weeding from January to March, and harvesting between May and June. For maize, Season A land preparation is in July/August, planting in September, weeding in October/November, green harvest in December, and the dry harvest from

January to February. Season B begins with land preparation in January, planting in February, weeding from March to April, green harvest in May, and the dry harvest in June. Groundnuts and cowpeas follow similar dual-season patterns as maize, with specific periods for preparing land, planting, and harvesting. For pistachios, the harvest is from December to February.

Figure 2. Seasonal Calendar



Livestock are sold throughout the year with peak periods for selling live goats, pigs, and poultry in January, April through July, September, and December. These sales align with the need for income during festive periods and other high-expenditure times.

Cultivation labor peaks from January to March and August to November, aligning with major planting and harvesting times. Construction labor mainly occurs from April to July, likely taking advantage of the Dry Season. Fishing and hunting peak from June to July. Extraction occurs from May to July, possibly relating to natural resource extraction (i.e., small-scale mining). Wild foods

picking occurs mainly from May to September, a period that bridges the Dry Season and early Rainy Season.

Livestock diseases can occur at any time of the year. However, the peak occurrences of livestock diseases are noted between June and August, likely coinciding with the Dry Season's end and the onset of the Rainy Season. Human diseases, just like livestock diseases, can occur at any time of the year. However, human diseases peak from August to November, possibly linked to weather changes and the Lean Season.

The Lean Season — the most difficult period in terms of access to food due to the depletion of food stocks, especially for poorer households, and high food prices — mainly occurs from August to November, creating a period of economic and food insecurity.

Table 2 shows the typical division of labor, listing the activities shared and not shared by men and women. All crop production activities, including cultivation labor, are shared by men and women. Men and boys are largely responsible for livestock production activities, except for rearing poultry, which is considered a women's activity. Women help to care for sick animals and participate in the daily maintenance of livestock. Fishing, transport business, and labor migration are predominantly men's activities. Women predominantly handle domestic tasks like cooking, laundering clothes, and caring for children.

Table 2. Typical Division of Labor

Shared Tasks	Women's Tasks	Men's Tasks
• Crop production and sales • Cultivation labor • Harvest labor • Charcoal/firewood collection, production, and sale • Self-employment (food, beer sales)	• Poultry, rabbit, and guinea pig rearing and sales • Wild foods collection and sales • Brewing • Egg and meat sales • Household chores	• Pig and goat rearing and sales • Livestock slaughter • Fishing • Construction labor • Petty trade • Fencing • Hunting

Wealth Breakdown and Productive Assets

Table 3 summarizes the types and numbers of productive assets that typical households within each wealth group own and/or manage. Asset holdings are shown in a range that reflects the diversity of households' situations within a wealth group. Figure 3 shows the percentage of households within the zone that falls in each wealth group. The communities from within the zone carried out the socioeconomic categorization of households themselves.

The main determinants of wealth in this zone are land holdings, livestock holdings, productive assets, and educational levels.

Table 3. Wealth Breakdown

Household Size and Productive Assets	Very Poor	Poor	Middle	Better-Off	Poor Female-Headed
Household size	5-7	6-8	10-12	11-15	4-6
Land (hectares [ha])	1-2	1-3	3-5	5-8	0.5-2
Land cultivated (ha)	0.2-0.5	0.25-0.75	1-2	2-3	0.2-0.5
Land cultivated – food crops (ha)	0.2-0.5	0.25-0.75	0.5-1.5	1-2	0.2-0.5
Land cultivated – cash crops (ha)	0	0	0-1	1	0
Pigs	0	0-1	3-5	3-5	0
Rabbits	0-10	0-10	0-25	0-30	0-10
Goats	0	0-2	3-7	5-10	0
Guinea pigs	5-10	0-10	0-35	0-40	0-15
Poultry	1-10	5-15	10-25	15-35	5-15
Motorcycles	0	0	0-1	1-2	0
Bicycles	0	0-1	1-2	1-3	0
Grinding mill	0	0	0-1	0-1	0
Mobile phones	0	0	0-3	1-3	0
Solar panels	0	0	0-1	1-2	0
Palm oil presser	0	0	1	1	0

The amount of land owned and cultivated is the primary determinant of wealth. Wealthier households typically own and cultivate more land, allowing them to produce both food and cash crops. In contrast, poorer households have limited land, with female-headed households in these wealth groups often owning the least. In some areas, land ownership is controlled by local chiefs, who distribute land based on the ability of individuals to farm. While women do inherit land, their access to and control over land is sometimes limited compared to male-headed households.

Wealthier households tend to cultivate larger areas of land, both for food and cash crops, while poorer households cultivate smaller plots, focusing primarily on food crops. Very poor households own 1-2 ha and cultivate 0.2-0.5 ha, mostly food crops. Poor households own 1-3 ha and cultivate 0.25-0.75 ha. Middle households own 3-5 ha and cultivate 1-2 ha. Better-off households own 5-8 ha

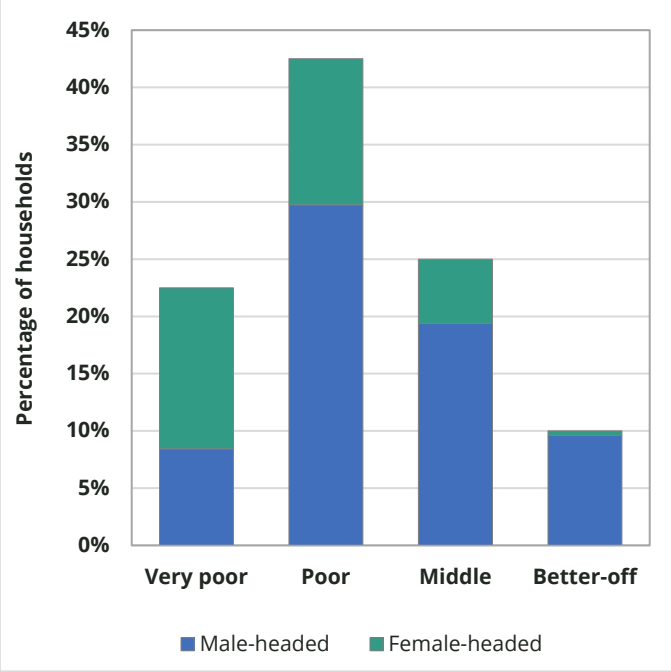
and cultivate 2-3 ha. There are no formal arrangements like crop sharing or land rental between groups.

Livestock ownership is a significant determinant of wealth, with the better-off owning more and varied livestock compared to poorer households. There are arrangements within the community where wealthier individuals may lend livestock to poorer households to care for and benefit from the offspring. In terms of livestock ownership, very poor households own minimal animals, typically 5-10 guinea pigs and 1-10 poultry. Poor households have limited animal holdings, possibly owning up to two goats, one pig, and 5-15 poultry. Middle households have more substantial animal holdings, with 3-7 goats, 3-5 pigs, and 10-25 poultry. Better-off households on the other hand have larger numbers of livestock, with 5-10 goats, 3-5 pigs, and 15-35 poultry.

Ownership of productive assets like motorcycles, bicycles, grinding mills, and solar panels also distinguishes wealthier households from poorer ones. These assets facilitate various economic activities and improve household income potential. Very poor households have no significant productive assets. Poor households may own a bicycle, but other productive assets are generally absent. Middle households may own a motorcycle, 1-2 bicycles, a palm oil presser, and possibly a grinding mill or solar panel. Better-off households are likely to own multiple productive assets, including 1-2 motorcycles, solar panels, and a palm oil presser.

Figure 3. Wealth Breakdown

Note: All results are the mid-point of a range



Higher educational levels are often associated with better economic opportunities, contributing to a household's wealth. However, this is less emphasized than land and livestock ownership.

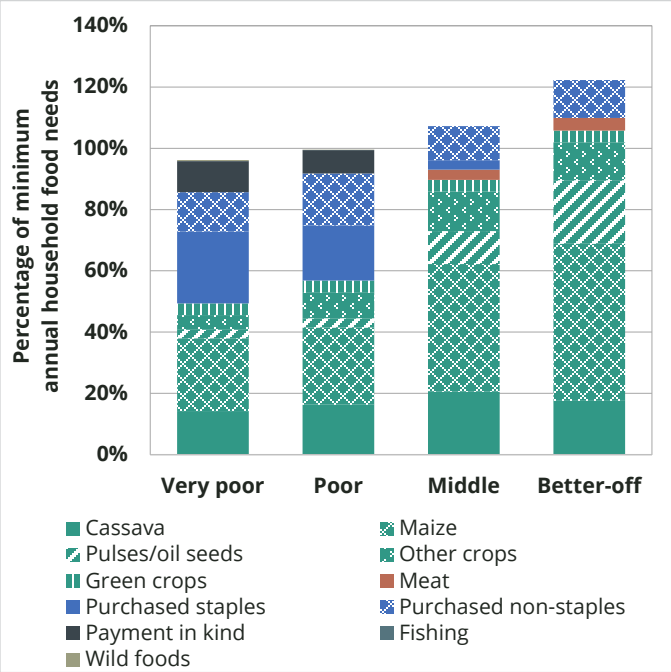
Household size increases with wealth. The very poor have a household size of approximately 5-7, poor 6-8, middle 10-12, and better-off 11-15. The wealthier the household, the larger it is, with more livestock and productive assets.

The proportion of households in the community is as follows: very poor households roughly range between 15-30%, poor households 35-50%, middle households 15-35%, and better-off households 5-15%.

Sources of Food

Figure 4 presents the sources of food for households in different wealth groups in the livelihood zone for the period from January to December 2023. January represents the start of the consumption year as most foods including maize, groundnuts, cowpeas, and pistachios are ready for consumption and harvest. Households can also harvest and consume cassava in January, as it is available all year. Sources of food are presented as a percentage of the annual kilocalorie (kcal) needs of the household, based on the internationally accepted 2,100 kcal per person per day.

Figure 4. Sources of Food



The primary food sources in CD23 include households' own crops, purchased staples, wild foods, and occasional payments in-kind, with some differences based on the household's wealth status. Households in all wealth groups are highly dependent on crop production, particularly for middle and better-off households, that can produce a surplus. Poorer households, while still reliant on crops, supplement their diets with purchased staples and occasionally receive food as payments in-kind.

For very poor and poor households, their own crops are the primary food source, contributing 45-55% and 50-60% of their total food intake, respectively. These households rely heavily on subsistence farming, with maize, cassava, and pulses being the main crops produced and consumed. A significant portion of their diet — 20-25% for very poor and 15-20% for poor households — comes from purchased staples like maize and cassava. This indicates a reliance on the market for food, especially during periods when their own crops are insufficient. Payments in-kind account for approximately 10% of very poor households' food and 5-10% for poor households. This typically occurs during harvest time when labor is exchanged for food, primarily maize and some cassava. Wild foods also contribute a small portion, with both very poor and poor households deriving less than 1% of their food from gathering activities. Other minor food sources include fishing, which also contributes less than 1% to poor households' diets, highlighting a very minimal engagement in this activity for food.

For middle and better-off households, crops make up a more significant portion of their minimum food needs, with 85-95% and 100-110%, respectively. These households can cultivate larger areas, leading to higher food production and greater surpluses. These households purchase fewer staples, with middle households purchasing 0-5% of their food and better-off households relying entirely on

their own production without needing to buy staples. Both middle and better-off households purchase non-staple foods, which account for 10-15% of their diets. These purchases likely include items like oil and sugar, reflecting a higher purchasing power. Meat consumption is an indicator of wealth, with middle households obtaining roughly 3% and better-off households roughly 4% of their food from their own livestock. Unlike poorer households, middle and better-off households do not rely on payments in-kind or wild foods for their diets.

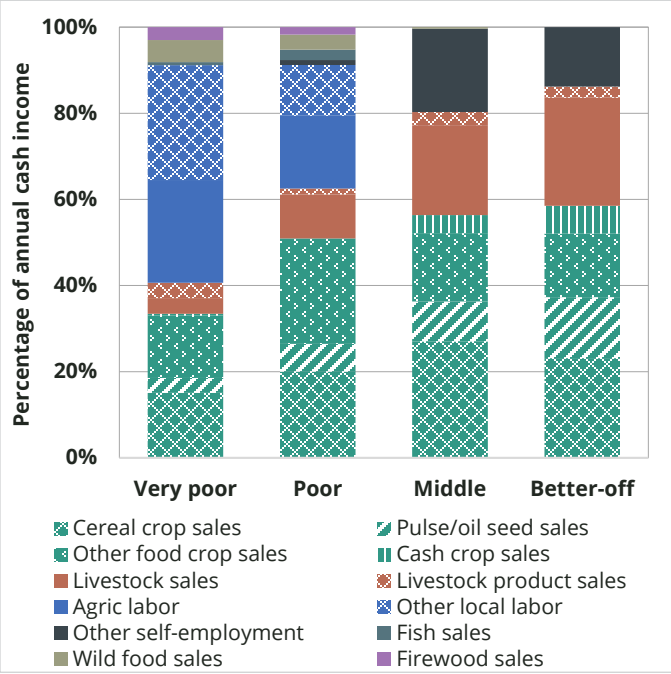
Across all wealth groups, there was no recorded food aid or donations during the reference period. This suggests a lack of external support and a heavy reliance on local food production and market purchases.

Overall, in terms of total food sources in the reference year, very poor households had 90-100% of their food coming from the sources mentioned above. Poor households had 95-105% of their food needs met through these sources. Middle households surpassed their food needs with 105-110%, indicating potential surplus production. Better-off households had the highest at 115-130%, further demonstrating their surplus capacity.

Sources of Cash Income

Cash income in the *Kasai-Lomami Savannah: Maize, Cassava, and Small Livestock Livelihood Zone* is generated from a variety of sources, with significant differences across wealth groups. The main sources of income include crop sales, livestock sales, labor, and self-employment, with the proportion of income from each source varying depending on the household's wealth status (see Figure 5).

Figure 5. Sources of Cash Income as a Percentage of Annual Cash Income



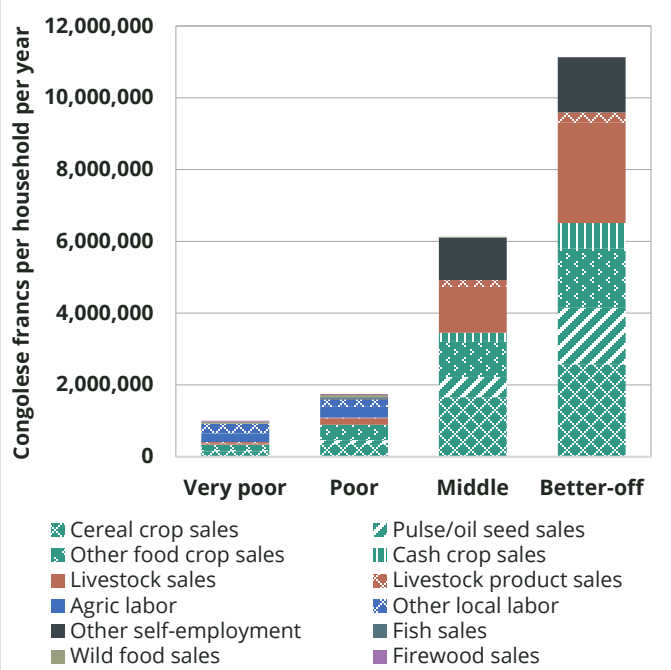
Very poor households generated 30-35% of their total annual cash income from crop sales which constituted the largest portion of income for these households. Very poor households primarily sell staple crops like maize and cassava. A significant portion of their annual income, 20-30%, comes from cultivation labor, where men and women engage in tasks such as preparing land, planting, weeding, harvesting, and threshing for wealthier households. Additional income, 25-30%, was earned through various local labor activities, including casual work outside of agriculture. Wild foods sales accounted for roughly 5% of the total annual cash income, and livestock

sales less than 10%, reflecting limited livestock ownership. Small amounts of income came from activities like fish sales, approximately 1%, and firewood sales, roughly 3%.

Poor households, like very poor households, heavily relied on crop sales, which generated 50-55% of their total annual cash income. Income from cultivation labor was significant, accounting for 15-20% of total cash income, but less than that of the very poor. Poor households also engaged in other local labor for additional income, contributing 10-15% of annual income. Like very poor households, poor households also engaged in wild foods sales, livestock sales, and other minor activities like fish and firewood sales. They obtained about 10% of their income from livestock sales.

Middle households derived more than half of their income, 50-60%, from crop sales, with higher volumes and better prices compared to poorer households. Live animal sales provided a significant portion of their total income, 20-25%, reflecting their larger livestock holdings. Middle households also engaged in other various self-employment activities, such as brick manufacturing and small-scale trade, which contributed substantially to their income, 15-25%. Additional income came from the sale of livestock products such as milk and eggs, accounting for less than 5% of their total annual cash income.

Figure 6. Total Annual Cash Income



Better-off households earned 55-65% of their total annual cash income from crop sales, which was the primary income source for these households, who can afford to wait for higher market prices due to their financial stability. Livestock sales formed a quarter of their income, approximately 25%, as these households typically own more and higher-quality livestock than other wealth groups. Better-off households also engaged in self-employment activities, such as larger-scale trade and small business operations, which earned 10-20% of the total cash income in the reference year. Like middle households, better-off households earned some income from livestock products, which accounted for less than 5% of their total annual cash income.

There is a large difference in wealth between the very poor/poor and middle/better-off households. In the January to December 2023 reference year, better-off households earned roughly 11 times more than the very poor and approximately six times more than poor households. This gap is illustrated in Figure 6 and Table 4.

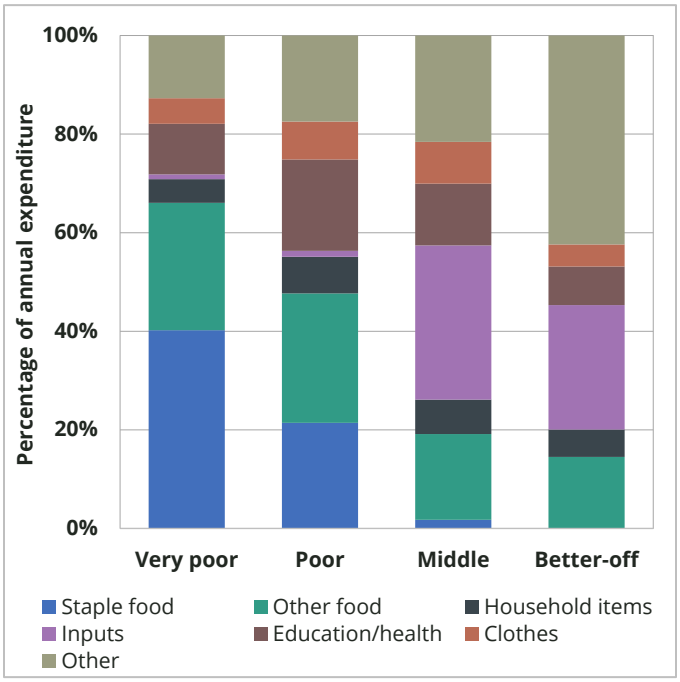
Table 4. Income Summary Table (Congolese Francs or CDF)

Wealth Group	Very Poor	Poor	Middle	Better-Off
Annual income per household[4]	600,000–1,400,000	1,000,000–2,500,000	5,000,000–7,500,000	9,000,000–13,000,000

Expenditure Patterns

Figure 7 presents expenditure patterns for the reference year, January to December 2023. While absolute expenditure increases with wealth in line with total cash income, this graph's expenditure breakdown by percentage shows the *relative* amount of income spent on different categories. Households in all wealth groups in the zone must cover a range of essential expenditures over the year. These include staple foods, non-staple foods, household items/services (like salt, soap, tea, lighting, milling, etc.), productive inputs, social services (which include health and education), clothing, and other essential and non-essential items.

Figure 7. Total Annual Cash Expenditure by Category



Expenditure patterns vary significantly across wealth groups, reflecting the different priorities and financial capacities of households. The spending habits of households reveal their economic strategies, with poorer households focusing more on basic needs and wealthier households allocating funds to a broader range of expenses.

Very poor households had the largest portion of their expenditure, 35-45%, going toward purchasing staple foods such as maize, cassava, and rice, which are essential for daily sustenance. These households also spent a significant portion, 25-30%, on non-staple foods including vegetables and other supplementary items. Basic household necessities like soap, cooking fuel, and grinding services represented a smaller, yet essential, part of their budget, accounting for about 5% of total expenditure. Minimal spending, just about 1%, was allocated to agricultural inputs (i.e., seeds), reflecting limited capacity to invest in improving crop yields. Expenditure on social services (e.g., education and health) accounted for 5-15% of total expenditure. Spending on clothing/shoes was

[4] The average exchange rate from January to December 2023 was 1 USD = 2,312 CDF.

necessary but limited, accounting for 0-10% of total expenditure. Expenditure on other items (including transportation, phone credits, and festivals) was 10-15% of total expenditure.

Poor households' expenditure on staple foods accounted for roughly 20-25% of annual expenditure. Expenditure on non-staple foods was like that of very poor households, accounting for approximately 25-30% of annual expenditure. Expenditure on household items, including grinding costs, accounted for slightly more than very poor households at 5-10% of total expenditure. Like very poor households, poor households allocated minimal funds to agricultural inputs like seeds, just about 1% of total expenditure. A higher percentage, 15-25%, was dedicated to education and health, reflecting an increased capacity to invest in these areas compared to the very poor. Expenditure on clothing/shoes accounted for 5-10% of annual expenditure, and expenditure on "other" items (including transportation, phone credit, and festivals) was 15-20%.

Middle households spent very little on staple foods, roughly 2% of annual expenditure, likely due to greater self-sufficiency in food production. Expenditure on non-staple foods was significant but lower than in poorer households, 15-20% of annual expenditure, suggesting either a more balanced diet or better food security. Expenditure on household items, including grinding costs, accounted for 5-10% of total expenditure. A large portion of their expenditure, 30-35% of their annual total, went toward agricultural inputs, reflecting their ability to invest in improving productivity and expanding their farming activities. A considerable portion of the annual expenditure, 10-15%, was allocated to education and health. Expenditure on clothing/shoes in the reference year accounted for 5-10% of annual expenditure, and expenditure on "other" items (including transportation, phone credit, and festivals) was 20-25%.

Better-off households did not spend on staple foods, indicating complete self-sufficiency in staple food production. Expenditure on non-staple foods was lower compared to other groups, 10-20% of annual expenditure, reflecting their much higher total income. Expenditure on household items, including grinding costs, was similar to other wealth groups, accounting for 5-10% of total expenditure. Better-off households spent a lower percentage on education and health, 5-10% of total expenditure. Expenditure on clothing/shoes in the reference year accounted for less than 5% of annual expenditure. A significant portion of their annual expenditure, 40-45%, was allocated to "other" items (including transportation, phone credits, and festivals), likely reflecting a higher standard of living, investments, and social obligations.

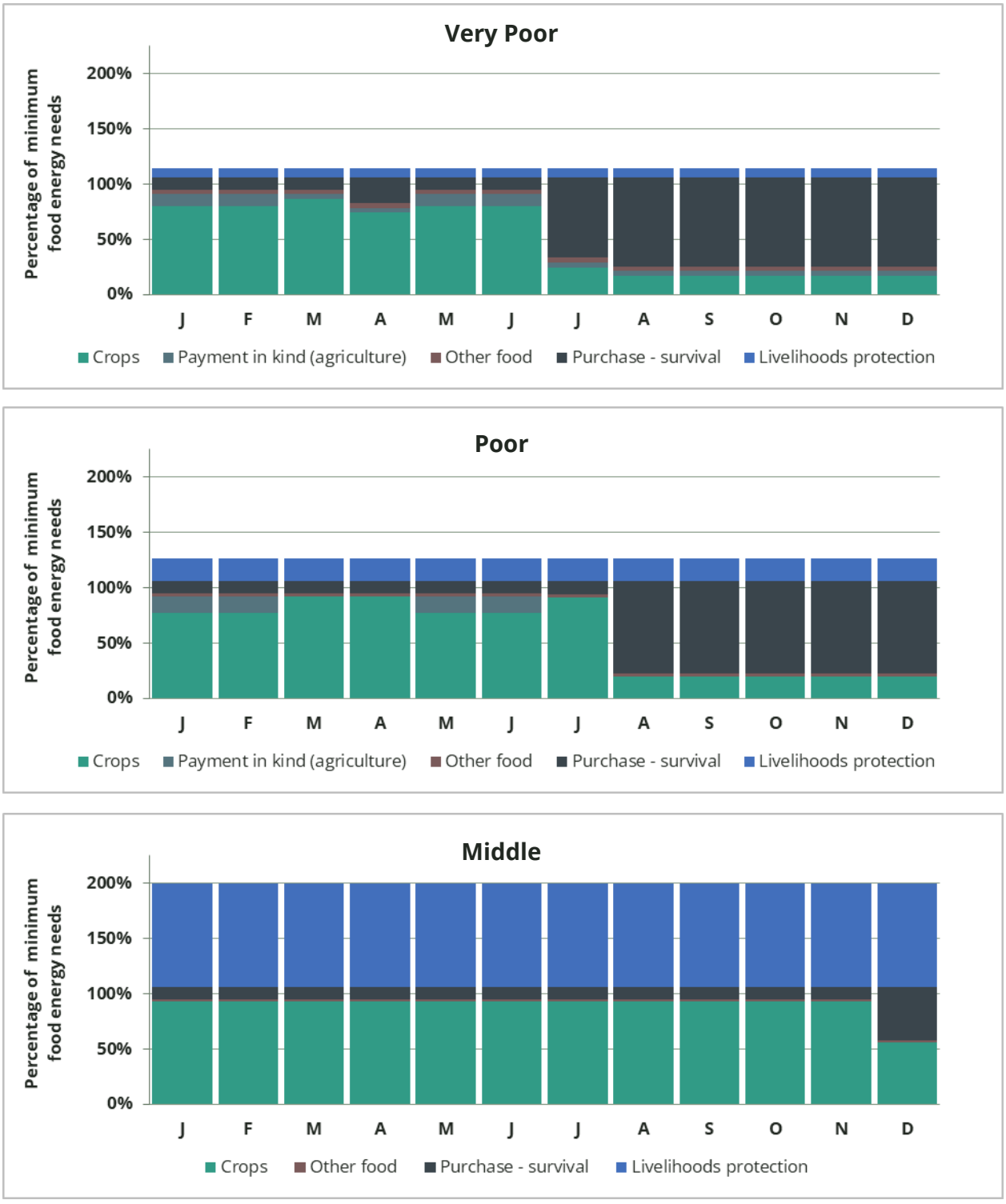
Food Access Calendars

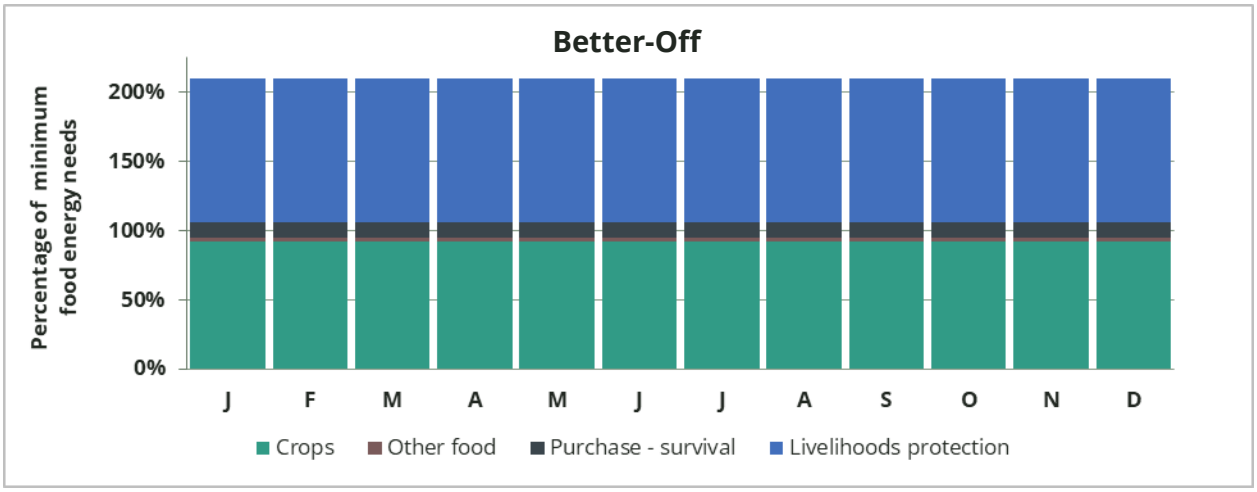
The graphs in Figure 8 present monthly food and cash access calendars for the four wealth groups.

Households in all wealth groups were able to meet their survival and livelihoods protection thresholds year-round in the reference year. The main harvest period in this livelihood zone started in January and the second harvest period started in May. Very poor and poor households obtained some food from payment in-kind for casual agricultural labor (in teal). Very poor and poor

households rely on market purchases to meet their needs in the second half of the consumption year, while middle and better off households are more self-sufficient. The dark blue "livelihoods protection" sections of the bars increase as a proportion of the total with wealth because wealthier households can afford to spend more on productive inputs, health and education.

Figure 8. Seasonal Food and Cash Access Calendars by Wealth Group





Poor Female-Headed Households

Female-headed households are found in each of the wealth groups, as shown in the wealth breakdown (see Figure 3). During fieldwork, data collectors conducted in-depth interviews with poor female-headed households. These households are typically managed by women who take full responsibility for the day-to-day operations of their families, including crop production, animal husbandry, and other economic activities. This is a group that faces numerous challenges in managing their livelihoods, primarily due to limited access to resources and productive assets. Poor female-headed households generally lack sufficient resources to acquire or maintain productive assets, such as livestock or farming equipment. This limits their ability to engage in income-generating activities and to improve their overall livelihood.

One of the significant challenges these households face is the inability to afford labor for agricultural activities. Without the financial means to hire help, female-headed households must rely on their own labor, which can result in lower crop yields and productivity. Like their struggles in agriculture, poor female-headed households also lack the resources needed to engage effectively in animal husbandry. This constraint further reduces their ability to diversify income sources and secure their livelihoods. Beyond farming and livestock, these women also face obstacles in other economic activities. For example, they are often unable to climb palm trees to collect nuts, which hinders their ability to produce and sell palm oil, a potentially lucrative income source in the zone.

Figure 9 shows that poor female-headed households and poor male-headed households share a similar pattern of food access. Poor female-headed households primarily rely on crops (45-55%) and purchase staples (20-25%) for their food. They also receive a small portion of their food as payments in-kind (5-10%), which is slightly higher than poor male-headed households.

The income picture shown in Figure 10 shows that both poor male-headed households and poor female-headed households had similar sources of cash income in the reference year, except for

other forms of self-employment such as construction labor and fish sales, which are generally limited to poor male-headed households.

The main source of cash income for these households is crop sales (50-60%), which is a slightly higher percentage than for poor male-headed households. Other significant income sources include cultivation labor (15-20%) and livestock sales (5-15%). They also earn income from livestock products (roughly 5%) and wild foods sales (approximately 4%).

Figure 9. Sources of Food: Poor Households vs Poor Female-Headed Households

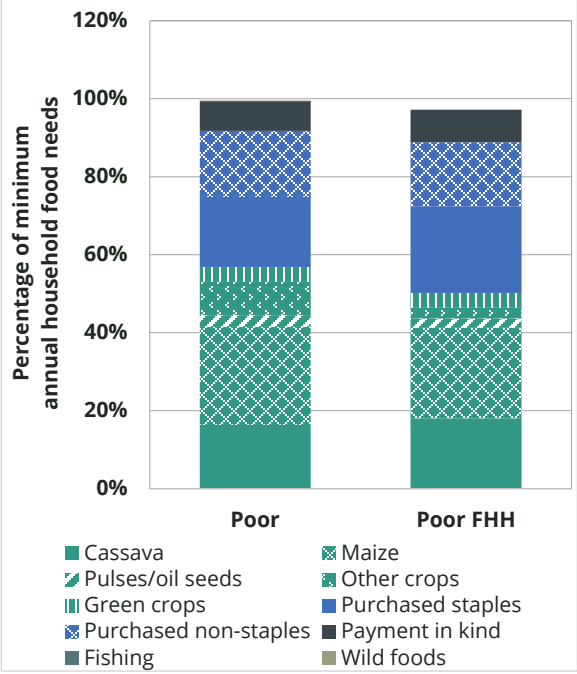
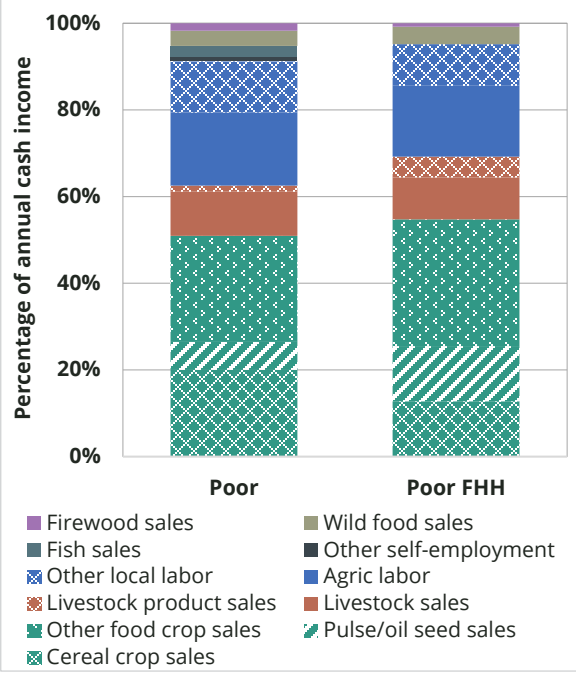


Figure 10. Sources of Cash: Poor Households vs Poor Female-Headed Households



Response Strategies

In response to hazards and years with poor production, households attempt to meet their minimum food needs and cash requirements through several strategies. Below are some common strategies employed by households.

Households in all wealth groups try to reduce expenditure on non-essential or more expensive items first, such as cutting down on festival costs or not buying clothes or utensils that year. Households consume mainly cassava, which is the least expensive staple.

Very Poor and Poor Households

Very poor and poor households cope by trying to find more labor activities away from their own farms, which typically involves sending more family members, including children, into the labor market. This may include casual labor on other farms or engaging in small-scale trade and services.

Poor households adapt their agricultural practices by altering crop varieties or types, possibly choosing those that are more resistant to drought and pests. This strategy helps mitigate the impact of environmental changes and maintain food production. To supplement their diet and income, very poor households often rely on gathering wild foods and hunting. This includes collecting fruits, nuts, and edible plants, and hunting small game, which can provide essential nutrition and is sometimes sold for cash.

Middle and Better-Off Households

Middle and better-off households cope with hazards differently. Households with some assets, particularly livestock, may respond to crises by selling extra. This provides them with immediate cash flow to purchase necessities or invest in alternative livelihood strategies. These households might change their crop choices or use staggered seeding techniques to better manage risk. Staggered seeding involves planting crops at different times to spread out the risk of total crop failure due to adverse weather conditions. When faced with economic stress, these households may increase the sale of high-value crops. This could involve selling a larger portion of their harvest than usual to generate additional income.

Key Parameters for Monitoring

The key parameters listed in Table 5 are food and income sources that make a substantial contribution to the household economy in the *Kasai-Lomami Savannah: Maize, Cassava, and Small Livestock Livelihood Zone*. These should be monitored to track potential losses or gains to local household economies through ongoing monitoring systems or periodic assessments.

Table 5. Key Parameters for Monitoring

Item	Key Parameter – Quantity	Key Parameter – Price
Crop production	• Maize Seasons A and B – quantity produced • Cassava – quantity produced • Groundnuts Seasons A and B – quantity produced • Cowpeas Season B – quantity produced • Rice – quantity produced • Palm oil sales – quantity produced • Coffee – quantity produced	• Maize Seasons A and B – producer price • Cassava – producer price • Groundnuts Season A – producer price • Cowpeas Season B – producer price • Rice – producer price • Palm oil sales – producer price • Coffee – producer price
Livestock production	• Pigs – herd size • Goats – herd size	• Pigs – producer price • Goats – producer price

Item	Key Parameter – Quantity	Key Parameter – Price
Other food and cash income	• Payment in-kind (harvest) – number of days worked • Cultivation labor – number of days worked • Construction labor – number of days worked • Self-employment – demand • Petty trade – demand	• Cultivation labor – wage rates • Construction labor – wage rates • Self-employment – daily earnings • Petty trade – daily earnings
Expenditure		• Maize – consumer price • Cassava – consumer price

CD24 Livelihood Zone

Reference Year: January 2023–December 2023

Major Staples Production with Market Gardening, Livestock, and Artisanal Mining Livelihood Zone

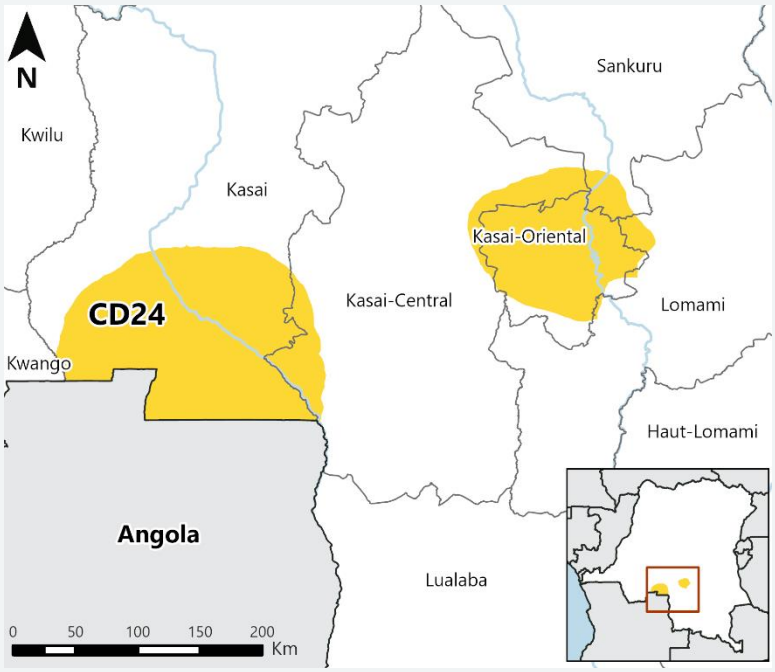


Figure 1. CD24 Livelihood Zone Map

Summary: The *Major Staples Production with Market Gardening, Livestock, and Artisanal Mining Livelihood Zone* (CD24) is an agriculture and livestock rearing zone with diamond mining. The zone covers multiple provinces in the south-central part of the Democratic Republic of the Congo (DRC), including Kasai, Kasai-Central, Kasai-Oriental, Lomami, and Sankuru. The climate in the zone is tropical, with annual rainfall between 700 and 1,600 millimeters (mm). Topographically, the zone is situated within the vast alluvial basin in the country, with elevations ranging from 300 to 500 meters. The zone's topography includes plateaus, scattered lowlands, hills, and valleys, while the natural vegetation is dense and heterogeneous, with savannah-herbaceous and shrubby landscapes.

Key economic activities include selling agricultural produce, livestock rearing, trade, and labor in agriculture, construction, and diamond mines. The main sources of food for households are their own crops and market purchases. Very poor and poor households rely on cultivation labor payments as an additional source of income and are also paid for laboring in artisanal diamond mines. Middle and better-off households have additional income from selling diamonds from mines that they own and from retail trading activity.

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Zone Description

The *Major Staples Production with Market Gardening, Livestock, and Artisanal Mining Livelihood Zone* (CD24)[1] is an agriculture and livestock rearing zone with artisanal diamond mining in the south-central part of the DRC; it covers parts of multiple provinces, including Kasai Province (Kamonia Territory and part of Luebo Territory), Kasai-Central Province (part of Dimbelenge, Kananga, Kazumba, and Luiza Territories), Kasa-Oriental Province (Katanda, Lupatapata, Miabi, and Tshilenge Territories), Lomami Province (part of Kabinda Territory), and Sankuru Province (part of Lusambo Territory). The zone is split into two parts, and the fieldwork was carried out in the eastern part that lies within Kasai-Oriental. However, this profile represents the whole zone in all essential characteristics.

The zone experiences a tropical climate, with average annual temperatures ranging from 16°C to 36°C and average annual rainfall between 700 and 1,600 mm. The average temperature during the cooler months (May to July) is around 22°C to 24°C, while during the hottest months (August to October), it typically ranges from 28°C to 30°C. The climate features three distinct seasons: Rainy Season A (August 15 to early January), Rainy Season B (early March to May 15), and a Dry Season (May 15 to August 15). The seasons are often unpredictable due to irregularity in rainfall timing.

Topographically, the zone is situated within the vast alluvial basin in the country, with elevations ranging from 300 to 500 meters. The zone's topography includes plateaus, scattered lowlands, hills, and valleys, while the natural vegetation is dense and heterogeneous, with savannah-herbaceous and shrubby landscapes with abundant *Imperate* and *Panicum* species. The zone's main geographical features include several mountains, along with the Kankelenga and Tshinkasa hills. The primary seasonal river in the zone is the Lubilanji Lua Tshilemba River, but there are many other significant rivers. Key roads link towns within the zone and with the hub of Mbuji-Mayi.

Although there are no national parks or nature reserves bordering the zone, it is rich in natural resources, including diamonds, forest wood, and wild foods such as mushrooms and termites. The average population density is 80 people per square kilometer, with a total population of 2,671,808.[2]

The main livelihood activities for households in this zone include crop production, livestock rearing, paid labor in agriculture and construction, and artisanal diamond mining. In the reference year, these activities were complemented by several forms of self-employment, notably firewood collection, charcoal production, and wild foods gathering. The artisanal mine pits are developed by wealthier villagers, who then employ poorer people for the digging work. Workers are paid either in

[1] Fieldwork for the current profile was undertaken from July 16 to August 8, 2024. The information presented in this profile refers to the reference year, which was the consumption year that covered the period January 2023 to December 2023. Provided there are no fundamental and rapid shifts in the economy, the information in this profile is expected to remain valid for approximately five to 10 years (i.e., until 2028-2033). All prices referred to in the document are for the reference year.
[2] FEWS NET Data Explorer, population data (2023), accessed 2025, https://fdw.fews.net/data-explorer/.

cash or sometimes with industrial-grade diamonds, which they sell. The pit owners take the gemstone-quality diamonds and sell them to traders as the first step to the international market.

The zone is characterized by relatively high crop production. Soils are somewhat heterogeneous, with sandy, sandy-clay, clayey, and silty types in the lowlands and silty-sandy soils in the valleys. All crops are rainfed. Alongside the yearlong cycle of cultivation and harvesting of the main staple, cassava, the rainfall regime allows two cycles per year of maize, groundnuts, and cowpeas, as well as one cycle of Bambara nuts and soybeans. In addition, in the lowland depressions with moisture-retaining soils, a cycle of market gardening of vegetables occurs in the Dry Season, including cabbage, eggplants, okra, and tomatoes. Amaranth is a cultivated perennial. Finally, the nuts of oil palms are harvested all year. Households from all wealth groups collect palm nuts from their own plantations and process them into palm oil, which is both consumed and sold. Cassava and sweet potato leaves are a part of household diets and an income source.

Cassava, maize, groundnuts, cowpeas, and Bambara nuts are always grown together (i.e., intercropped), forming a mixed cropping system that enhances soil fertility and reduces pest infestations. Most combinations are centered on maize fields, others on cassava fields, and there is also a maize-cassava combination.

Cultivation for all wealth groups in the zone relies exclusively on manual labor, with hand tilling as the method for soil preparation. Land preparation, sowing, weeding, and harvesting are all labor-intensive activities, with both men and women participating equally. To manage these tasks with their larger landholdings, middle and better-off households hire local labor from poorer households, typically paying in cash for land preparation, sowing, and weeding and in-kind for harvesting. The use of inputs like improved seeds, fertilizers (e.g., diammonium phosphate [DAP] and urea), and pesticides is very low, with only wealthier households using them, modestly. Households typically store their crops in sacks within their homes or in attics. Some localities also have farmers' cooperatives that offer significant support, such as agricultural inputs, production materials, capacity building, product marketing, and access to improved seeds.

Livestock production is centered around the rearing of goats, pigs, and poultry. Guinea pigs and rabbits are also common. Goats are typically grazed on open pasture, feeding on grass, scrub, and crop residues, while guinea pigs and rabbits are stall-fed with grass and household waste. Poultry and pigs also rely on foraging in open pastures and on household waste. Households do not typically purchase livestock feed, though some middle and better-off households buy salt as a supplement. Water for livestock is sourced from main rivers, ponds, and open wells during the Dry Season; smaller rivers, streams, and puddles are also used in the Rainy Season. No payment is made for water for livestock. Livestock sales peak in September due to the need to pay for school preparations (e.g., fees and materials) and in December due to the demand for cash for the festive season. Men and women share responsibilities in breeding, slaughtering, and selling animals, although men are solely responsible for processing and selling pigs. The practice of buying animals to add to the household's numbers is uncommon.

Agricultural paid labor carried out by members of poorer wealth groups is performed under contract during specific months. Poorer households in this zone also engage in artisanal mining labor at diamond sites. Construction, primarily house building, is typically undertaken during the Dry Season and is again conducted under contract. Brickmaking and selling firewood are also significant economic activities in the zone. Self-employment activities include firewood and charcoal sales, timber wood sales, and handicraft sales for poorer households, while wealthier households engage in diamond exploitation and petty trade. Wild foods, consisting of hunting and mushroom gathering, provide additional calories to poorer households.

CD24 experiences several hazards that affect its economy and livelihoods. The main hazards are crop pests, livestock diseases, and market access problems. The primary crop disease is cassava mosaic, which poses a significant threat every two years. The fall armyworm pest causes substantial damage to maize crops every three years. Livestock diseases, particularly swine fever in pigs, *peste des petits ruminants* affecting goats and sheep, and scabies in goats and pigs, pose a significant risk every two years. Occasional droughts and, more rarely, floods also impact household livelihoods in some years. Other risks include human disease outbreaks, especially malaria, acute respiratory infections, and typhoid fever, highlighting the ongoing public health challenges in the zone.

Very poor and poor households primarily rely on rivers and streams for drinking water. Some poor households also have access to drinking water from wells and boreholes, while this is the norm for wealthier households. For other water uses, including clothes washing and animal watering, households from all wealth groups use open wells, rivers, streams, and ponds. In terms of sanitation, poorer households use open defecation, latrines with wood construction and straw or palm branch roofs, while wealthier households have brick-built latrines. Households from all wealth groups throw domestic waste in the open in the bush.

Access to healthcare differs significantly between wealth groups. Poorer households rely on traditional medicine with home self-medication, dispensaries, and health centers, while wealthier households also access hospitals because they can afford the transport and treatment costs. The gap between these groups is further illustrated in their lighting and cooking fuel sources. Poorer households mainly use traditional lamps and flashlights for lighting and firewood for cooking, whereas wealthier households use solar panel-powered lamps and charcoal for cooking. Communication technology also reflects these differences, with poorer households having voice-only mobile phone access, while wealthier households use both voice and internet access. Educational levels also vary with wealth. The typical maximum education level for members of poorer households is primary and secondary school, while members of wealthier households achieve secondary and university education. Savings practices also differ, with poorer households keeping their savings at home, while wealthier households use mobile money and banks. Borrowing money is not a common practice in this zone, and credit access is not typical.

Markets

Market access is challenging in the *Major Staples Production with Market Gardening, Livestock, and Artisanal Mining Livelihood Zone*, particularly during the Rainy Season when road conditions deteriorate and detours are needed to reach one's destination. In contrast, during the Dry Season, the roads are generally passable. Asphalt roads are uncommon, and dirt roads and tracks are the norm. Because of transportation difficulties and for convenience, people mainly use markets close to their villages.

Key trade routes include Tshilundu-Kabeya Kamwanga-Tshimbulu-Boya-Tshijiba-Miabi for maize, Baketa-Bakua Mbiya-Katende for cassava, and Tshilundu-Boya-Miabi for cowpeas and soybeans. Livestock, such as goats, pigs, and rabbits, are also sold along these routes, with peak sales occurring between December and January for goats and from September to December for pigs and rabbits.

Additionally, the casual labor market within the zone is overwhelmingly local, with 80% of employment occurring in the local rural area, 15% in nearby towns, and only 5% involving migrant work outside the zone. Men typically migrate to Haut-Katanga, Haut-Lomami, Kinshasa, Lomami, Lualaba, Sankuru, and Tanganyika, particularly during the dry months of June, July, and August during relative down periods for local agricultural work. This pattern remains consistent even during lean years.

Timeline and Reference Year

The baseline assessment refers to a very specific period called the "reference year." In CD24, the reference year covers the consumption period from January to December 2023. During community leader interviews, data collectors asked informants to score the last five years in terms of seasonal performance with "1" indicating a poor season and "5" indicating an excellent season. Table 1 summarizes the community leaders' responses.

Key informants ranked Season A of 2020 and Seasons A and B of 2023 as "3" (average) for household food security. Season B of 2020 and both seasons of 2021 and 2022 were ranked as "4" (good), whereas Season A of 2024 was ranked "2" (below average) and Season B of 2024 was ranked "1" (poor). Mixed impacts on food security characterized 2020. Season A brought challenges due to cassava mosaic disease and insect pest attacks, but Season B was favorable, with good agricultural performance. As a result, food security was average in the first season but good in the second. Like 2021, households experienced favorable conditions for agriculture in 2022, with good rainfall positively impacting production in both seasons. Higher production led to a strong and above-average food security status for households throughout the year. The reference year, 2023, was characterized as a normal year for crop production. Favorable distribution of rainfall in terms of timing largely contributed to average crop yields across Seasons A and B. Market prices were reasonable, facilitating economic access to food products. Additionally, there were no major

epidemics, whether among humans or animals. Moreover, stability was further enhanced by the absence of conflicts and abnormal population migrations, which also played a role in maintaining a stable environment for activities and general well-being. In contrast to the preceding years, 2024 was a poor year for food security. Season B was especially difficult due to particularly poor rainfall.

Table 1. Timeline

Production Year/ Season	Score	Critical Events
2024/Season B	1	Both seasons experienced poor rainfall, but Season B was particularly challenging due to the added burden of pest infestations. Some households attempted to mitigate the impact by applying ash to combat the pests.
2023-2024/Season A	2	
2023/Season B	3	Both Seasons A and B experienced good rainfall, which resulted in good yields and acceptable market prices. There were no significant occurrences of diseases or epizootics.
2022-2023/Season A	3	
2022/Season B	4	Excellent agricultural outcomes, with very good yields in both seasons. Good rainfall.
2021-2022/Season A	4	
2021/Season B	4	A successful year for both crop and animal production, thanks to favorable rainfall.
2020-2021/Season A	4	
2020/Season B	4	Mixed outcomes on food security during 2020. Season A brought challenges due to cassava mosaic disease and insect pest attacks, but Season B was favorable, with very good agricultural performance.
2019-2020/Season A	3	

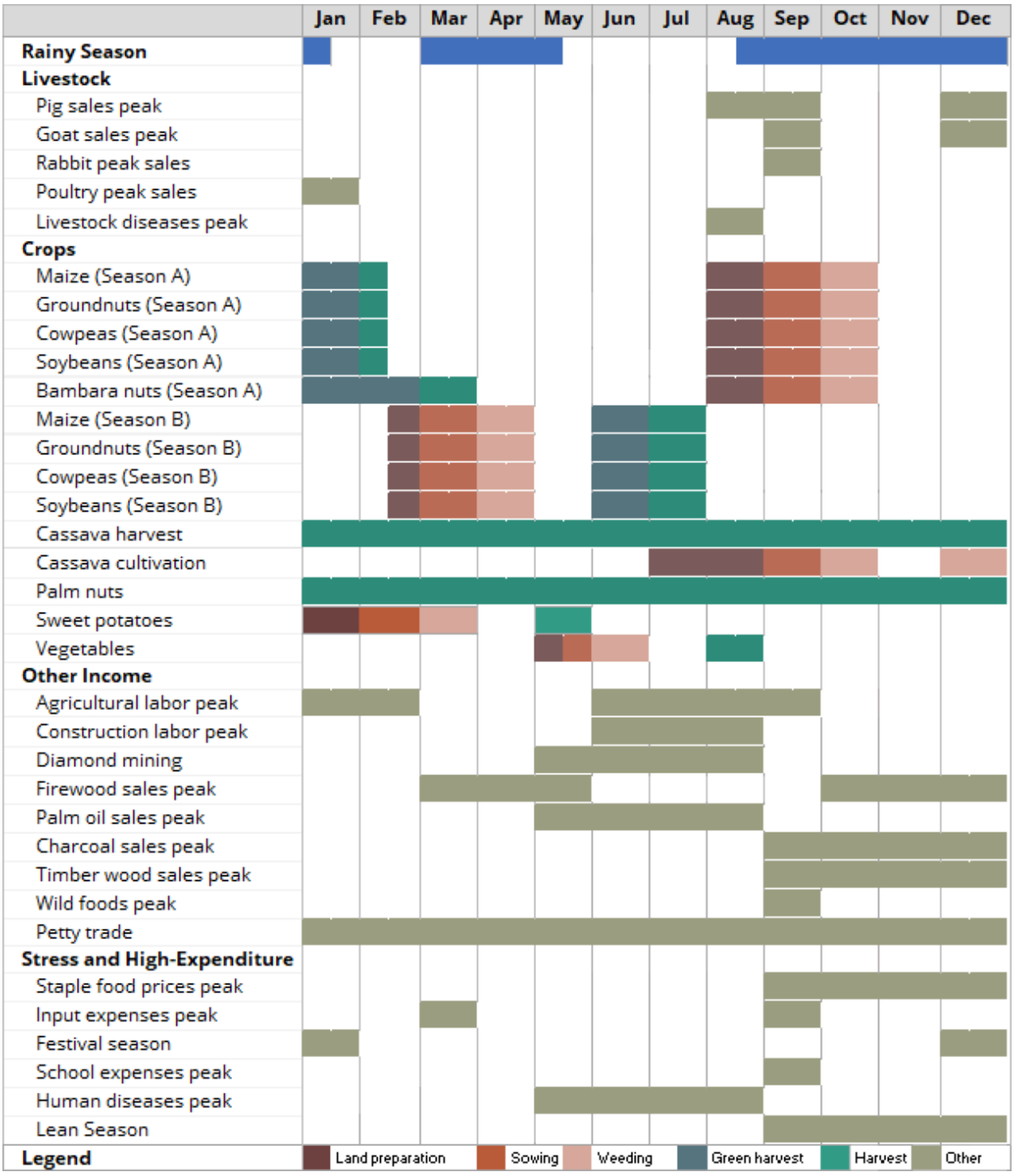
5 = excellent season for household food security (e.g., due to good rains, good prices, good crop yields)
4 = good season or above average season for household food security
3 = average season for household food security
2 = below-average season for household food security
1 = poor season for household food security (e.g., due to drought, flooding, livestock disease, pest attack)

Seasonal Calendar for Reference Year

The seasonal calendar (see Figure 2) illustrates the main economic activities and events of the reference year. It traces the rainy months, livestock activities, agricultural activities, other important income activity periods, and stress and high expenditure periods.

In the *Major Staples Production with Market Gardening, Livestock, and Artisanal Mining Livelihood Zone*, the Rainy Seasons follow a bimodal pattern. The first Rainy Season starts in mid-August and ends in mid-January. This season marks the beginning of agricultural Season A. The second Rainy Season starts in March and ends in mid-May, supporting the second planting in Season B. Land preparation

Figure 2. Seasonal Calendar



for the main crop, cassava, starts in July and ends in August, followed by stem planting in September and weeding in October and December. Mature cassava can be stored in the ground for several months, and with staggered planting times, harvesting can occur at any time of year. Maize, groundnuts, cowpeas, soybeans, and Bambara nuts are cultivated in both Seasons A and B. Season A is the main season where land is prepared in August, sowing occurs in September, weeding in

October, and harvesting in February. Season B starts with land preparation in mid-February, sowing in March, weeding in April, and harvesting in July. The Bambara nut harvesting period extends to March. In the calendar, “green” consumption of maize, groundnuts, cowpeas, Bambara nuts, and soybeans means cutting/digging up the crop at the just pre-mature stage before the harvest, to eat in its “fresh” state.

Households in this zone take advantage of the moister lowland terrain to cultivate sweet potatoes as well as vegetables. Sweet potatoes are cultivated in Season B, with land preparation occurring in January, planting in February, weeding in March, and harvesting in May. Vegetables are cultivated in the Dry Season, when land is prepared in May followed by sowing in the same month, weeding in June, and harvesting in August. A traditional form of irrigation directs water via canals; hand watering with watering cans is occasionally used when wealthier households decide that it is worth paying for the labor. The sale of sweet potato leaves, cassava leaves, and amaranth leaves is commonplace and occurs throughout the year.

In the rainy months, the increased pasture and browse for livestock leads to increased reproduction and improved physical condition, inviting higher selling prices. Gestation periods are 5-6 months for small ruminants (goats and sheep) and almost four months for pigs. Goats and pigs are mostly sold in August and September, as households need cash for the beginning of the school year and in December when extra cash is needed for the festive season. Domestic animal slaughter typically occurs in December and January, again coinciding with the festival period. In terms of livestock breeding, there is no formal control or monitoring system in place to regulate the birth calendar. However, households generally understand the peak heat and calving periods, which helps them manage livestock reproduction to some extent.

Agricultural paid labor is most intensive from January to February and from June to September. Construction activities primarily take place between June and August. Firewood collection and selling is more intensive from March to May and from October to December, while charcoal production and sales peak from September to December. The peak period for hunting and mushroom gathering is in September. Peak sales of timber wood occur from September to December, while petty trade takes place throughout the year. Livestock disease outbreaks typically occur in August, while human disease outbreaks generally occur from May to August. The Lean Season, the most challenging period in terms of food access, begins in August and extends to December. During this time, food stocks are depleted, particularly for poorer households, and food prices increase up to the harvest.

Table 2 outlines the typical division of labor between males and females, distinguishing between shared and non-shared tasks. Shared tasks among men, women, boys, and girls include land preparation, planting, sowing, weeding, harvesting, threshing, crop storage, livestock sales, charcoal production and sales, timber collection and sales, petty trade, palm nuts collecting, and wild foods gathering and sales. Men are primarily responsible for bird scaring, caring for sick animals, slaughtering livestock, building shelters and fences, handicrafts, construction and brickmaking labor, mining labor, diamond exploitation, house construction, and maintenance. Women are solely

responsible for crop sales, firewood wood collecting and sales, and most household chores, including water collection, cooking, feeding small children, laundry, and firewood collection.

Table 2. Typical Division of Labor

Shared Tasks	Women's Tasks	Men's Tasks
• Land preparation, planting, sowing, weeding, harvesting, threshing, and storage • Livestock sales • Charcoal production and sales • Timber wood collection and sales • Petty trade • Palm nuts collecting • Wild foods gathering and sales	• Crop sales (including palm oil processing and sales) • Firewood collection and sales • Household chores	• Bird scaring • Caring for sick animals • Livestock slaughter • Building shelters and fences • Handicrafts production and sales • Construction and brickmaking labor • Mining labor • Diamond exploitation • House construction and maintenance

Wealth Breakdown and Productive Assets

Table 3 summarizes the types and numbers of productive assets that typical households within each wealth group own and/or manage. Asset holdings are shown in a range that reflects the diversity of household situations within a wealth group. Figure 3 shows the percentage of households within the zone that falls in each wealth group. The socioeconomic categorization of households in the zone was carried out by the communities themselves.

Wealth distribution in the zone is determined by several key factors, including the amount of cultivable land, labor availability, the number of livestock owned, and the possession of other productive assets, especially bicycles and motorcycles. Middle and better-off households own and cultivate more land than poorer households (indeed paying for labor from poorer households), and have greater numbers of livestock and more productive assets compared to poorer households. In CD24, renting land is not typical. Women generally inherit land through their deceased husbands. Female-headed households may also be given the use of some family land, but unlike their inherited land, this is not a guaranteed, permanent holding.

The main limit to crop production is labor availability. For poorer households, the limited number of workers results in smaller cultivated areas. For wealthier households who hire people from poorer households to work in their fields, the limit is how many workers they can afford to hire — the better-off spend almost four times as much on labor hire than on fertilizers, improved seeds, and tools combined. Livestock production faces its own set of challenges, including the absence of veterinary services and difficult access to animal inputs. There are no cooperative arrangements

between wealth groups for livestock production. Women typically buy small livestock like poultry, guinea pigs, and rabbits for breeding, rather than inheriting them.

Table 3. Wealth Breakdown

Household Size and Productive Assets	Very Poor	Poor	Middle	Better-Off	Poor Female-Headed
Household size	7-9	8-10	10-14	16-20	6-8
Land owned (hectares [ha])	0.5-1	1-1.5	2-3	3-6	0.5-0.8
Land cultivated (ha)	0.5-1	1-1.5	2-3	3-5	0.5-0.8
Land cultivated – food crops (ha)	0.2-0.5	0.5-0.8	1-2	2-3	0.3-0.4
Land cultivated – cash crops (ha)	0.3-0.5	0.4-0.7	0.5-1.5	1-2	0.2-0.4
Pigs	0	0-2	0-3	0-6	0
Goats	0	0-2	3-5	5-15	0
Guinea pigs	0-8	2-5	5-15	15-25	0-2
Rabbits	1-5	2-5	4-8	5-15	0
Poultry	3-10	5-12	10-25	15-30	3-8
Bicycles	0	0	1-2	1-3	0
Motorcycles	0	0	0	0-2	0

Household size increases progressively with wealth. Very poor and poor female-headed households typically have 7-9 members; poor households have 8-10 members; middle households have 10-14 members; and better-off households have 16-20 members. The proportion of households in the community is distributed as follows: very poor households make up 20-30%, poor households 30-40%, middle households 25-30%, and better-off households 10-20%. In the very poor wealth group, 5-10% of households are female-headed (due to the death of the husband, divorce, or abandonment), while in the poor wealth group, 2-10% are female-headed. There are typically no female-headed households among wealthier households.

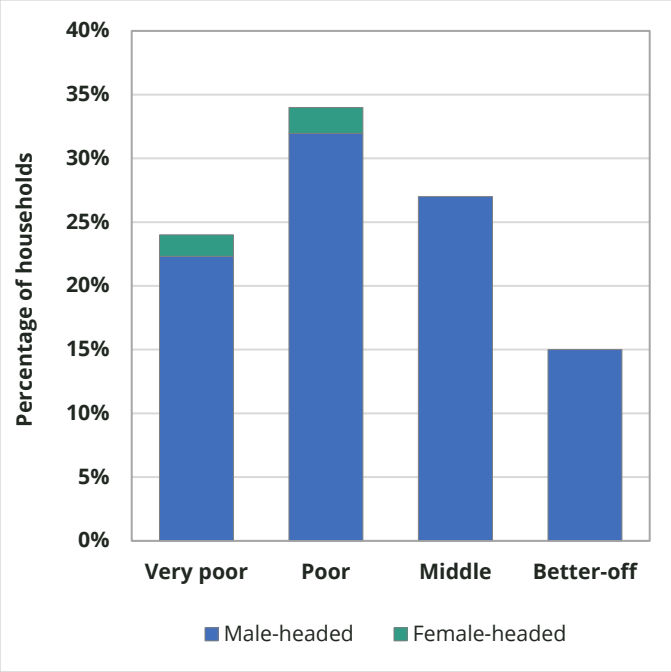
In this livelihood zone, land is freely available for clearing and cultivation, and as noted above, every household cultivates according to their means and available labor. Farmers inherit their farmed land from generation to generation, but certain preferred plots of land are also gifted by the village chief. During the reference year, households from all wealth groups cultivated all the land they owned. Differences in the quantity of crops produced lay essentially in the amount of land cultivated; there

was little difference in yields per hectare, as even better-off households used few inputs other than labor.

Very poor households cultivated 0.5-1 ha of land, with 0.2-0.5 ha dedicated to food crops and 0.3-0.5 ha to cash crops. Poor households cultivated 1-1.5 ha, with 0.5-0.8 ha allocated to food crops and 0.4-0.7 ha to cash crops. Middle households cultivated 2-3 ha, divided into 1-2 ha for food crops and 0.5-1.5 ha for cash crops. Better-off households cultivated 3-5 ha, with 2-3 ha for food crops and 1-2 ha for cash crops. Poor female-headed households cultivated 0.5-0.8 ha, with the land divided between 0.3-0.4 ha for food crops and 0.2-0.4 ha for cash crops. Land area cultivated increased progressively with increasing wealth. Overall, better-off households cultivated five times the land cultivated by very poor households.

Figure 3. Wealth Breakdown

Note: All results are the mid-point of a range



Livestock are a significant source of income in this zone, serving as an important means of investing, saving, and safeguarding against difficult years. Very little meat is eaten, and livestock are overwhelmingly raised for sale. All households in the zone own livestock, with wealthier households possessing larger numbers. There are no cattle. Pigs and goats are particularly valuable due to their high economic value and the financial security they provide to households. Middle and better-off households raise all types of livestock and have larger numbers than poorer households. Middle households may own up to three pigs, 3-5 goats, 5-15 guinea pigs, 4-8 rabbits, and 10-25 poultry. Better-off households may own up to six pigs, 5-15 goats, 15-25 guinea pigs, 5-15 rabbits, and 15-30 poultry. There is a sharp contrast in animal ownership between the very poor and the poor, and therefore, there is a major difference in their capacity to obtain cash, including in hard times. Very poor households typically own a maximum of eight guinea pigs, 1-5 rabbits, and 3-10 poultry. Poor households may own up to two pigs, up to two goats, 2-5 guinea pigs, 2-5 rabbits, and 5-12 poultry. In stark contrast, poor female-headed households are usually limited to owning up to two guinea pigs and 3-8 poultry.

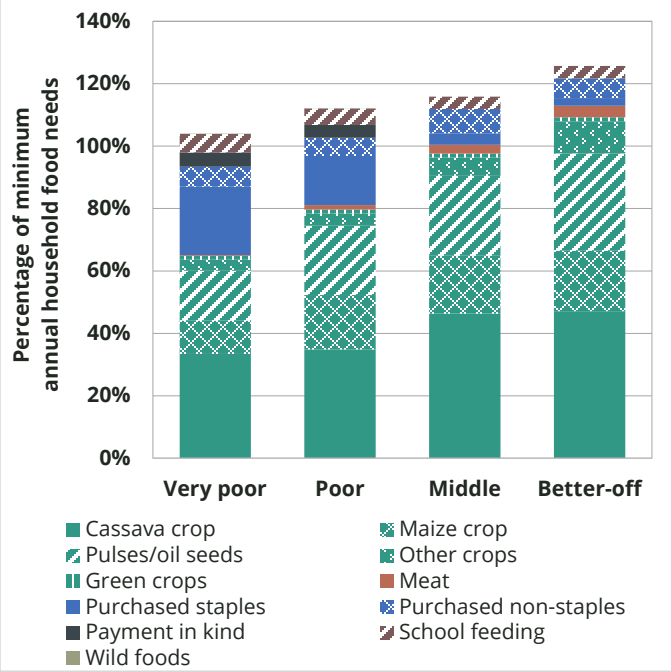
Regarding asset ownership, very poor, poor, and poor female-headed households do not own bicycles; middle households generally have 1-2 bicycles; and better-off households may own 1-3 bicycles. Some better-off households own up to two motorcycles.

Household size increases with wealth. Very poor and poor female-headed households typically have 7-9 members; poor households have 8-10 members; middle households have 10-14 members; and better-off households have 16-20 members.

Sources of Food

Figure 4 presents the sources of food for households in different wealth groups in CD24 from January to December 2023. January represents the start of the consumption year because it is when the consumption of crops from the main harvest season starts. Food is presented as a percentage of the annual kilocalorie (kcal) needs of the household, based on the internationally accepted standard of 2,100 kcal per person per day.

Figure 4. Sources of Food



There were two main sources of food in this zone for all households. Consumption of households' own crops was by far the most significant food contribution, accounting for more than 60% of the annual food requirement for very poor households and about 80% for poor households, a testament to high agricultural productivity. Market purchases are the second most important source of food for very poor and poor households, but only a minor food source for wealthier households. Other minor food sources included meat, payment in-kind, school feeding, and wild foods.

The amount of food consumed increased progressively with wealth. Very poor households consumed between 100-110% of their minimum annual food needs, poor households 105-115%, middle households 110-120%, and better-off households 120-130%.

Crop consumption covered 60-70% of very poor households' minimum annual food needs, compared to 75-85% for poor households. Cassava was the main crop consumed by households. It was used fresh or dried, commonly as cassava flour, to prepare dishes like *fufu*. Cassava leaves are also widely consumed and often served alongside *fufu*. Very poor households obtained 30-35% of minimum annual food needs from cassava, poor households obtained 30-40%, middle households obtained 40-50%, and better-off households obtained 40-55%.

Households from all wealth groups obtained 1-2% of minimum annual food needs from green consumption, which included groundnuts and maize cultivated in Seasons A and B. Very poor

households obtained 8-12% of minimum annual food needs from cereals (maize), poor households obtained 15-20%, and wealthier households obtained 15-25%. Pulses and oil seeds, including cowpeas, groundnuts, Bambara nuts, and soybeans, provided significant vegetable protein and fat sources. Poorer households derived 15-20% of their annual food needs from these crops, whereas wealthier households obtained 20-35%. Additionally, other crops such as sweet potatoes and palm oil contributed to food consumption, with poorer households obtaining 3-5% and wealthier households 4-12% of their annual requirements. Meat from households' own animals was a minor source of animal protein among all wealth groups.

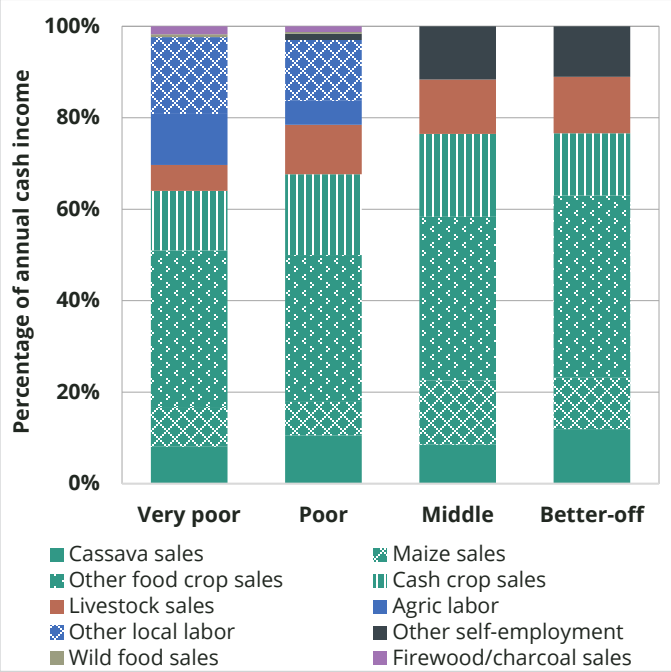
Purchased foods are divided into staple and non-staple foods. Households from all wealth groups purchased some staple foods: maize and cassava flour, with a smaller addition of rice for wealthier households. Very poor households obtained 15-25% of minimum annual food needs from purchased staples, poor households obtained 10-20%, middle households obtained 3-5%, and better-off households obtained 2-3%. Poorer households bought more staple than non-staple foods, while the contrary was true for wealthier households. Non-staple foods include cowpeas, Bambara nuts, soybeans, sugar, meat, milk powder, palm oil, dried fish, fresh fish, and vegetables. Households obtained 4-10% of minimum annual food needs from this purchased non-staples.

Payment in-kind was an additional, relatively small source of calories for poorer households. Households commonly received maize as payment for harvesting. Poorer households obtained 3-6% of their minimum annual food needs from payments in-kind. School feeding programs, which provided a daily meal during the school year consisting of rice and cowpeas, contributed 4-8% to the annual calorie needs of poorer households and 3-5% to the annual calorie needs of wealthier households. Wild foods, including mushrooms, and game, including the rock-dwelling hyraxes (small plant-eating mammals), contributed less than 1% to the annual calorie requirement of poorer households. There was no food aid in the livelihood zone in the reference year.

Sources of Cash Income

Households in different wealth groups obtained cash income through various means (see Figure 5). Crop sales included cassava; maize; other food crops, such as groundnuts, cowpeas, and Bambara nuts; and cash crops, like palm oil and soybeans. Crop sales were the primary income source for households across all wealth groups. Besides crop sales, households earned income from livestock sales, cultivation labor, and other local labor, such as construction and mining. They also generated income through firewood and charcoal sales and self-employment activities, including selling low-grade diamonds, wood sales, handicrafts, and petty trade. Households also earned income from selling wild foods like game meat and mushrooms.

Figure 5. Sources of Cash Income as a Percentage of Annual Cash Income

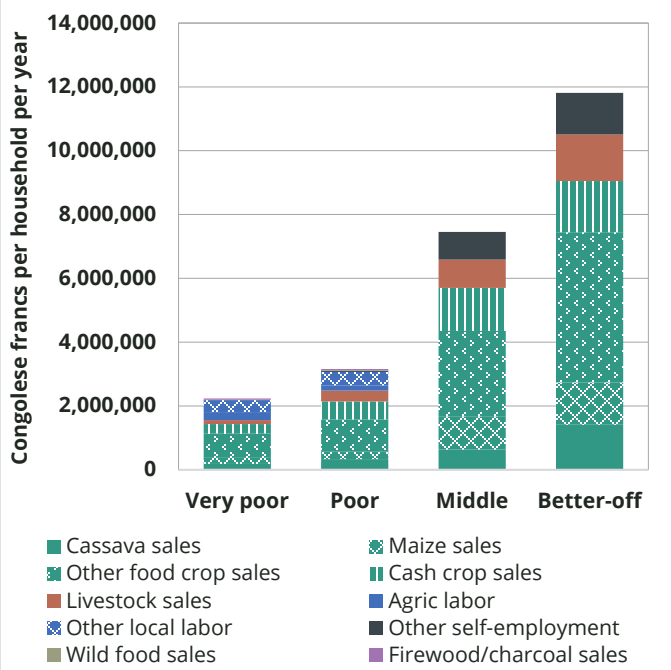


Crop sales contributed 60-70% of total income for very poor households. Labor payments contributed 25-30%, and livestock sales contributed about 6%. A combination of firewood, charcoal, and wild foods sales contributed an additional 2-5% of total income.

Poor households generated 60-75% of their cash income from crop sales, 20-30% from labor payments, 10-13% from livestock sales, and about 1% from firewood, charcoal, and wilds food sales.

Middle and better-off households secured 75-80% of their total annual cash income from crop sales, 10-15% from livestock sales, and 10-15% from the "other self-employment" category, which includes timber wood sales, handicraft sales, diamond exploitation, and petty trade.

Figure 6. Total Annual Cash Income



In the reference year, annual cash income increased progressively with increasing wealth. The differences in the total annual income were large, as illustrated in Figure 6 and Table 4. Better-off households earned more than five times the cash income of very poor households. However, given the differences in household sizes, the differences between wealth groups in per capita cash income were smaller than for total income, with better-off households earning two to three times the annual per capita cash income of very poor households.

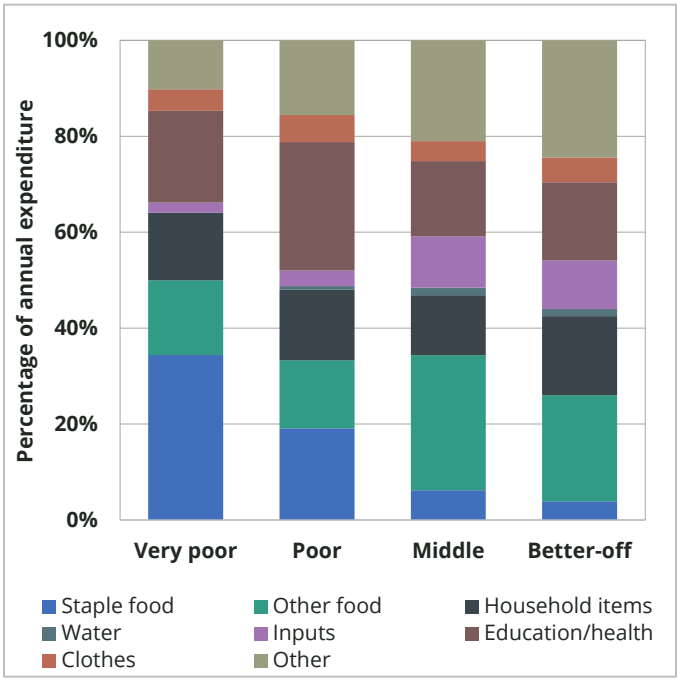
Table 4. Income Summary Table (Congolese Francs or CDF)

Wealth Group	Very Poor	Poor	Middle	Better-Off
Annual income per household[3]	1,800,000–2,700,000	2,700,000–3,600,000	6,000,000–9,000,000	10,000,000–15,000,000

Expenditure Patterns

Figure 7 presents expenditure patterns for the reference year January to December 2023. While absolute expenditure increases with wealth in line with total cash income, this graph breaks down expenditure by percentage to show the *relative* amount of income spent on different categories. Households in the zone need to cover a wide range of essential expenditures over the year: staple foods, non-staple foods, household items/services (e.g., salt, soap, tea, coffee, lighting, milling, etc.), productive inputs, social services (e.g., health and education), clothing, transport, as well as other essential and non-essential items. Households purchased water.

Figure 7. Total Annual Cash Expenditures by Category



All households spent a portion of their budgets on staple and non-staple foods. As noted in the Sources of Food section, poorer households secured between 20% and 30% of their annual food energy needs from food purchases, while wealthier households obtained 8-12% of their annual food energy needs from this source.

The proportion of expenditure on non-staple foods was substantial across wealth groups, and it was by far the main reason for wealthier households to go to the market, since they did not need to purchase much staple food.

Very poor households spent approximately half of their income on food, and this decreased with wealth to 20-30% for better-off households. Expenditure on productive inputs and on "other" items showed the opposite pattern, accounting for a much higher proportion of expenditure for wealthier households than for poorer households. Very poor households' expenditure on staple foods accounted for 30-40% of annual expenditures in the reference year. Expenditure on non-staple foods was 10-20% of total expenditures, 10-20% on household items (including lighting and grinding costs), about 2% on productive inputs, 15-25% on

[3] The average exchange rate from January to December 2023 was 1 USD = 2,382 CDF.

social services (health and education), about 5% on clothing/shoes, and 5-15% on “other” items (including transportation, phone credit, festivals, etc.).

Poor households’ spending on staple foods accounted for 15-25% of annual expenditure. Non-staple foods expenditure were 10-20% of total expenditures, household items 10-20%, water about 1%, productive inputs about 3%, social services 20-30%, clothing/shoes about 6%, and “other” 10-20%.

Middle households spent 5-10% of total annual expenditures on staple foods, 25-30% on non-staple foods, 10-15% on household items, about 2% on water, 10-13% on productive inputs, 10-20% on social services, about 4% on clothing/shoes, and 15-25% on “other” items.

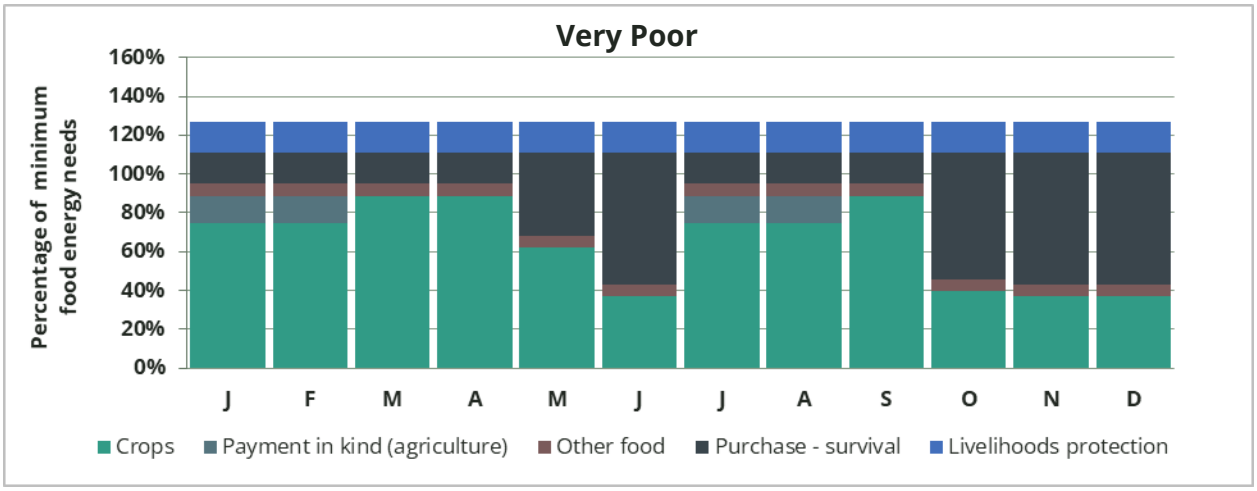
Better-off households’ expenditure on staple foods were about 4% of annual expenditure, 20-25% on non-staple foods, 10-20% on household items, about 2% on water, 5-15% on productive inputs, 10-20% on social services, about 5% on clothing/shoes, and 20-3-% on “other” items, including payments for diamond and construction labor, festival expenses, and mobile phone fees.

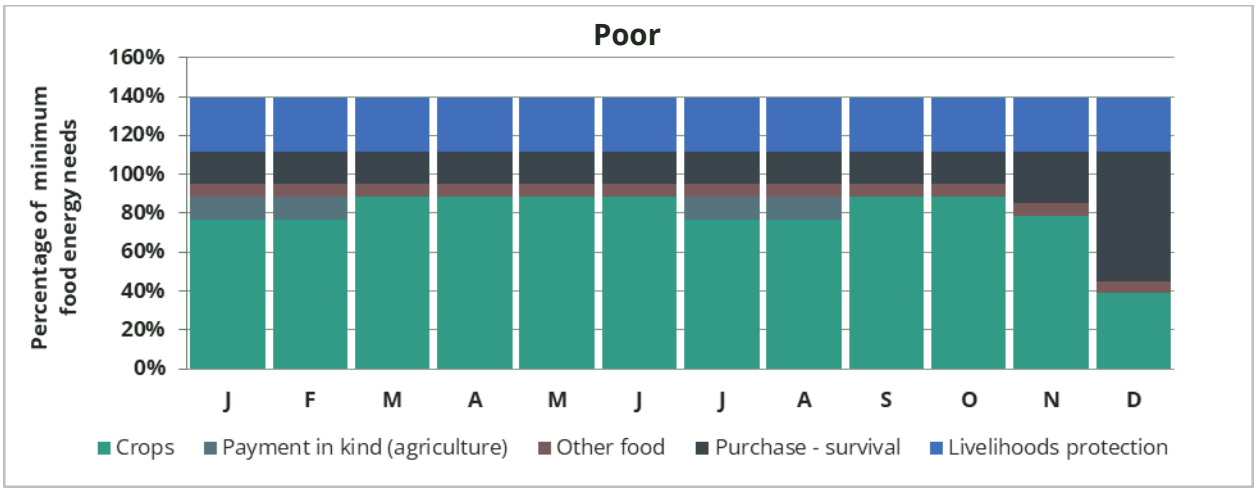
Food Access Calendars

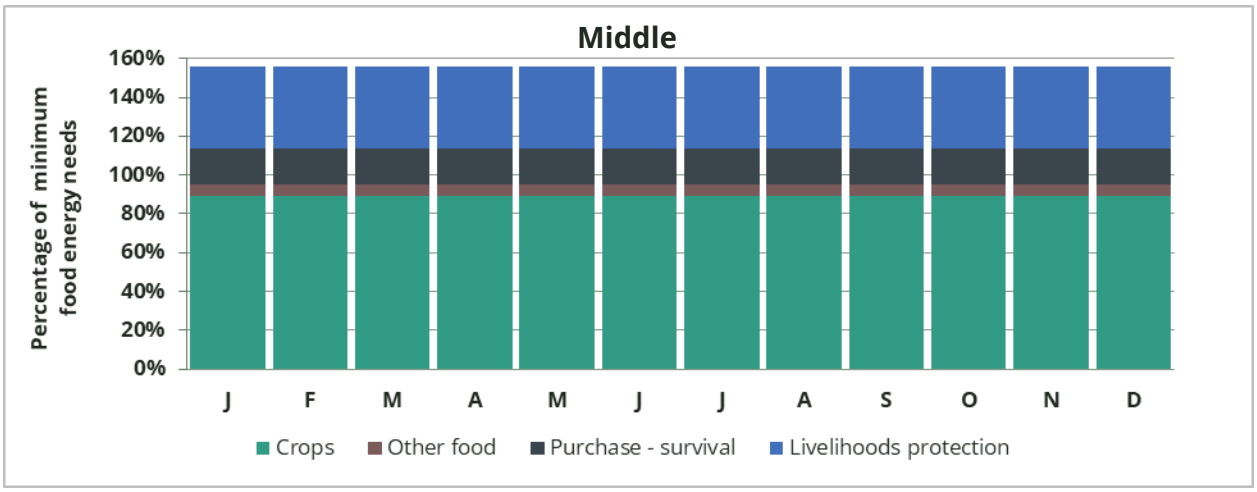
The graphs in Figure 8 present monthly food and cash access calendars for the four wealth groups.

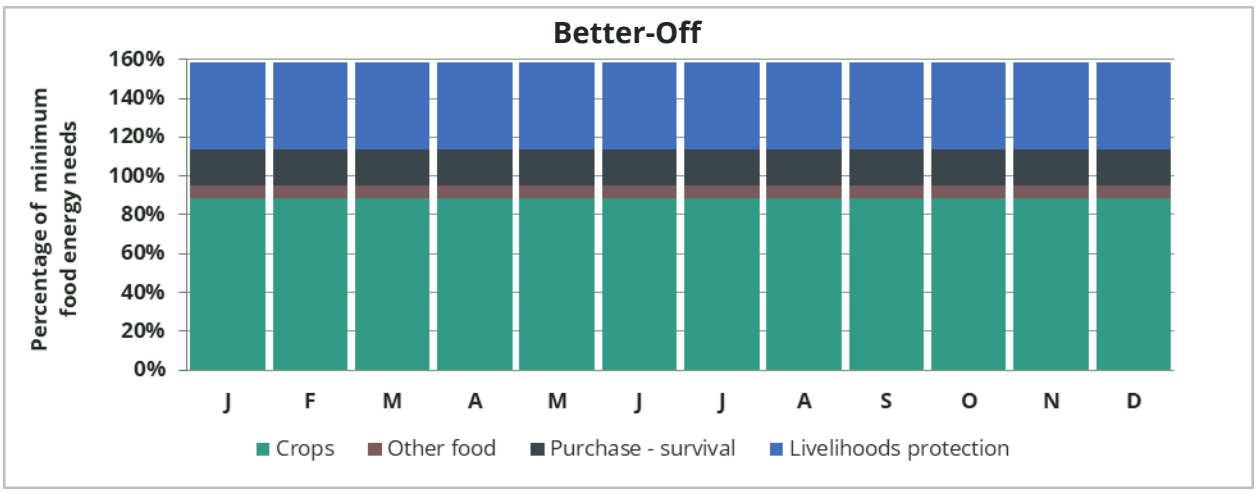
Households in all wealth groups were able to meet their survival and livelihoods protection thresholds year-round in the reference year. The main harvest period in this livelihood zone started in January and the second harvest period started in July. Very poor and poor households obtained some food from payments in-kind for casual agricultural labor (in teal). Very poor households rely on market purchases to meet their needs in May to June and October to December, while poor, middle, and better-off households are more self-sufficient. The dark blue “livelihoods protection” sections of the bars increase as a proportion of the total with wealth because wealthier households can afford to spend more on productive inputs, health, and education.

Figure 8. Seasonal Food and Cash Access Calendars per Wealth Group




Poor
Percentage of minimum food energy needs
160%
140%
120%
100%
80%
60%
40%
20%
0%
J F M A M J J A S O N D
Crops
Payment in kind (agriculture)
Other food
Purchase - survival
Livelihoods protection


Middle
Percentage of minimum food energy needs
160%
140%
120%
100%
80%
60%
40%
20%
0%
J F M A M J J A S O N D
Crops
Other food
Purchase - survival
Livelihoods protection


Better-Off
Percentage of minimum food energy needs
160%
140%
120%
100%
80%
60%
40%
20%
0%
J F M A M J J A S O N D
Crops
Other food
Purchase - survival
Livelihoods protection

Poor Female-Headed Households

Female-headed households are found in the very poor and poor wealth groups, as shown in the wealth breakdown (see Figure 3). During fieldwork, data collectors conducted in-depth interviews with poor female-headed households. In CD24, female household heads are widowed, divorced, or were abandoned. Poor female-headed households face similar constraints and characteristics to poor male-headed households but are typically further disadvantaged by a lack of adult male labor.

Figure 9 shows that poor female-headed households and poor male-headed households share a similar pattern of food access, except for consumption of their own meat, which only concerned poor male-headed households. In the reference year, they both met their annual minimum food energy needs from similar food sources, mainly their own crops and food purchases. Poor male-headed households cultivated slightly more land than the poor female-headed households and thus harvested slightly more and had slightly more calories from crop production than the poor female-headed households, notably from maize. Livestock production has challenges, including the absence of veterinary services and difficult access to animal inputs. There are no cooperative arrangements between wealth groups for livestock production. Women typically buy small livestock like poultry and guinea pigs for regenerating numbers, rather than obtaining them from the wider family or inheritance.

Figure 9. Sources of Food: Poor Households vs Poor Female-Headed Households

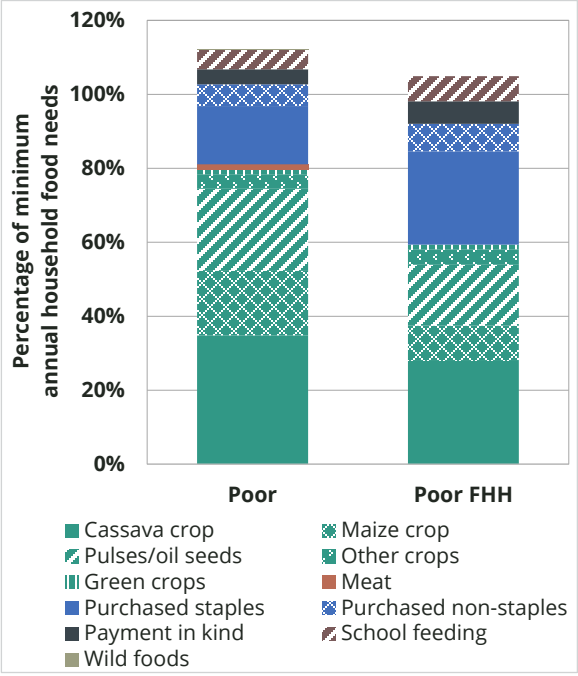
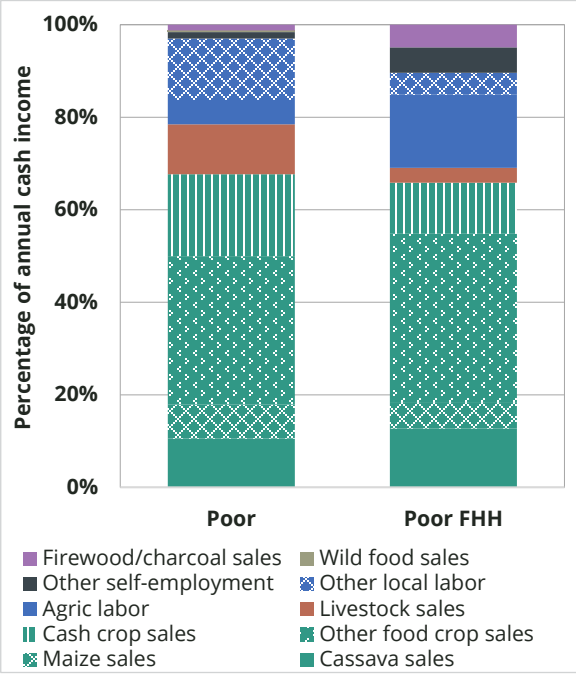


Figure 10. Sources of Cash: Poor Households vs Poor Female-Headed Households



The income picture shown in Figure 10 indicates that poor male-headed households and poor female-headed households had similar sources of cash income in the reference year, except for wild

foods sales, which only concerned poor male-headed households. The primary source of cash income for poor female-headed households was crop sales by a large margin, followed by agricultural and other labor payments, livestock sales, minor contributions from firewood and charcoal sales, and other self-employment.

Comparing total cash income, poor female-headed households earned about half that of poor male-headed households in the reference year. However, poor female-headed households had fewer members in the reference year (6-8) than male-headed households (8-10). Per capita cash income was approximately 30-40% less for poor female-headed households than poor male-headed households.

Crop sales made up a slightly higher percentage of annual cash income for poor male-headed households, 65-70%, compared to 60-70% for poor female-headed households. In contrast, livestock sales contributed a much smaller share to the annual cash income of poor female-headed households, ranging from 1-5%, compared to 6-12% for poor male-headed households. Labor income represented a more significant portion of annual cash income for poor female-headed households, 12-20%, than for poor male-headed households, 4-6%. Poor male-headed households obtained a more significant percentage of their annual cash income from other local labor, 10-15%, compared to 3-7% for poor female-headed households. Additionally, poor female-headed households earned more of their annual cash income from firewood and charcoal sales and other self-employment activities, 3-7%, compared to only 1-2% for poor male-headed households.

Response Strategies

In response to hazards and years with poor production, households attempt to meet their minimum food needs and cash requirements through several strategies. Below are some common strategies employed by households.

All households try to reduce expenditures on non-essential or more expensive items first, such as cutting down on festival costs or not buying clothes or utensils that year. Households consume less rice and maize in favor of cassava flour, which is the least expensive staple.

Very Poor and Poor Households

Very poor and poor households try to increase cash income by intensifying casual labor activities in agriculture and diamond mines to earn more cash. However, in bad years, as increasing numbers of people flood the labor market, this option quickly loses its value because wage rates drop and jobs are harder to find, pushing households to other activities, such as the sale of charcoal and firewood.

Middle and Better-Off Households

Middle and better-off households cope with hazards differently. Middle and better-off households sell additional livestock to cover basic food and non-food expenses in bad years. They also increase

self-employment activities, such as petty trade and other trading activities, and tend to rely on diamond mining as a significant income-generating activity.

Key Parameters for Monitoring

The key parameters listed in Table 5 are food and income sources that substantially contribute to the household economy in the *Major Staples Production with Market Gardening, Livestock, and Artisanal Mining Livelihood Zone*. These parameters should be monitored to track potential losses or gains to local household economies through ongoing monitoring systems or periodic assessments.

Table 5. Key Parameters for Monitoring

Item	Key Parameter – Quantity	Key Parameter – Price
Crop production	• Maize Seasons A and B – quantity produced • Cassava – quantity produced • Groundnuts Seasons A and B – quantity produced • Cowpeas Seasons A and B – quantity produced • Bambara nuts Season A – quantity produced • Palm oils sales – quantity produced • Soybeans Seasons A and B – quantity produced	• Maize Seasons A and B – producer price • Cassava – producer price • Groundnuts Seasons A and B – producer price • Cowpeas Seasons A and B – producer price • Bambara nuts Season A – producer price • Palm oil sales – producer price • Soybeans Seasons A and B – producer price
Livestock production	• Pigs – herd size • Goats – herd size	• Pigs – producer price • Goats – producer price
Other food and cash income	• Cultivation labor – number of days worked • Mining labor – number of days worked • Diamond mining – number of days worked • Petty trade – demand	• Cultivation labor - wage rates • Mining labor – wage rates • Diamond mining – daily earnings • Petty trade – daily earnings
Expenditure		• Maize – consumer price • Cassava – consumer price

CD25 Livelihood Zone

Reference Year: December 2022–November 2023

Intensive Staples Production with Artisanal Mining Livelihood Zone

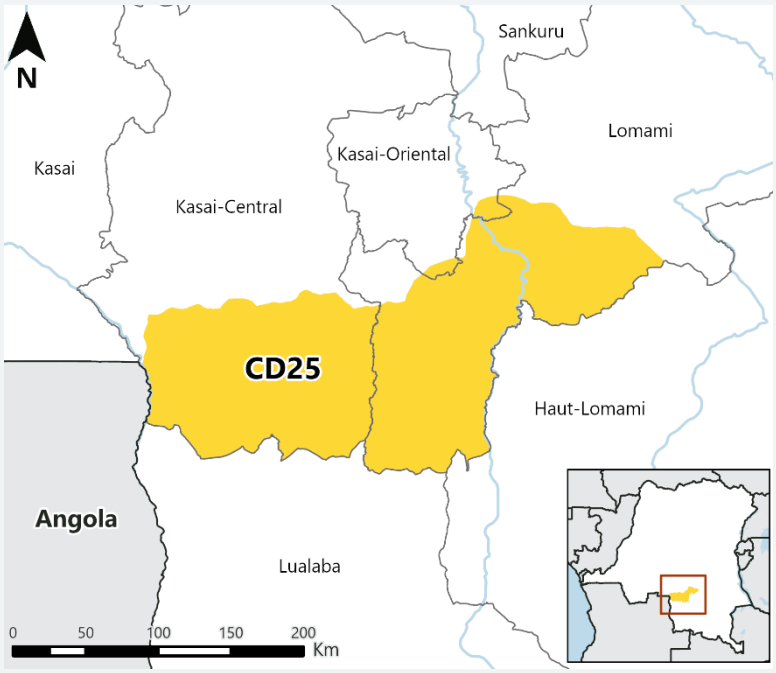


Figure 1. CD25 Livelihood Zone Map

Summary: The *Intensive Staples Production with Artisanal Mining Livelihood Zone* (CD25) is located within the provinces of Kasai-Central, Kasai-Oriental, and Lomami. The zone shares the savannah ecology with the *Kasai-Lomami Savannah: Maize, Cassava, and Small Livestock Livelihood Zone* (CD23) and the *Major Staples Production with Market Gardening, Livestock, and Artisanal Mining Livelihood Zone* (CD24), but it also features high clay mixes in the otherwise sand-based soils. This composition gives a combination of fertility and moisture retention, which, together with reliable rainfall, makes for high productivity on two counts.

First, among other crops, the staples cassava and maize are abundantly produced by those with the land and labor to do so. Second, greater retention of moisture in high-clay soils creates swamp areas that allow the market gardening of vegetables running into the main Dry Season. Cultivation of these crops is also helped by small-scale irrigation and hand-watering, a profitable activity for those within reach of town markets for these perishable items. Households from all wealth groups also variously engage in profitable livestock rearing (including cattle for the better-off), brewing, fishing, petty trade, producing charcoal, and providing motorcycle transportation. A minority of households engage in artisanal gold and diamond mining. However, the zone faces problems that limit rural economic performance, especially the rudimentary farming techniques and limited market access due to poor road infrastructure.

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Zone Description

The *Intensive Staples Production with Artisanal Mining Livelihood Zone* (CD25)[1] covers the provinces of Kasai-Central, Kasai-Oriental, and Lomami, and includes the territories of Dibaya, Kabinda, Kazumba, Luilu, Luiza, Muene-Ditu, Ngandajika, and Tshilenge. The zone is characterized by a humid tropical climate, with temperatures averaging around 25°C. Annual rainfall averages around 1,500 millimeters. The zone experiences two main Rainy Seasons, from September to December (Season A) and January to mid-May (Season B). The zone's topography contains elevations ranging from 500 to 1,500 meters, with plateaus and some mountains. The major rivers are the Kamutambayi, Kasai, Luani, Lueta, Luilu, and Lulua. These rivers essentially result from the drainage from higher elevations south of the zone, and there are numerous minor rivers as tributaries. The natural vegetation is a mix of forest and Guinean savannah bush and grasslands. Soils in this zone include clay, sandy-clay, and some sandy soils, and are generally fertile. Diamonds and gold are found in the zone, but they are exploited only by a minority of better-off households. The great majority of residents of the zone rely on dirt roads and informal tracks, while the sparse main road networks, including National Route (RN) 1 and RN7, are poorly maintained. Key urban centers such as Kabinda and Mwene-Ditu serve as market hubs, but access to these markets is limited by poor road conditions. The population of CD25 is 565,025, with an average population density of around 25 people per square kilometer.[2]

The rural household economy in the zone revolves around a combination of crop production, livestock rearing, mining (primarily gold and diamonds), brewing, fishing, and motorcycle transport. Households also engage in petty trade and charcoal production. These activities form the economic backbone of the zone, with farming (for crop production and livestock rearing) being the dominant activity. Artisanal mining of diamonds and gold is particularly common in some areas, though these resources are exploited by only a minority of households.

Field crops in the zone are essentially rainfed, with cassava, maize, cowpeas, and rice being the key crops, while groundnuts, Bambara nuts, sweet potatoes, and yams are minor additions. Oil palms are the only perennial cultivated, and the extraction of palm oil is important for domestic consumption and sale. While cassava is grown in a single season, other crops like maize, groundnuts, and cowpeas are cultivated in two seasons. Onions, which require irrigation, are another important crop in the zone. Despite the reliance on traditional farming techniques and tools, and especially the total reliance on manual work, including on land preparation, the area has comparatively high agricultural output due to fertile soils and good rainfall patterns. Paid workers for all farming activities are commonly hired by wealthier farmers from local, poorer households.

[1] Fieldwork for the current profile was undertaken from August 16 to September 20, 2024. The information presented in this profile refers to the reference year, which was the consumption year that covered the period from December 2022 to November 2023. Provided there are no fundamental and rapid shifts in the economy, the information in this profile is expected to remain valid for approximately five to 10 years (i.e., until 2029-2034). All prices referred to in the document are for the reference year.
[2] FEWS NET Data Explorer, population data (2023), accessed 2025, https://fdw.fews.net/data-explorer/.

Given fertile land, it is the capacity to hire labor that determines a household's crop production, rather than any investment in modern inputs like improved seeds, chemical fertilizers, or pesticides.

Livestock rearing also plays a crucial role in the zone's economy. Pigs, goats, and poultry are raised on open pasture, feeding primarily on grass, brush, and crop residues. Small numbers of cattle are kept by the better-off. Livestock sales peak in January, September, and December, driven by demand during the start of the school year and the end-of-year holiday season. Animal husbandry tasks are divided by gender, with men responsible for building pens, selling, and slaughtering animals, and women managing poultry.

Brewing involves the production of alcohol from maize and cassava and is a common practice in the zone. This activity is carried out by men and women, is conducted year-round, and plays a significant role in the local economy.

Charcoal production and small-scale trading also offer vital income sources. Activities like transportation, agricultural paid labor, and charcoal production are undertaken by men, while women participate in cultivation labor, charcoal sales, and small business ventures.

Households in the zone generally do not borrow money or receive remittances from other households or family members, either within or outside the zone. There are no credit facilities or saving schemes in the zone.

CD25 experiences several hazards that affect its economy and livelihoods. These hazards include droughts, crop diseases, livestock diseases, and pest infestations. Some rainfall irregularity or deficit affects the zone approximately once every two years. This reduces crop yields and limits water availability, impairing crop production and livestock rearing. Crop diseases are highly frequent in the zone, occurring approximately two out of every three years. These diseases and parasites target key crops like maize and cassava, reducing agricultural productivity and threatening food sources for households across all wealth groups. Livestock diseases, like Newcastle disease in poultry, swine fever in pigs, and *peste des petits ruminants* in small ruminants (i.e., goats and sheep), are also common, occurring once every two years. These diseases severely impact livestock health, leading to reduced livestock sales and food sources, particularly for households that rely on livestock for income. Caterpillar infestations, which attack crops, occur about once every three years. These pests cause significant damage to crops, further compounding the challenges faced by households in maintaining adequate food production.

Access to services in this livelihood zone varies by wealth group but generally remains limited for poorer and wealthier households. Water sources for households in all wealth groups include open wells, rivers, and rainwater, with no significant variation in availability between wealth groups. Water usage remains largely reliant on natural sources, and households do not pay for it. Sanitation infrastructure is basic, with most households, regardless of wealth group, relying on latrines, while some resort to open defecation. Healthcare access is available through dispensaries and health centers for poorer and wealthier households. Wealthier households also have access to hospitals

and more advanced care. Lighting is rudimentary, with poorer households primarily using flashlights, while wealthier households may have access to solar-powered lighting in addition to flashlights. Cooking fuel for households from all wealth groups consists of firewood, reflecting the rural and resource-dependent nature of the zone. Communication access shows some disparity, with poorer households generally limited to voice services via mobile phones, while wealthier households have access to voice and data services. Education levels also reflect a wealth divide: members of poorer households typically attain only primary or secondary education, while members of wealthier households can often afford higher levels of education, including university.

Markets

Market access in this zone is notably challenging due to poor road conditions, particularly during the Rainy Season when access becomes even more difficult. The zone is connected by informal tracks and dirt roads, which are in poor condition, and consist mainly of clay and sand. Bridges in the area are also often in poor condition, further complicating transportation. While market access is somewhat functional during the Dry Season, the distance between markets and villages effectively limits many households' trading capacity.

Trade within the zone revolves around agricultural and livestock products. The primary crops sold include cassava, maize, cowpeas, rice, groundnuts, and palm oil, with peak sales typically occurring from June to September for most crops, although some, like palm oil, see extended sales periods from October to May. Maize and rice sales also peak from February to June. Livestock, including cattle, pigs, goats, and sheep, are also traded in local markets, with peak sales usually at the beginning and end of the year. The main trade routes for these products link local markets within the zone to other key markets like Kalamba Mbuji and Luambo, and also to Luputa, Mbuji-Mayi, and Mwene-Ditu. Some products, particularly livestock, are traded as far as Angola. For those with diamonds to sell, traders come from big towns such as Kanaga, Mbuji-Mayi, and Mwene-Ditu.

In terms of foods purchased by local households, apart from local market produce, staples like maize, cassava, and rice are primarily imported through trade routes variously connecting the zone to Angola and Upper Lomami Province, mostly in November, October, and December for maize, cassava, and rice, respectively, due to high demand in the Lean Season.

The zone's casual labor market is primarily local, with 50% of the work occurring within the rural area, 30% in nearby towns, and 20% is migrant work outside the zone. Labor migration is common from the zone, particularly among men who travel to places like Kolwezi, Lubumbashi, Mbuji-Mayi, and Angola for work. Migration is consistent throughout the year, and the migration pattern does not change in lean years. There is also an in-migration pattern for diamond and gold mining, with men from outside the zone arriving to work in these industries.

Timeline and Reference Year

The baseline assessment refers to a specific period called the reference year. In the *Intensive Staples Production with Artisanal Mining Livelihood Zone,* the reference year covers the consumption period from December 2022 to November 2023. During community leader interviews, data collectors asked informants to score the last five years in terms of seasonal performance with "1" indicating a poor season and "5" indicating an excellent season. Table 1 summarizes the response of the community leaders.

Table 1. Timeline

Production Year/Season	Score	Critical Events
2023/Season B	3	Good rainfall distribution, use of improved seeds, good yields.
2022-2023/Season A	3	Good rainfall distribution, use of improved seeds, good yields.
2022/Season B	3	Good rainfall distribution, use of improved seeds, good yields.
2021-2022/Season A	3	Good rainfall distribution, use of improved seeds, good yields.
2021/Season B	3	Good rainfall distribution, use of improved seeds, good yields.
2020-2021/Season A	3	Good rainfall distribution, use of improved seeds, good yields.
2020/Season B	2	COVID-19 pandemic, pest (caterpillar) attacks, swine fever, and increased commodity prices. Households coped through small business activities, although overall economic activity was severely hampered.
2019-2020/Season A	2	COVID-19 pandemic, pest (caterpillar) attacks, swine fever, and increased commodity prices. Households coped through small business activities, although overall economic activity was severely hampered.
2019/Season B	2	Armyworm attacks, price hikes, swine fever, and *Kamuina Nsapu* conflict. Households coped through migration and stock consumption.
2018-2019/Season A	2	Armyworm attacks, price hikes, swine fever, and *Kamuina Nsapu* conflict. Households coped through migration and stock consumption.

5 = Excellent season for household food security (e.g., due to good rains, good prices, good crop yields)
4 = Good season or above average season for household food security
3 = Average season for household food security
2 = Below average season for household food security
1 = Poor season for household food security (e.g., due to drought, flooding, livestock disease, pest attack)

The years 2021 through 2023 were marked by average seasonal performance (rated "3"), with favorable conditions for crop production. Good rainfall distribution and the use of improved seeds

led to consistently good yields in Seasons A and B during these years. There were no significant abnormal events or migration patterns reported during this period, indicating relative stability. In contrast, 2020 and 2019 were characterized by below-average seasons (rated “2”) due to several adverse events, including pest attacks, economic crises, and conflict, which significantly impacted agricultural yields and forced households to adopt various coping strategies, including small business ventures and work migration.

Overall, the reference year (2023) was considered a good year for crop production, thanks to well-distributed rainfall, improved seed usage, and the absence of crop pests. No conflicts or abnormal livestock migrations were reported during this period, and crop production remained stable, which contributed positively to household food security.

Seasonal Calendar for Reference Year

The seasonal calendar (see Figure 2) illustrates the main economic activities and events of the reference year. It traces the rainy months and highlights key agricultural, livestock, and economic activities throughout the year, as well as food purchasing periods, etc.

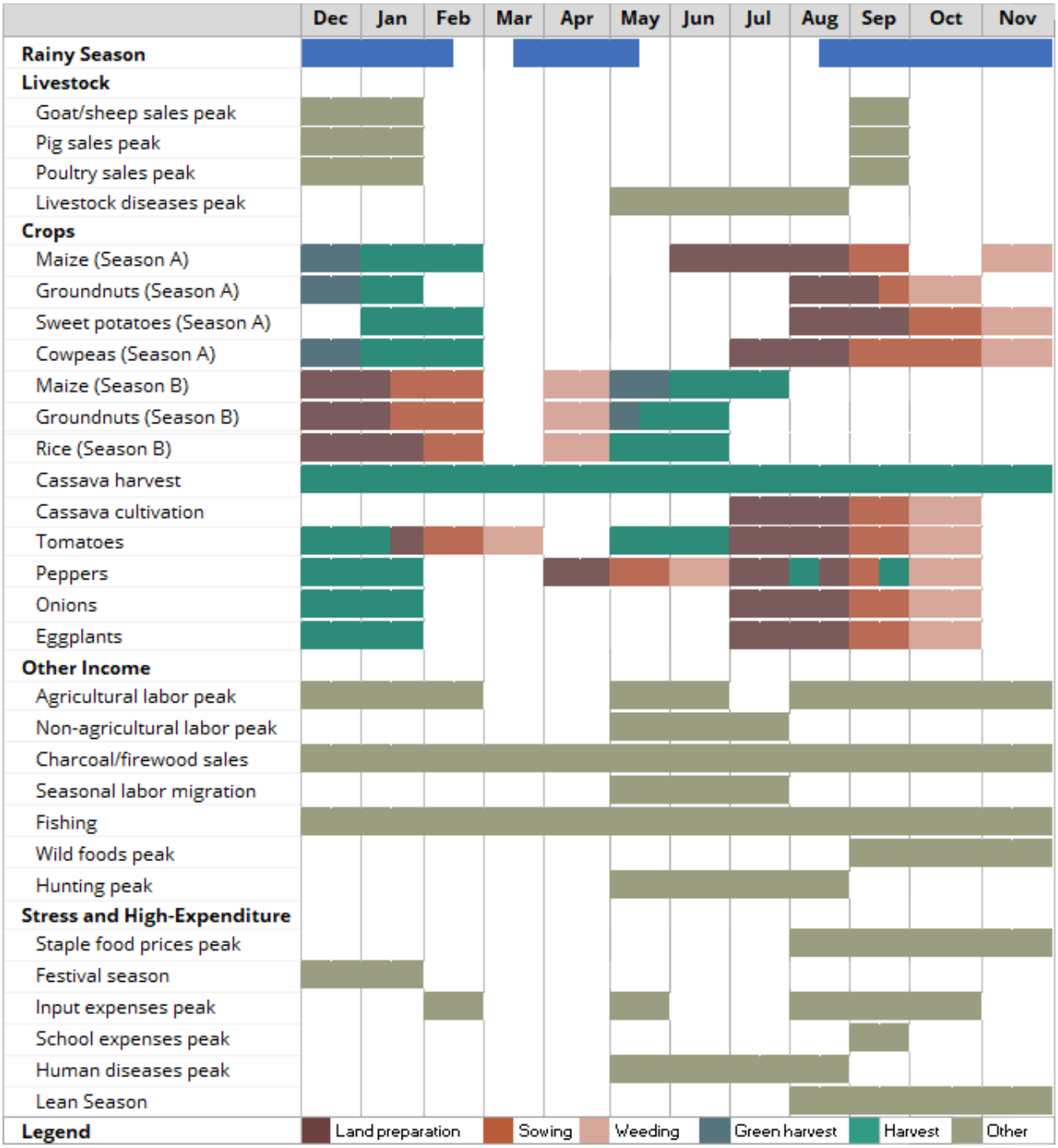
The seasonal calendar for CD25 is structured around alternating Rainy and Dry Seasons, which dictate agricultural activities, livestock sales, and economic patterns. The Rainy Seasons occur from December to mid-February, from late-March to mid-May, and from late-August to November. These wet periods are essential for crop cultivation and the harvest. The Dry Seasons fall between mid-February and mid-March and from mid-May to mid-August, with activities adjusting accordingly to the scarcity of rainfall.

The key crops — cassava, maize, groundnuts, cowpeas, rice, sweet potatoes, tomatoes, peppers, onions, and eggplants — have specific planting and harvesting schedules. For example, cassava planting takes place from September, with first harvesting from December to November; but as there is staggered planting, and households can keep mature tubers in the ground for several months, there is effectively a year-round harvest. Maize is cultivated in two seasons: it is sown in September for the first season and in January and February for the second, with harvests in January and February and June and July respectively. Groundnuts also follow two cycles, with the first planting in September and the second in January, and harvests in January and May to June, respectively. “Green harvest” refers to cutting/pulling up crops before they are quite mature, thus consuming them “fresh” before the main harvest. Farmers in the zone commonly combine several crops in the same field (i.e., intercropping) to optimize land use. The main crop combinations are maize and cassava, groundnuts and cowpeas, cassava and groundnuts, maize and groundnuts, and cassava and rice.

Livestock sales peak in December, January, and September for goats, sheep, pigs, and poultry. These periods align with the end-of-year and new year festivities in December and January, as well as with

the start of the school period in September. Livestock diseases are most prevalent from May to August, making these months critical for animal health management.

Figure 2. Seasonal Calendar



Other income-generating activities also follow distinct seasonal patterns. Cultivation labor peaks during major planting and harvesting months, from December to February, May to June, and August to November. Non-cultivation labor, including firewood and charcoal sales, runs throughout the year, peaking from May to July. Fishing is a year-round activity but peaks between May and July, with

a low period from September to November. Wild foods collection is concentrated from September to November, and hunting for game is more common from May to August in the main Dry Season.

The zone experiences high food expenditure periods from August to November, coinciding with the Lean Season and rising staple food prices. Input expenses for agriculture peak in February, May, and August to October, while school-related costs are highest in September. Human diseases, particularly malaria, are prevalent from May to August, adding to the challenges faced by households during this time.

Table 2 shows the typical division of labor, listing the activities shared and not shared by men and women. All crop production activities, including cultivation labor and sale of agricultural produce, are shared by men and women. Men and women share petty trade, brewing, meat sales, and firewood and charcoal sales. Men (and boys) are largely responsible for all livestock management and care activities (except for rearing and selling poultry, which is a women's activity), fishing, gold/diamond mining, construction labor, and labor migration. Women's duties also include wild foods collection and domestic work, including cooking, taking care of children, and laundry.

Table 2. Typical Division of Labor

Shared Tasks	Women's Tasks	Men's Tasks
• Land preparation • Weeding • Harvesting • Threshing/winnowing • Paid agricultural labor • Crop sales • Meat sales • Petty trade • Charcoal sales • Collection and sale of firewood • Brewing	• Poultry rearing and sale • Wild foods collection and sale • Household chores (collecting water for domestic use, cooking meals, collecting firewood for domestic use, feeding children, laundering clothes)	• Pig, goat, and sheep rearing and sale • Livestock slaughter • Charcoal production • Fishing • Gold and diamond mining • Construction labor • Labor migration • Transport

Wealth Breakdown and Productive Assets

Table 3 summarizes the types and numbers of productive assets that typical households within each wealth group own and/or manage. Asset holdings are shown in a range that reflects the diversity of households' situations within a wealth group. Figure 3 shows the percentage of households within the zone that falls in each wealth group. Communities in the zone carried out their own wealth group categorization.

Wealth in this zone is determined by land area owned and cultivated, livestock ownership, and employment. Wealthier (i.e., middle and better-off) households own and cultivate more land, own

more livestock, and can hire labor. Land is freely available to clear and cultivate for people who can afford labor and inputs.

Table 3. Wealth Breakdown

Household Size and Productive Assets	Very Poor	Poor	Middle	Better-Off	Poor Female-Headed
Household size	5-7	7-9	10-12	12-16	5-6
Land (hectares [ha])	0.5-1.5	1-3	2-4	5-8	0.5-1.5
Land cultivated (ha)	0.3-0.6	0.5-1	1.5-2	2-3	0.3-0.7
Land cultivated - food crops (ha)	0.1-0.5	0.4-0.8	1-1.5	1-2	0.2-0.5
Land cultivated - cash crops (ha)	0.1-0.3	0.1-0.3	0.4-0.6	1	0.1-0.3
Pigs	0	0-3	0-6	0-10	0
Cattle	0	0	0	0-5	0
Goats	0-4	0-4	4-8	5-15	0-4
Sheep	0-2	1-4	5-10	5-15	0-2
Rabbits	0-10	0-10	10-15	10-30	0
Poultry	5-10	5-15	10-30	20-40	5-15
Motorcycles	0	0	1	1-2	0
Pressers	0	0	1	1-2	0
Bicycles	0	1	1-2	1-3	0
Sieves	0	0	0-2	0-5	0

Very poor households own 0.5-1.5 ha of land, cultivating only 0.3-0.6 ha. Their land is primarily dedicated to food crops, with minimal allocation for cash crops. They own 5-10 poultry and up to four goats, with minimal ownership of sheep and rabbits.

Poor households own 1-3 ha of land, cultivating between 0.5-1 ha. They have a similar pattern of cultivation to very poor households, with a balance between food and cash crops. They own up to 3 pigs, up to 15 poultry, 1-4 sheep, and a few goats, showing a slightly better capacity to manage livestock than the very poor.

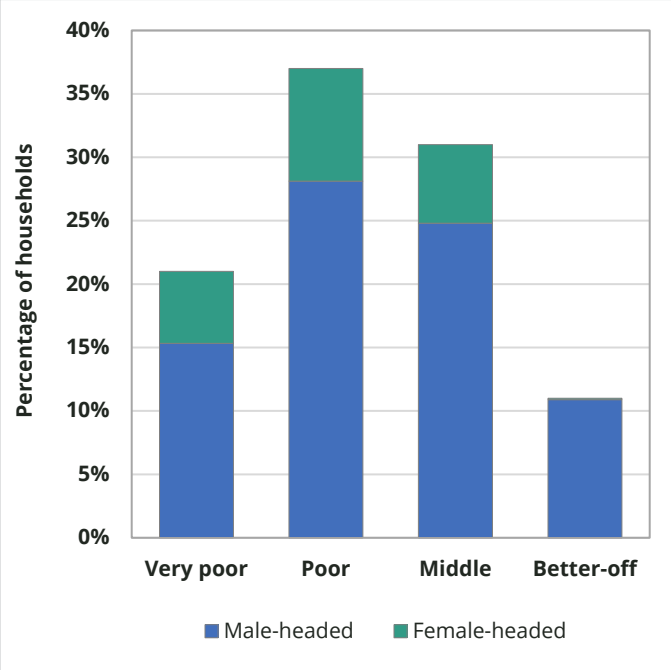
Middle households own 2-4 ha of land and cultivate 1.5-2 ha. They have greater access to land for food and cash crops, indicating a stronger economic position. They have increased livestock holdings, including up to six pigs, 10-30 poultry, and 5-10 sheep.

Better-off households own 5-8 ha of land, cultivating 2-3 ha. These households can allocate substantial portions of their land to food and cash crop production, showing their wealth through land and resource utilization. But they cannot typically afford to cultivate all the land they hold. Better-off households are also characterized by higher livestock numbers, owning up to 10 pigs, 20-40 poultry, and 5-15 goats and sheep.

Households across all wealth groups possess basic productive assets, land being the prime one. However, middle and better-off households also own more advanced assets, such as grinding mills and motorcycles, which enhance their productivity and transportation capabilities.

Figure 3. Wealth Breakdown

Note: All results are the mid-point of a range



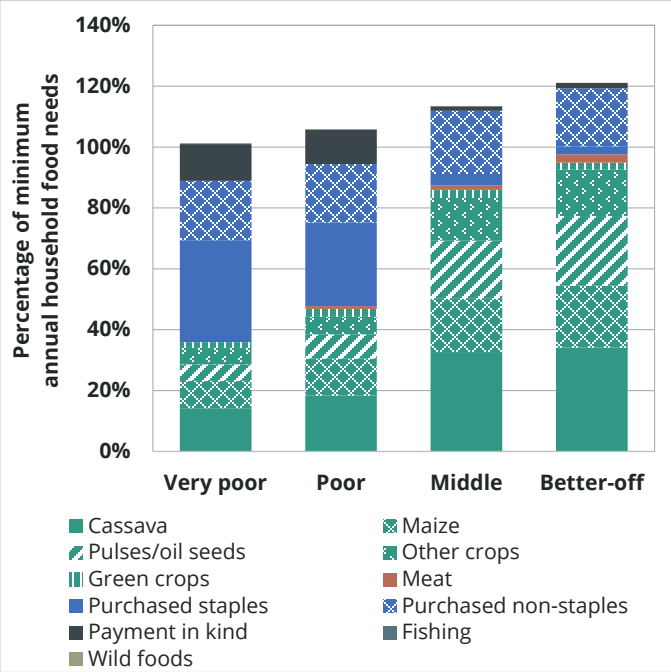
Household size increases with wealth. The very poor have a household size of approximately 5-7 members, poor 7-9, middle 10-12, and better-off 12-16. The wealthier the household, the larger it is, with more livestock and productive assets.

The proportion of households in the zone is as follows: very poor households 15-25%, poor households 30-45%, middle households 25-35%, and better-off households 5-15%. The percentage of female-headed households in each wealth group is as follows: approximately 27% in very poor, 24% in poor, 20% in middle, and 1% in better-off households. These are women who are widows, divorced/ abandoned by their husbands, or otherwise single women living alone with their children.

Sources of Food

Figure 4 presents the sources of food for households in different wealth groups in the livelihood zone for the period from December 2022 to November 2023. December represents the start of the consumption year as all Season A crops are ready for consumption and harvest. Food is presented as a percentage of the annual kilocalorie (kcal) needs of the household, based on the internationally accepted standard of 2,100 kcal per person per day.

Figure 4. Sources of Food Crop Types



In CD25, food sources in the reference year varied significantly by wealth group. Middle and better-off households relied primarily on crops they produced (i.e., own crops) with minimal dependence on food purchases, while very poor and poor households relied more on purchased food and payments in-kind from cultivation labor. Again, the wealthier purchased proportionately far more non-staple foods than staple foods, while for the poorer the pattern was reversed. Cassava and maize formed the core of household diets, but with some variation in the proportion consumed depending on wealth levels. As noted for the seasonal calendar, “green crops” refers to crops cut/pulled up and eaten in an immature or ”fresh” state before the main harvest. Overall, the reference year was average in terms of food security, with households from all wealth groups meeting their minimum annual food energy needs. Very poor had 100-105%, poor 100-115%, middle 115-125%, and better-off 118-130%.

For the very poor, approximately 35-45% of their food came from their own crops, with cassava and maize being the main items. Due to limited land and production, they also heavily relied on purchased staples, which made up 30-35% of their food intake. Non-staple purchases, like oils and sugar, also formed a notable portion of their diet, comprising 15-20% of their overall food intake. Payments in-kind, mainly for harvest work and typically consisting of cassava and groundnuts, accounted for 10-15% of their total food in the reference year. Meat and wild foods played a minimal role in the diets of very poor households, contributing less than 1%.

Poor households obtained around 45-55% of their food from their own crops, showing a higher reliance on self-produced food compared to the very poor. Cassava and maize contributed 15-20% and 10-15% of their minimum calorie requirements, respectively. Pulses and oil seeds made up nearly 8% of their intake, giving a necessary diversification of foods. Poor households also purchased a substantial portion of their food, with purchased staples representing about 25-30% of their annual intake, slightly lower than that of very poor households. Non-staple purchases remained steady at 15-20%, similar across wealth groups. Payments in-kind accounted for 10-15% of their intake in the reference year. Meat and wild foods were minor contributors, collectively making up less than 1% of their diets.

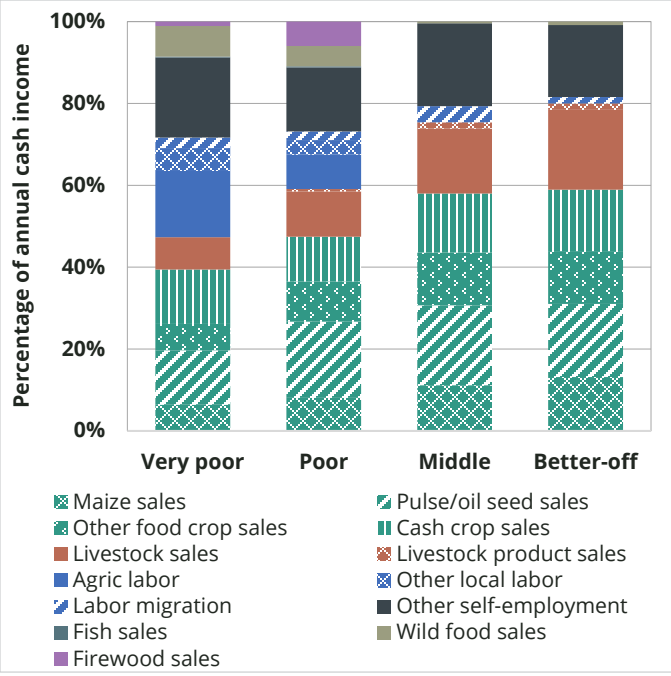
Middle households derived 80-90% of their food requirements from their own crop production. This group showed a greater capacity for crop diversification and self-sufficiency compared to poorer households. Their reliance on purchased staples was minimal, at just under 4%. However, they still purchased 15-25% of their non-staple food items such as oils and sugar. Food consumed during labor migration contributed 1.5% of their total caloric intake (included under the "payment in kind" category in Figure 4). Middle households also consumed small amounts of meat, about 1.5% of their total food. Neither they nor the better-off typically consumed wild foods.

Better-off households were the most self-sufficient in what they consumed, with 90-100% of their minimum food requirements sourced from their own crops. Their purchases of staples were minimal, at just about 3% of annual food requirements, while non-staple purchases accounted for 15-20%. Better-off households also consumed the highest amount of meat among the wealth groups, at around 3%. The contribution of food consumed during work migration gave less than 2% of their food requirements in the reference year.

Sources of Cash Income

Across all wealth groups in CD25, crop sales were the single biggest source of income in the reference year (see Figure 5). Otherwise, wealthier households relied principally on livestock sales and self-employment, including selling diamonds and gold, while very poor and poor households depended heavily on agricultural and other paid labor and small-scale self-employment, like petty trade and wild foods sales. Local beer brewing was a substantial source of self-employment income for households from all wealth groups.

Figure 5. Sources of Cash Income as a Percentage of Annual Cash Income



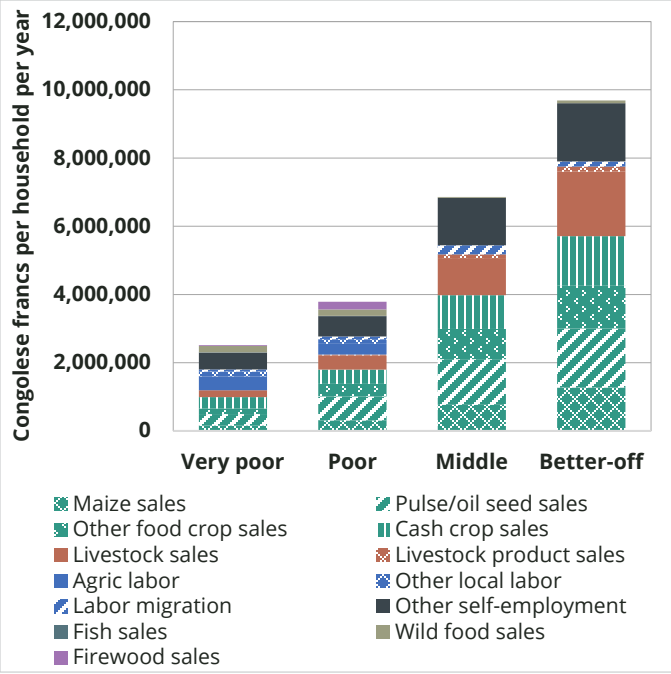
Livestock sales increased in importance with wealth, and payments from labor migration were most significant for poorer households. Middle and better-off households did not rely on paid agricultural or other local labor for their income, but instead hired others for their farming and business activities.

Very poor households relied heavily on crop sales, accounting for 35-45% of their total income. Key crops sold were maize and pulses, while "other" food crops included cowpeas and sweet potatoes. Agricultural paid labor was another major source of income, contributing 10-20%, as very poor households often worked for wealthier

households during planting and harvesting seasons. Other forms of local labor, like construction labor including roofing and brickmaking, added about 6% to their income in the reference year. Labor migration accounted for roughly 3%, as some individuals sought temporary work outside the zone. Self-employment, including activities like petty trade and brewing sales, formed a substantial part of very poor households' income, contributing around 15-20% of the total income. Wild foods sales, like selling gathered plants or fruits, added another 5-10% to their income, while firewood sales accounted for just about 1%. Livestock sales made up a smaller portion of income, 5-10%, due to limited livestock holdings in this wealth group.

Poor households generated some half of their cash income from crop sales, 45-55% of their total annual income. Agricultural paid labor still played a role, but less than for very poor households, contributing around 10% of their income. Other forms of local labor, like construction labor including roofing and brickmaking, contributed roughly 6% to their income in the reference year. Migratory labor accounted for just about 2% of the total income. Livestock sales were a slightly more significant source of income for poor households compared to the very poor, accounting for 10-15%, while livestock product (i.e., meat) sales contributed a small portion, approximately 1%. Other self-employment, including petty trade and brewing sales, contributed 15-20% of the total income. Wild foods sales and firewood sales each added another 5-10% to their income.

Figure 6. Total Annual Cash Income



Middle households earned most of their cash income from crop sales, which contributed 55-65% of their total income. Livestock sales were a more significant income source for middle households compared to poorer groups, accounting for 15-20% of their total income. Livestock product (i.e., meat) sales contributed an additional roughly 2%, as middle households generally owned more animals and therefore could slaughter more animals and sell more meat. Self-employment, such as motorcycle taxis, gold/diamond mining, small businesses, and brewing, were a consistent source of revenue across wealth groups and contributed 15-25% of total income for middle households in the reference year. Labor migration provided less than 5% of their total income.

Better-off households in CD25 earned the highest proportion of their income from crop sales, with this source contributing about 55-65% to their total income. Livestock sales were also a key income source for better-off households, accounting for 18-25%; livestock product sales contributed just 2%

of the total income. In all, the overwhelming proportion of their income came from their own production. For the rest, self-employment, such as motorcycle taxi operations and other small businesses, brewing, and for some of the better-off, gold and diamond sales, contributed 15-25% of their total income in the reference year. Labor migration accounted for only 2%, reflecting their reduced need for external work.

There is a large difference in wealth between the very poor/poor and the middle/better-off households. In the December 2022 to November 2023 reference year, better-off households earned almost four times more than the very poor and almost three times more than poor households. This gap is illustrated in Figure 6 and Table 4.

Table 4. Income Summary Table (Congolese Francs or CDF)

Wealth Group	Very Poor	Poor	Middle	Better-Off
Annual income per household[3]	2,000,000-3,000,000	3,000,000-5,000,000	6,000,000-8,000,000	8,000,000-12,000,000

Expenditure Patterns

Figure 7 presents expenditure patterns for the reference year from December 2022 to November 2023. While absolute expenditure increases with wealth in line with total cash income, this graph's expenditure breakdown by percentage shows the *relative* amount of income spent on different categories. Households in the zone need to cover a range of essential expenditures over the year. These include staple foods, non-staple foods, household items/services (like salt, soap, tea, lighting, milling, etc.), productive inputs, social services (which include health and education), clothing, as well as other essential and non-essential items.

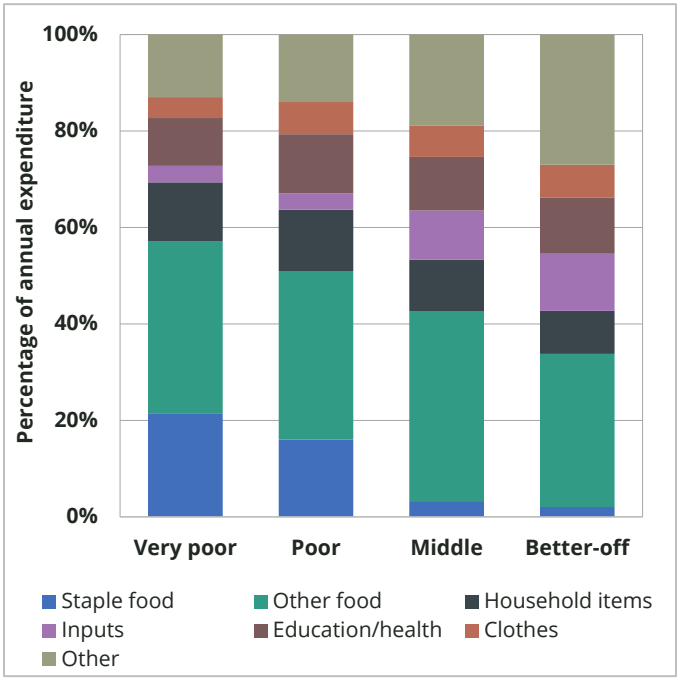
In CD25, expenditure patterns in the reference year differed significantly by wealth group. Very poor and poor households allocated a large share of their incomes to staple foods and basic household items, while better-off and middle households spent proportionally more on agricultural inputs and other expenses. All groups spent a similar, large portion on other food purchases, but reliance on purchased staples decreased greatly as wealth increased. There was no payment for water by households in any wealth group.

Very poor households' largest portion of expenditure went to food, accounting for 55-65% of annual expenditure, of which 20-25% went to staples and 35-40% to non-staple food purchases. As for the poor, the expenditure on staples would have been significantly higher if not substituted by the receipt of payments in-kind. Household items, like soap, utensils, and basic supplies, made up 10-15% of annual expenditure. Expenditure on productive inputs by very poor households was very minimal at only about 3% of total expenditure. Expenditure on social services (i.e., education and

[3] The average exchange rate from December 2022 to November 2023 was 1 USD = 2,257 CDF.

health) in the reference year accounted for 5-15% of annual expenditure. Expenditure on clothing/shoes in the reference year accounted for up to 8% of annual expenditure. Expenditure on "other" items, including transportation, phone credits, festivals, etc., accounted for 10-15% of annual expenditure for the very poor wealth group.

Figure 7. Total Annual Cash Expenditure by Category



Poor households' expenditure on staple foods accounted for roughly 15-20% of annual expenditure. Expenditure on non-staple foods accounted for approximately 35-40% of annual expenditure. Purchase of household items accounted for about 10-15% of the annual expenditure. Expenditure on productive inputs by poor households was minimal at only about 3% of total expenditure. Expenditure on social services in the reference year accounted for 5-15% of annual expenditure. Expenditure on clothing/shoes accounted for 5-10% of annual expenditure. Expenditure on "other" items, including transportation, phone credits, festivals, etc., also accounted for 10-15% of annual expenditure.

Middle households spent considerably less on staple foods, at just 3%, reflecting their greater reliance on their own crop production. However, non-food purchases still accounted for 35-40% of their total expenditure, indicating that they continued to purchase a variety of items to complement their diet. Purchases of household items accounted for about 10-15% of the annual expenditure. Middle households invested more in agricultural inputs, spending 5-15% of their budget on seeds, tools, and other inputs to boost productivity. Expenditure on social services in the reference year accounted for 5-15% of annual expenditure. Expenditure on clothing/shoes accounted for 5-10% of annual expenditure. Expenditure on "other" items, including transportation, phone credits, festivals, etc., also accounted for 15-20% of annual expenditure.

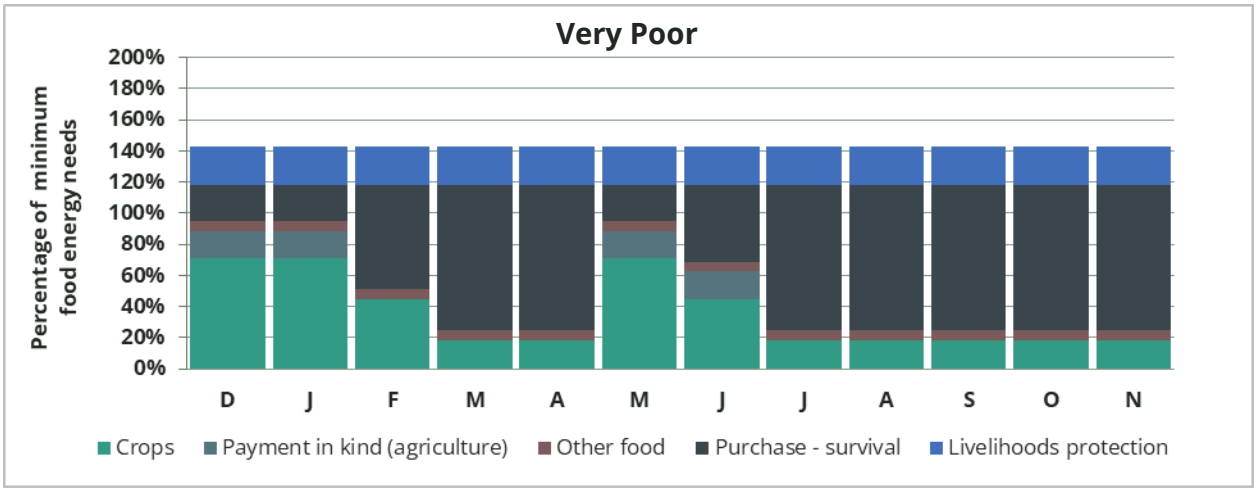
Better-off households spent the least on staple foods, allocating just 2% of their budget to this category, as they relied almost entirely on their own crop production. However, they still spent ~30-35% on non-food purchases to vary their diet. Household items represented only 9% of their total spending. Better-off households invested the most in agricultural inputs and spent around 12% to improve their farm operations. Expenditure on education and in the reference year accounted for 5-15% of annual expenditure, and expenditure on clothing/shoes accounted for 5-10% of annual expenditure. Expenditure on "other" items, including transportation, phone credits, festivals, etc., also accounted for 25-30% of annual expenditure.

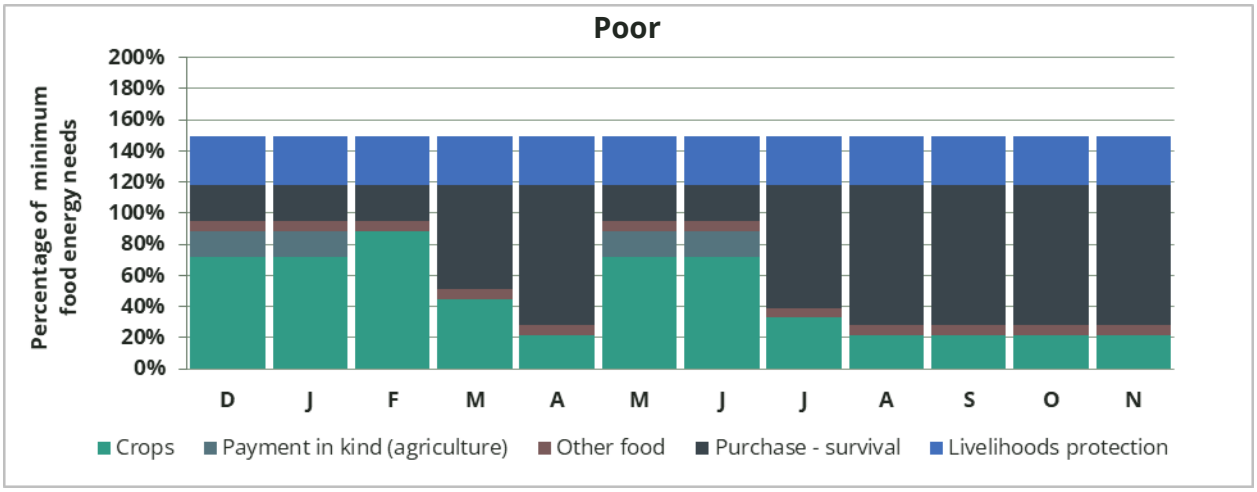
Food Access Calendars

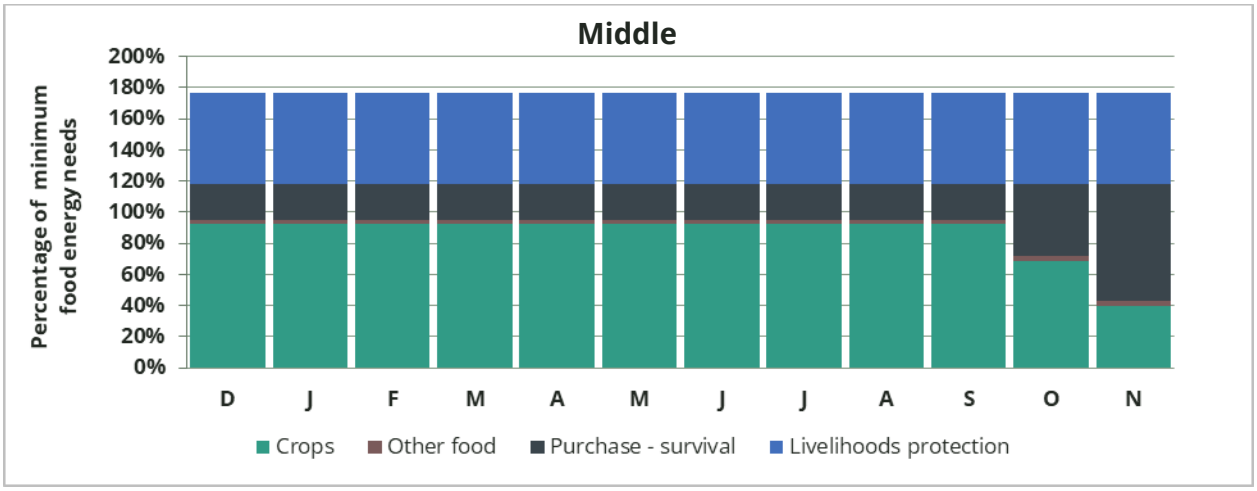
The graphs in Figure 8 present monthly food and cash access calendars for the four wealth groups.

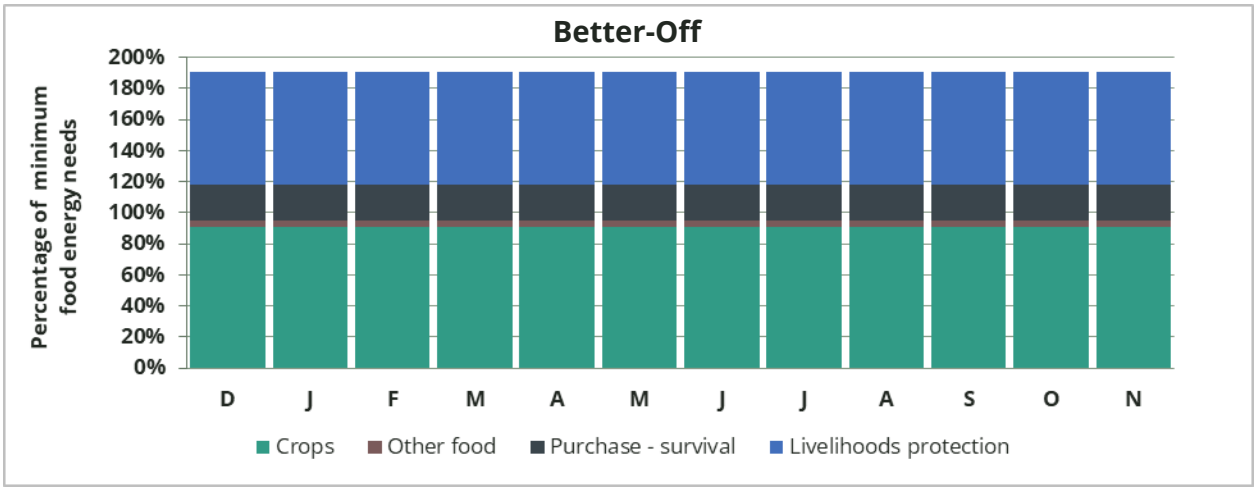
Households in all wealth groups were able to meet their survival and livelihoods protection thresholds year-round in the reference year. The main harvest period in this livelihood zone started in December and the second harvest period started in May. Very poor and poor households obtained some food from payment in-kind for casual agricultural labor (in teal) during the main harvest months. Very poor and poor households rely on market purchases to meet their needs in March to April and July to November, while middle and better off households are more self-sufficient from their own production. The dark blue "livelihoods protection" sections of the bars increase as a proportion of the total with wealth because wealthier households can afford to spend more on productive inputs, health, and education.

Figure 8. Seasonal Food and Cash Access Calendars per Wealth Group









Poor Female-Headed Households

Female-headed households are found in each wealth group, as shown in the wealth breakdown (see Figure 3). The proportion of female-headed households in the poor wealth group is 20-30%. During field work, data collectors conducted in-depth interviews with poor female-headed households. Poor female-headed and poor male-headed households in CD25 engage in similar livelihoods, relying on agriculture, self-employment, labor, and livestock rearing to sustain their households. However, poor female-headed households face gender-specific challenges due to limited financial capacity and the lack of enough adult male labor to help manage crop production. This constraint often results in lower productivity and limited access to productive assets. Poor female-headed households also experience significant constraints in animal production, as they often lack the financial resources and work capacity to raise livestock effectively.

Figure 9 shows that poor female-headed households and poor male-headed households shared a similar pattern of food access in the reference year. Poor female-headed households relied slightly less on crops than their male-headed counterparts. Crops provided 40-45% of their total food,

compared to 45-55% for poor male-headed households. This difference is attributed to the smaller land holdings and limited agricultural productivity of poor female-headed households. Purchased food played a vital role for each group, but poor female-headed households spent more on non-staple foods. Staple food purchases accounted for around 25% of annual food for poor female-headed households, slightly less than male-headed households who had roughly 27% of annual food from staple purchases. Poor female-headed households purchased 20-25% of their total food in non-staple items, compared to 15-20% for poor male-headed households. Poor female-headed households received about 12% of their food through payment-in kind, typically for working during harvest periods, while poor male-headed households received slightly less, 11%. Neither group reported significant dependence on wild foods or fishing. The income picture shown in Figure 10 shows that poor male-headed households and poor female-headed households had similar sources of cash income in the reference year except for livestock product (meat) sales, construction labor, and labor migration, which only concerned poor male-headed households.

Figure 9. Sources of Food: Poor Households vs Poor Female-Headed Households

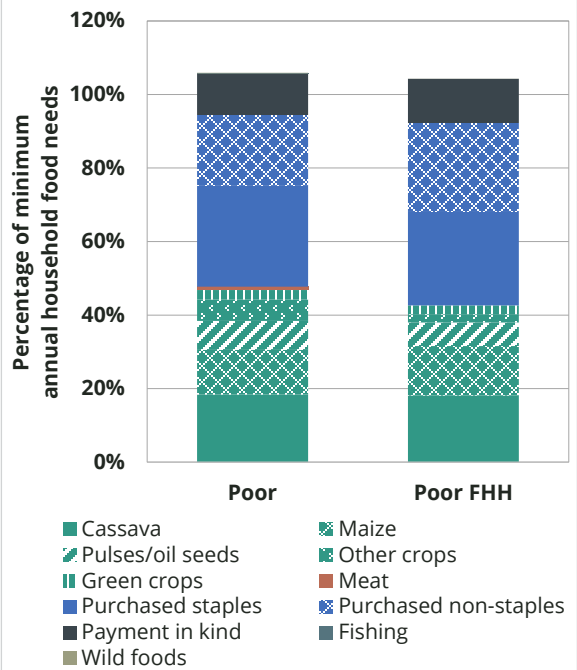
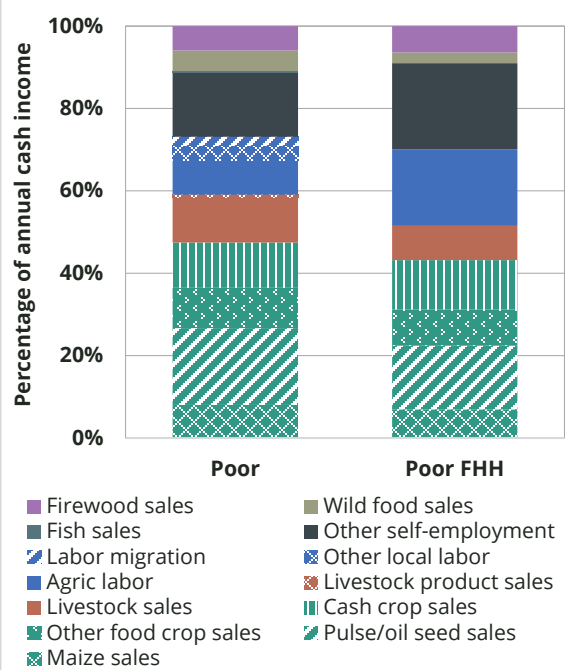


Figure 10. Sources of Cash: Poor Households vs Poor Female-Headed Households



Cash income for poor female-headed households came primarily from crop sales, which accounted for 40-45% of their total income. This amount was slightly lower than that of poor male-headed households, 45-55% of total annual income, due to smaller land holdings and limited agricultural productivity. Poor female-headed households relied more heavily on cultivation labor for income, which contributed 15-25% of their total income, compared to 5-15% for poor male-headed households. Self-employment was a vital income source for both groups, contributing 20-25% to poor female-headed households and 15-20% to poor male-headed households. Livestock sales were

a modest source of income for these groups, but poor male-headed households earned slightly more from this source, 10-15%, compared to poor female-headed households, 5-10%. Wild foods sales contributed only about 3% to poor female-headed households' income compared to roughly 5% for poor male-headed households.

Response Strategies

In response to hazards and years with lean production, households attempt to meet their minimum food needs and cash requirements through several strategies. Responses implemented tend to vary across wealth groups though most of them tend to be similar. Below are some common strategies employed by households.

Households from all wealth groups try to reduce expenditures on non-essential or more expensive items first, like cutting down on festival costs or not buying clothes or utensils that year. Households consume more cassava, which is the least expensive staple (and the most likely to resist rainfall problems).

Very Poor and Poor Households

Very poor and poor households try to increase cash income by intensifying casual labor activities. However, in lean years, as increasing numbers of people flood the labor market, this option quickly loses its value because wage rates drop, and jobs are harder to find. Poorer households also intensify self-employment activities, like petty trade and brewing. The consumption and sale of wild foods also increase. Poor households have additional household members migrating in bad years to look for casual labor and/or increase the duration of stay for those migrating in search of casual labor.

Middle and Better-Off Households

Middle and better-off households cope with hazards differently than poorer households. Wealthier households sell additional livestock to cover basic food and non-food expenses in bad years. They also increase self-employment activities, such as trade, motorcycle taxi, and gold and diamond sales. They have additional household members who migrate for work in lean years to look for casual labor and/or increase the duration of stay for those who migrate.

Key Parameters for Monitoring

The key parameters listed in Table 5 are food and income sources that make a substantial contribution to the household economy in the *Intensive Staples Production with Artisanal Mining Livelihood Zone*. These should be monitored to track potential losses or gains to local household economies through ongoing monitoring systems or periodic assessments.

Table 5. Key Parameters for Monitoring

Item	Key Parameter – Quantity	Key Parameter – Price
Crop production	• Cassava – quantity produced • Maize Seasons A and B – quantity produced • Groundnuts Seasons A and B – quantity produced • Cowpeas – quantity produced • Bambara nuts – quantity produced • Palm oil sales – quantity produced • Rice – quantity produced • Vegetables – quantity produced • Chilies – quantity produced	• Cassava – producer price • Maize Seasons A and B – producer price • Groundnuts Seasons A and B – producer price • Cowpeas – producer price • Bambara nuts – producer price • Palm oil sales – producer price • Rice – producer price • Vegetables – producer price • Chilies – producer price
Livestock production	• Pigs – herd size • Cattle – herd size • Goats – herd size • Sheep – herd size	• Pigs – producer price • Cattle – producer price • Goats – producer price • Sheep – producer price
Other food and cash income	• Wild foods – amount collected • Cultivation labor – number of days worked • Harvest labor – number of days worked • Construction labor – number of days worked • Migration labor – number of days worked • Charcoal/firewood sales – quantity sold • Self-employment (brewing, prepared food sales) – demand • Petty trade – demand	• Wild foods – producer price • Cultivation labor – wage rates • Harvest labor – wage rates • Construction labor – wage rates • Migration labor – wage rates • Charcoal/firewood – producer price • Self-employment (brewing, prepared food sales) – producer price • Petty trade – daily earnings
Expenditure		• Cassava – consumer price • Maize flour – consumer price

CD26 Livelihood Zone

Reference Year: January 2023-December 2023

High Food Crop Production and Trading Livelihood Zone



Figure 1. CD26 Livelihood Zone Map

Summary: The *High Food Crop Production and Trading Livelihood Zone* (CD26) is an agricultural zone that covers Lubao Territory and a small part of Kabinda Territory in Lomami Province in the south-central to southeastern part of the Democratic Republic of the Congo (DRC). The climate in the zone is tropical humid, with annual average temperatures ranging from 17°C to 30°C, a relative humidity of about 70%, and rainfall between 800 and 1,500 millimeters (mm) per year. The key economic activities include selling surplus agricultural produce, livestock, and trade. The main sources of food for households were their own crops and market purchases. Very poor and poor households relied on labor payments as an additional source of food and cash income. Middle and better-off households have additional income from tobacco, a cash crop in this zone.

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Zone Description

The *High Food Crop Production and Trading Livelihood Zone* (CD26)[1] is an agricultural zone that covers Lubao Territory and a small part of Kabinda Territory in Lomami Province in the south-central to southeastern part of the DRC. The main livelihoods for households in this zone include crop production, livestock rearing, labor in agriculture and construction, and trade. In the reference year (January through December 2023), these activities were complemented by fish farming, fishing in local rivers, wild foods collecting, and other forms of self-employment.

This zone experiences a tropical humid climate. Average temperatures generally range from 22°C to 26°C throughout the year. The cooler months, May through August, typically see daytime temperatures from 20°C to 25°C; nighttime temperatures range from 15°C to 18°C. The hottest months are often September and March, with daytime temperatures occasionally reaching 32°C. Relative humidity is around 70%, and annual rainfall ranges between 800 to 1,500 mm.

The zone has a diverse topography, including mountains, plateaus, and riverside areas. Notably, the Lubao Plateau, a broad and gently rolling area that dominates much of Lubao Territory, is extensively used for agriculture, particularly cultivating staple crops like cassava. The vegetation predominantly consists of large grassy savannahs dominated by tall grasses. Additionally, the zone features forest galleries and remnants of forests, with an extension of the equatorial forest present to the northeast. CD26 is partially home to Lomami National Park, established to protect the rich biodiversity in this part of the country. The park is known for conserving forest ecosystems and protecting species such as bonobos (*Pan paniscus*), forest elephants (*Loxodonta cyclotis*), and okapi (*Okapia johnstoni*).

The main mountains include Kambala, Kasuima, Kaululu, Neulu, Ngulu-Lusala, and Solo. The main rivers in the zone include the Lomami River and its tributaries: Dimbi, Edimayi, Kaongue, Laa, Lufubu, Lukashiyi, and Lumba. These tributaries are seasonal, contributing to the flow of the larger Lomami River. In contrast, the Lomami River is a permanent waterway, flowing year-round and serving as a significant river in the country.

Several key roads connect various locations service this zone. These roads include the routes from Lubao to Kashiyi, Lubao to Kidimi, and Lubao to Kisengua. Another important road extends from Lubao through Kasuima to Kafuma. In the Tshofa area, there are roads leading to Kabuekakele, Ngando, Kitenge Ngungi, and Basanga. Additionally, a key route connects Kimabue to Kisengua. The road from Kasonguele through Kampis to Lualaba also plays a vital role in connectivity in the zone.

[1] Fieldwork for the current profile was undertaken from June 22 to July 13, 2024. The information in this profile pertains to the reference year, which was the consumption year that covered the period of January to December 2023. If no fundamental and rapid shifts in the economy occur, the information in this profile is expected to remain valid for five to 10 years (i.e., until 2028-2033). All prices in the document are for the reference year.

Lubao and Kabinda are the key urban centers within this zone. The population of CD26 is 3,723,112, with an average population density of about 105 people per square kilometer.[2]

This livelihood zone is characterized by high agricultural productivity, supported by sandy-clay soils suitable for crop production. The zone is recognized as a food surplus zone with moderately productive agricultural potential. Key crops include maize and cassava. Maize is grown during two Rainy Seasons, with Season A being the most important. Cassava is cultivated in one season but lasts for a year. Other significant crops are groundnuts, grown in two Rainy Seasons; rice in lowlands and wetlands during Season B; and cowpeas cultivated during Season A. Groundnuts, cowpeas, cassava, and maize are always grown together, forming a mixed cropping system that enhances soil fertility and reduces pest infestation. In contrast, rice is cultivated individually, likely due to its specific water and farming requirements. Tobacco is an annual cash crop. Palm trees and bananas are perennial crops. Households from all wealth groups collect palm nuts from their own plantations, neighbor's plantations, or from the wild and process it into palm oil, which is consumed and sold. Bananas and tobacco are typically sold by wealthier households. Households in this zone cultivate various leafy vegetables, including amaranth. Poorer households in the zone sell cassava leaves, and poor female-headed households also sell amaranth leaves.

Agricultural practices in the zone rely heavily on manual labor; hand digging is the primary method for soil preparation. This method is consistent across wealth groups, with no significant variation between poorer and wealthier households. The most labor-intensive activities in crop production include land preparation, weeding, and harvesting. To manage these tasks, middle and better-off households often hire local labor, typically paying in cash or in kind, such as maize for sowing and weeding or rice for harvesting. In terms of labor division, men and women participate in similar agricultural tasks, including land preparation, sowing, weeding, harvesting, threshing, and storage. The use of labor is common, with middle and better-off households frequently hiring poorer or female-headed households for essential farming activities. No households use agricultural inputs, reflecting a traditional approach to farming. Part of the produce is sold. This activity typically involves storing produce and reselling it during the Lean Season to maximize profits. Crop storage methods vary. Some households store crops in open rooms, bagged and covered with mosquito nets. Others use attics or 25-liter cans. Additionally, some have constructed ceiling fittings for storage. There are no farmers' cooperatives in this zone.

Livestock production centers around rearing goats, sheep, pigs, and poultry. Goats and sheep are typically fed on open pastures, grazing on grass and brush. Pig owners feed them cassava leaves and household waste. Most households do not purchase feed for their livestock, except a few middle and better-off households that pay for salt for their animals. Water for livestock is sourced from open wells, rivers, streams, and ponds during the Rainy and Dry Seasons, and there is no payment required for this water. Households sell animals, and selling prices vary by wealth group, with middle and better-off households fetching higher prices due to better-maintained and plumper

[2] FEWS NET Data Explorer, population data (2023), accessed 2025, https://fdw.fews.net/data-explorer/.

animals. Meat is the primary livestock product sold in CD26. Households occasionally purchase animals, often to replace those that have been sold. This practice is common among households that sell a large animal to buy a smaller one at an affordable price to raise it. When it comes to livestock breeding, households rely on peak birth months, a traditional approach to livestock management.

In addition to crop and livestock production, trade is a significant economic activity in the zone. Households from all wealth groups engage in some form of trade. Some households collect foodstuffs and transport them to larger markets for sale. Other households purchase consumables to resell in their communities.

Construction work in the zone primarily takes place within the villages. This work is typically conducted under contracts and carried out by men from very poor and poor households. Additionally, some better-off households outside the zone maintain plots of land in this zone and rely on local labor to manage farm-related construction tasks.

Fish farming, a year-round activity primarily undertaken by men, involves raising fish in ponds and selling them once they reach maturity. This practice is specific to middle and better-off households. During fish harvesting, household members may partially or fully drain the water from the pond to concentrate the fish in a smaller area, making them easier to collect. Before or during the draining process, nets, including mosquito nets, are often used to catch fish. River fishing in this livelihood zone primarily takes place in the Lomami River and its tributaries. Hooks and nets are the main tools used by households from all wealth groups. Hooks are important for fishing in this zone because they are affordable. Nets are more expensive than hooks and predominantly used by wealthier households.

Within the category of wild foods, hunting is widely practiced by households from all wealth groups, except for poor female-headed households. Mushroom picking is particularly common among poorer households.

Other forms of self-employment as a source of income include brickmaking, which poorer households practice, and motorcycle transportation, which better-off households typically perform.

The *High Food Crop Production and Trading Livelihood Zone* experiences several hazards that affect its economy and livelihoods. The main hazards consist in crop pests, livestock diseases, and market access problems. The main crop disease is the fall armyworm on maize — a significant issue every two years. The main livestock diseases, particularly swine fever in pigs and *peste des petits ruminants* in goats and sheep, pose a significant risk to households from all wealth groups every three years. Market access is a problem in this livelihood zone every year. Occasional floods can also affect households' livelihoods in some years. Other risks include human disease outbreaks, especially malaria, acute respiratory infections, and typhoid fever, highlighting the ongoing public health challenges in the zone and necessitating continuous efforts in healthcare provision, sanitation improvement, and disease prevention.

Households face diverse challenges to accessing basic services. Households from all wealth groups obtain water for drinking from open wells and rivers. Water for other uses is sourced from wells, rain, streams, rivers, and ponds. Importantly, water is free across the zone, with no payment required for its use. Households from all wealth groups use open defecation, straw or twig toilets, and do not have adequate landfill facilities. However, some middle and better-off households have access to better sanitation facilities, including brick toilets. Poorer households dispose of waste by throwing it in the bush. Some wealthier households have dumps for waste; others also throw it in the bush. Households have access to healthcare through traditional medicine, health centers, and health posts, but middle and better-off households also have access to hospitals. Lighting and cooking fuel further illustrate the gap between these groups. Poorer households mainly use traditional lamps for lighting and firewood for cooking fuel, whereas wealthier households use battery and solar lamps for lighting and charcoal in addition to firewood for cooking.

Communication technology also reflects differences in household wealth, with some very poor and poor households not owning mobile phones at all and others having basic voice-only phones. Middle and better-off households, however, generally have access to both voice and data services. Education levels vary with wealth, with the typical maximum education level for members of poorer households being primary or secondary school; members of wealthier households often attain secondary and university educations. Regarding financial practices, borrowing money is not a widespread practice in this zone, with access to credit being limited. Only a few very poor households occasionally obtain loans, and when they do, these loans are typically repaid after the harvest. In general, households avoid taking out credit, preferring to save money at home or through mobile money deposits. Remittances from other households or family members, whether within or outside the zone, are not typical, further limiting financial support options for households in this livelihood zone.

Markets

In the *High Food Crop Production and Trading Livelihood Zone*, market access is highly challenging due to the poor infrastructure and remoteness from major urban centers. In the Dry Season, access is difficult due to the poor condition of the dirt roads and informal tracks that serve the zone. During the rainy season, road access within the livelihood zone becomes completely impassable, making transportation of goods and movement of people extremely difficult. The overall condition of the roads is very bad, contributing to significant barriers to trade and market access. Additionally, the availability and condition of bridges in the zone are inadequate. For instance, there is no bridge from Kabinda; instead, people must cross the river using a pirogue (a small, narrow boat), further complicating access. All these factors severely hinder economic activities, particularly trade, compromising the livelihoods of the local population.

For crops, very poor and poor households typically sell their produce immediately after harvest, when market prices are at their lowest. In contrast, middle and better off households often wait to sell their crops until the Lean Season, when prices are higher, thus maximizing their profits. Notably,

some poor households in this zone also retain fresh cassava to sell during periods of low market availability, thereby securing prices comparable to those achieved by middle and better-off households. In terms of livestock, middle and better-off households have better livestock management practices, which result in healthier and more valuable animals. These animals command higher prices in the market compared to those from the very poor and poor households.

Household wealth groups also exhibit disparities in hunting. Poorer households generally lack tools, which limits these households to hunting smaller animals. Meanwhile, better-off households possess the necessary equipment to hunt larger animals, leading to higher prices for their game. Household wealth groups show a similar pattern in fishing. Very poor and poor households typically use hooks, restricting them to catching smaller fish. In contrast, middle and better-off households use nets, enabling them to catch larger fish that can be sold at higher prices.

Local and surrounding villages and markets of the main cities inside the livelihood zone trade crops and livestock. Trade routes are essential for moving agricultural products and livestock from surrounding villages to various markets. The main crops sold include cassava, maize, groundnuts, rice, and cowpeas. Cassava is primarily traded from surrounding villages to Lubao, with peak sales occurring from June to December. Maize follows a trade route from the surrounding villages through Lubao to Kasai-Oriental, with peak sales from July to November. Groundnuts follow a route from the villages to Lubao, Mbuji-Mayi, and even Bukavu, with sales peaking from June to December. Rice and cowpeas also follow a similar route to Kasai-Oriental, with peak sales from July to December. Goats, sheep, and pigs are the main animals sold in CD26. Households transport goats and sheep to Kasai-Oriental and Maniema, with peak sales occurring in December. Pigs are mainly sold in Maniema, also peaking in December. Households typically purchase cassava, a staple food, from local markets in December. Maize, another staple crop, is sourced from Tanganyika, Lubao, and local markets, with peak buying between September and November.

The labor market mostly centers around local rural areas, where local households perform 90-95% of casual work. Households perform only a small portion, about 1%, of casual work in local towns and 5-10% outside the zone. When people seek work outside the zone, they typically move to quarry areas like Bikengue, Salamabile, and Tanganyika in Tanganyika Province, as well as to larger urban centers such as Lubumbashi in Haut-Katanga Province and Mbuji-Mayi in Kasai-Oriental Province. Migration for work is primarily undertaken by men, and this pattern remains consistent even during difficult years. Men leave the zone to work every year, particularly during the months of June and July. There is no significant labor migration into the zone.

Timeline and Reference Year

The baseline assessment refers to a specific period called the reference year. In the *High Food Crop Production and Trading Livelihood Zone,* the reference year covers the consumption period from January to December 2023. During community leader interviews, informants were asked to score

the last five years in terms of seasonal performance, with "1" indicating a poor season and "5" indicating an excellent season. Table 1 summarizes the response of the community leaders.

Table 1. Timeline

Production Year/ Season	Score	Critical Events
2024/Season B 2023-2024/Season A	1 1	Extreme weather events. Abnormal flooding disrupted agricultural activities in Season A. Some households adapted by planting rice in the lowlands. In Season B, early cessation of rains led to substantial losses in crop production, leaving the community with no effective coping strategies.
2023/Season B 2022-2023/Season A	3 3	Seasons A and B experienced good rainfall, which led to strong crop yields, average income levels, and stable human and animal health.
2022/Season B 2021-2022/Season A	4 4	Excellent agricultural outcomes, with very good yields in both seasons and affordable food prices.
2021/Season B 2020-2021/Season A	2 2	Good rainfall in some communities. Spread of animal diseases negatively affected households. The uneven distribution of rainfall caused difficulties, and households did not implement significant coping strategies.
2020/Season B 2019-2020/Season A	3 3	Stable conditions in both seasons, with good rainfall leading to average crop yields, income, and health outcomes for both humans and animals.

5 = Excellent season for household food security (e.g., due to good rains, prices, crop yields)
4 = Good season or above average season for household food security
3 = Average season for household food security
2 = Below average season for household food security
1 = Poor season for household food security (e.g., due to drought, flooding, livestock disease, pest attack)

Note: Production year refers to the farming year, usually beginning with the start of the main rains.

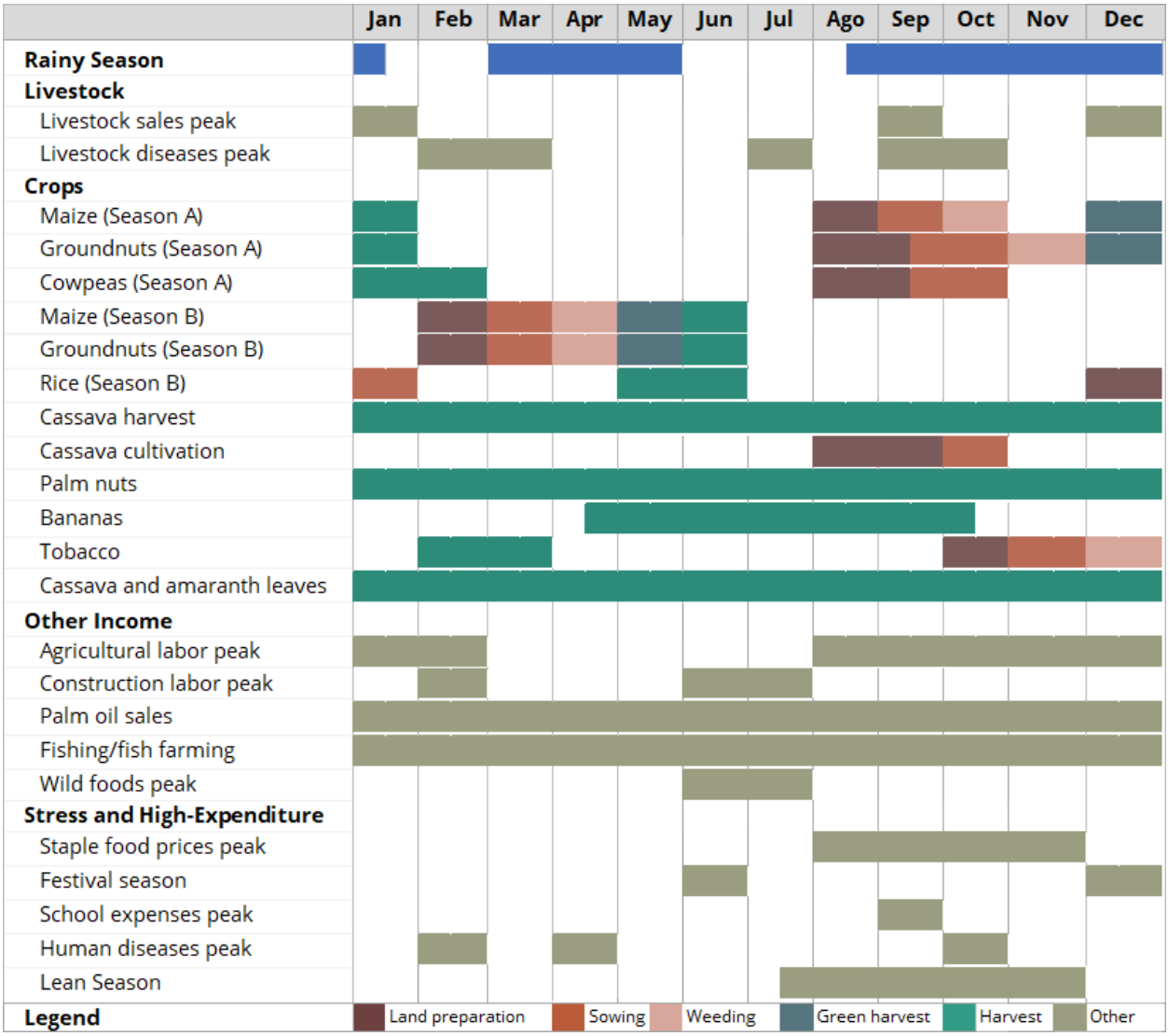
Key informants ranked Seasons A and B of 2020 and the reference period as "3" (average) in terms of household food security. The reference year was characterized as a normal year for crop production. Favorable distribution of rainfall in terms of timing and geography largely contributed to average crop yields across Seasons A and B. The stable weather conditions contributed to consistent crop production, with affordable market prices for agricultural goods. Moreover, the absence of significant human or animal diseases contributed to the steady agricultural output. There were no conflicts or abnormal migrations among the population, which helped maintain a stable environment for agricultural activities. Household food security in CD26 was worst in 2021 and 2024. In Season A of 2024, flooding disrupted agricultural activities, and in Season B of 2024, an early cessation of rains resulted in substantial agricultural losses, making it the most challenging year

overall. Households also experienced difficulties in 2021, though not as severe as 2024. The best year for household food security over the past five years was 2022, which was characterized by favorable weather conditions, consistent rainfall, and the absence of significant health or social disruptions, making it a year of prosperity for the agricultural sector in the livelihood zone.

Seasonal Calendar for Reference Year

The seasonal calendar (see Figure 2) illustrates the main economic activities and events of the reference year. It traces the rainy months, livestock activities, agricultural activities, other important income activities periods, and stress and high expenditure periods.

Figure 2. Seasonal Calendar



In the *High Food Crop Production and Trading Livelihood Zone*, the Rainy Seasons typically follow a bimodal pattern, which is crucial for rainfed agriculture and livestock rearing. The first Rainy Season

starts in mid-August and ends in mid-January. This season marks the beginning of agricultural Season A. The second Rainy Season starts in March and ends in May, supporting the second planting in Season B. Land preparation for the main crop, cassava, starts in August and ends in September, followed by the planting of seedlings in October. Cassava is stored in the field, and harvests can occur at any time of year. Maize is cultivated in two seasons. During Season A, the main season, farmers prepare land for maize in August; sowing occurs in September, weeding in October, and harvesting in January. Season B starts with land preparation in February; sowing is in March, weeding in April, and harvesting in June. Farmers also cultivate groundnuts in two seasons. In Season A, the main season, farmers prepare land for groundnuts from August to September; sowing is in September extending to October, weeding in November, and harvesting in January. Land preparation for Season B occurs in February, sowing in March, weeding in April, and harvesting in June. In Season A, green consumption for groundnuts and maize occurs in December, and in Season B, green consumption for the same crops happens in May. The main harvest for cowpeas occurs from January to February.

Households in this zone take advantage of the natural lowland terrain to cultivate rice. Land preparation for rice cultivation occurs in December, with sowing in January and harvesting in May to June. Tobacco is a cash crop primarily cultivated by wealthier households in this zone. Land preparation for tobacco planting occurs in October, followed by sowing in November and weeding in December. The removal of the first buds (“topping”) and old leaves (“priming”) is usually done later in the growing season, closer to the harvest period, to focus the plant’s energy on producing larger, higher-quality leaves. Harvesting then takes place from February to March. Tobacco sales are spread throughout the year. Banana and palm trees are perennial crops. The main harvesting period for bananas starts in April and May and extends until September, whereas palm tree production continues throughout the year. The consumption and sale of cassava leaves and amaranth leaves are typical for households in this zone and can occur throughout the year.

The success or failure of livestock keeping largely depends on the outcome of the Rainy Season. During this period, the availability of surface water and pasture for livestock improves, leading to increased reproduction and productivity. Gestation periods are 5-6 months for small ruminants (goats and sheep) and almost four months for pigs. Goats, sheep, and pigs are mostly sold in December and January, coinciding with the festive season, and in September as households prepare for the school year. Animal slaughter, primarily involving pigs and small ruminants, typically occurs in September, December, and January.

Fish farming is a year-round activity, with stocking usually taking place between August and September and sales occurring in February. River fishing generally occurs throughout the year, but the most active periods are often aligned with the Rainy Season. Agricultural labor is most intensive from August to February. Construction activities primarily occur between June and July (the Dry Season), with the peak period for hunting and mushroom picking also falling in June and July.

Livestock disease outbreaks typically occur in February, March, July, September, and October, whereas human disease outbreaks generally occur in February, April, and October. The Lean Season, the most challenging period in terms of food access, begins in mid-July and extends to November. During this time, food stocks are depleted, particularly for poorer households, and food prices are high.

Table 2 outlines the typical division of labor, distinguishing between shared and non-shared tasks. Shared tasks among men, women, boys, and girls include land preparation, planting, sowing, weeding, harvesting, threshing, crop sales (for most crops except tobacco), petty trade, and wild foods collection and sales (men in hunting and game meat sales and women in mushroom picking and sales). Tobacco production is exclusively managed by men, who oversee the cultivation, maintenance, harvesting, and crop sales. Men are also primarily responsible for various other tasks, including those related to livestock, such as caring for pigs and small ruminants, and managing livestock sales; however, poultry care is considered women's responsibility. Additionally, men handle house building and maintenance, bird scaring, construction and brickmaking, transport using motorcycles, fishing, and fish farming. Typically, women are solely responsible for most household chores, including water collection, cooking, feeding small children, laundry, and firewood collection. They are also involved in palm oil processing and sales.

Table 2. Typical Division of Household Labor

Shared Tasks	Women's Tasks	Men's Tasks
• Land preparation, planting, sowing, weeding, harvesting, and threshing • Crops sales • Petty trade • Wild foods collection and sales	• Livestock-related tasks for poultry • Household chores • Palm oil processing and sales	• Tobacco production and sales • Livestock-related tasks for pigs and small ruminants • Livestock sales • House building and maintenance • Bird scaring • Construction and brickmaking labor • Motorcycle transport business • Fishing and fish farming

Wealth Breakdown and Productive Assets

Table 3 summarizes the types and numbers of productive assets that typical households within each wealth group own or manage. Asset holdings are shown in a range that reflects the diversity of households' situations within a wealth group.

Wealth distribution in the zone is determined by several key factors, including the amount of cultivable land, labor availability, the number of livestock owned, and the possession of other productive assets, such as bicycles, motorcycles, and fishing equipment. Wealthier (i.e., middle and better-off) households typically own and cultivate more land and have more labor, greater numbers of livestock, and more productive assets compared to poorer (i.e., very poor and poor) households.

Access to land varies significantly among wealth groups, with wealthier households owning and cultivating larger portions of land for food and cash crops. Only wealthier households tend to grow crops like bananas and tobacco. In this livelihood zone, renting land is uncommon across wealth groups. Women generally inherit land through their husbands. When a man dies, his land is divided between his wives and children if they are mature. Otherwise, women own land primarily through their husbands or fathers.

Table 3. Wealth Breakdown

Household Size and Productive Assets	Very Poor	Poor	Middle	Better-Off	Poor Female-Headed
Household size	4-6	5-9	9-12	14-16	4-6
Land owned (hectares [ha])	0.5-1	1-1.5	2-3	4-6	0.5-1
Land cultivated (ha)	0.5-1	1-1.5	2-3	4-6	0.5-1
Land cultivated – food crops (ha)	0.25-0.75	0.5-1	1-2	2-4	0.25-0.5
Land cultivated – cash crops (ha)	0-0.5	0.25-0.75	0.75-1.25	2-3	0.25-0.5
Pigs owned	0-2	0-3	3-6	5-15	0
Goats owned	0-1	1-3	3-7	10-15	0
Sheep owned	0	0-1	2-6	5-12	0
Poultry owned	2-6	4-8	6-20	20-40	2-6
Bicycles	0	0-1	1-3	3-5	0
Motorcycles	0	0	0	0-1	0
Fishing hooks	0-10	5-10	15-25	0-50	0

Crop production across all wealth groups relies on traditional manual methods, with no significant differences in the techniques used. The main constraints to crop production include difficult access to inputs and equipment, small landholdings for poorer households, and insufficient labor availability, particularly among very poor and poor households. The primary challenges for livestock production are the lack of local input stores, difficulties in market access, and the prevalence of animal diseases. There are no formal arrangements between wealth groups for agricultural or livestock production, although sporadic bartering occurs, such as exchanging two pigs for one goat or 10 pigs for a motorcycle. Women in the zone generally do not inherit livestock and mainly own poultry.

In livelihood zone CD26, land is free, and each household cultivates according to their means and available labor. During the reference year, households from all wealth groups cultivated all the land they owned. Differences in crop production were mainly in quantity, which depended on the cultivated space available to each wealth group. Middle and better-off households used advanced sowing techniques and contracting labor. With less land available, very poor and poor households primarily cultivated for consumption.

Very poor households cultivated 0.5-1.5 ha of land, with 0.25-0.75 ha dedicated to food crops and 0-0.5 ha to cash crops. Poor households cultivated 1-1.75 ha, with 0.5-1 ha allocated to food crops and 0.25-0.75 ha to cash crops. Middle households cultivated 2-3 ha, divided into 1-2 ha for food crops and 0.75-1.25 ha for cash crops. Better-off households cultivated 4-6 ha, with 2-4 ha for food crops and 2-3 ha for cash crops. Poor female-headed households cultivated 0.5-1 ha, with the land divided equally between food crops and cash crops. Land area cultivated increased progressively with wealth. Overall, better-off households cultivated seven times more land area than very poor households.

Livestock are a significant income source in this zone and an important means of investing, saving, and safeguarding against difficult years. The main types of livestock kept are goats, sheep, pigs, and poultry. Livestock provide direct access to food through meat and eggs and are a crucial source of cash income through the sale of live animals and some meat. Households from all wealth groups in this zone own livestock, with wealthier households possessing larger herds. Pigs, goats, and sheep are particularly valuable due to their high economic value and the financial security they provide to the households that own them. Wealthier households raise all types of livestock and generally have larger herds than poorer households. The herd sizes for very poor households typically include a maximum of two pigs, one goat, and 2-6 poultry. Poor households may own up to three pigs, one sheep, three goats, and eight poultry. In contrast, poor female-headed households are usually limited to own 2-6 poultry.

In terms of other asset ownership, very poor and poor female-headed households do not own bicycles. Poor households typically own a maximum of one bicycle, whereas middle households generally have 1-3 bicycles, and better-off households may own 3-5 bicycles. Some better-off households own one motorcycle.

Fishing hooks are a fundamental tool for fishing, and ownership varies with household wealth group. Very poor households typically own a maximum of 10 fishing hooks, poor households 5-10 hooks, and middle households 15-25 hooks; better-off households own up to 50 hooks.

Wealthier households have the resources to hire labor from poorer households, particularly for tasks such as land preparation, sowing, weeding, and harvesting. In contrast, poorer households possess few productive assets and primarily rely on their own labor. Household size tends to increase with wealth. Very poor and poor female-headed households typically have 4-6 members, poor households 5-9 members, middle households 9-12 members, and better-off households 14-16

members. In this livelihood zone, land is not a limiting resource, and women have land. Women cannot inherit livestock, but they can purchase it.

Figure 3. Wealth Breakdown

Note: All results are the mid-point of a range.

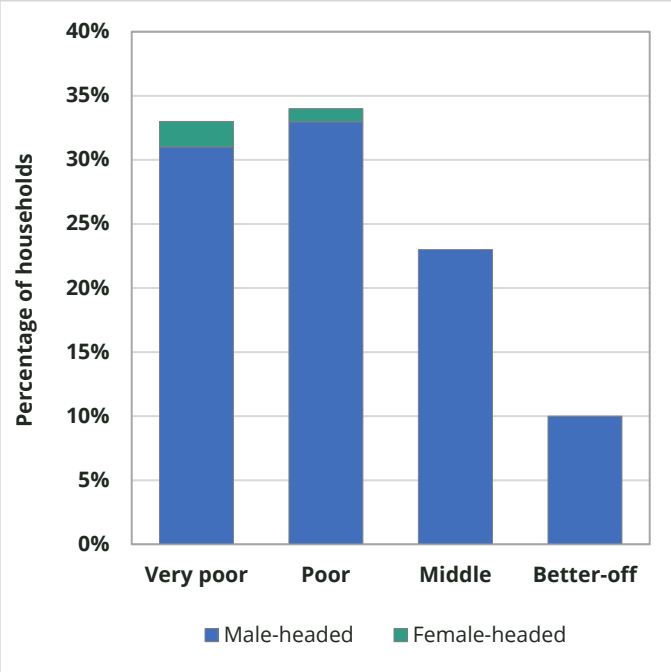


Figure 3 shows the percentage of households within the zone that falls in each wealth group. The socioeconomic categorization of households in the zone was carried out by the communities themselves. Very poor households make up 25-40% of households in the community, poor households 30-40%, middle households 20-25%, and better-off households 8-12%. The proportion of female-headed households decreases as wealth increases. In the very poor wealth group, 0-10% of households are female-headed, whereas in the poor wealth group, 0-5% are female-headed. There are no female-headed households among the wealthier households.

Sources of Food

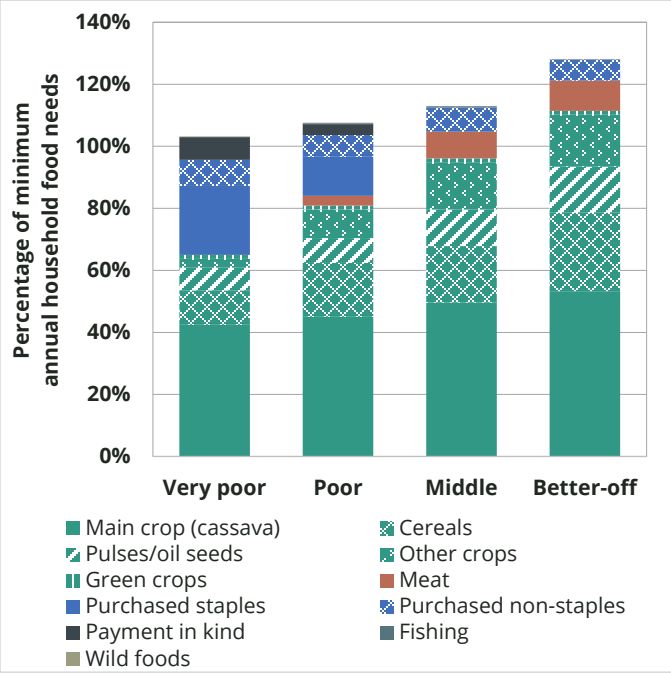
Figure 4 presents the food sources for households in different wealth groups in CD26 for the reference year. January represents the start of the consumption year because it is when the consumption of crops from the main harvest season starts. Food is presented as a percentage of the annual caloric needs of the household, based on the internationally accepted 2,100 kilocalories (kcal) per person per day. There were two main sources of food in this zone for households from all wealth groups: their own crops and market purchases. Other minor sources of food included livestock products, payment in-kind, and wild foods.

When considering total food consumption, there was a clear progressive increase in the amount of food consumed with rising wealth. Overall, very poor households consumed between 100-105% of their minimum annual food needs, poor households consumed 105-110%, middle households consumed 110-115%, and better-off households consumed 125-130%.

Crop production was the most important source of food in the livelihood zone, with households from all wealth groups relying on it for more than 60% of their minimum food needs. However, only better-off households cultivated enough to fully meet their annual consumption needs, and middle households fell slightly short of their annual requirements from their own crops. For very poor

households, crop consumption covered 60-70% of minimum annual food needs; for poor households, this figure ranged between 85-95%. Cassava was the main crop consumed by households, used in fresh, dried, and as cassava flour to prepare dishes like *fufu* and *chikwangue*. Cassava leaves were also commonly consumed and served alongside *fufu* and *chikwangue*. Very poor households obtained 40-45% of minimum annual food needs from cassava, poor households obtained 40-50%, middle households obtained 45-55%, and better-off households obtained 50-55%.

Figure 4. Sources of Food



Households from all wealth groups obtained 1-2% of minimum annual food needs from green consumption. This was obtained from groundnuts and maize cultivated in Seasons A and B. Poorer households obtained 10-20% of minimum annual food needs from cereals (maize and rice), whereas wealthier households obtained 15-20% of minimum annual food needs in this category. Pulses and oil seeds (cowpeas and groundnuts) were important sources of vegetable protein and fat. Households from all wealth groups obtained 7-15% of minimum annual food needs from these crops. Meat from households' own animals was a source of animal protein. Poor, middle, and better-off households consumed this source of food, covering 3-10% of minimum annual food needs. Other crops included bananas and palm oil. Very poor households obtained 2-4% of minimum annual food needs from this category, poor households 8-10%, middle households 10-20%, and better-off households 15-20%.

Purchased food was the second most important source of food in the livelihood zone. Purchased foods can be divided into staples and non-staples. Only poorer wealth groups purchased staple foods, including maize, rice, and cassava flour. Very poor households obtained 20-25% of minimum annual food needs from this category, and poor households obtained 10-15%. Non-staple foods included cowpeas, sugar, meat, milk, dried fish, fresh fish, palm oil, and vegetable purchases. Households from all wealth groups obtained 5-10% of minimum annual food needs from non-staple food purchases.

Payment in-kind was an important additional source of calories for poorer households. It was common for households to receive maize as payment for weeding and rice as payment for harvesting. Very poor households obtained 5-10% of their minimum annual food needs from this category, and poor households obtained 2-5%. Fishing, hunting, and mushrooms contributed less

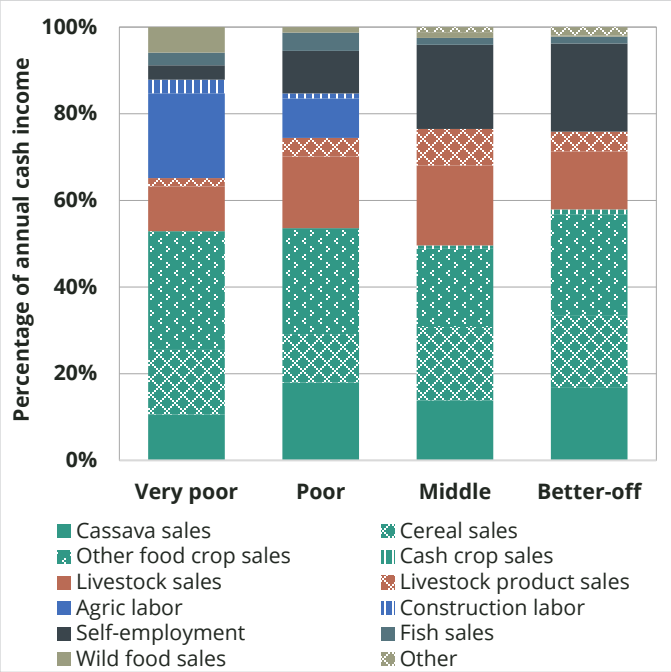
than 1% to households' annual caloric needs. There was no food aid in the livelihood zone in the reference year.

Overall, the reference year was average in terms of food security, with households from all wealth groups meeting their minimum annual food energy needs.

Sources of Cash Income

Crop production, livestock rearing, and trading were the main livelihood activities in this zone. Households in different wealth groups obtained cash income by different means (see Figure 5). Crop sales were the main income source for households from all wealth groups. Households also earned income from livestock and livestock product sales, labor (agricultural, construction, and brickmaking), self-employment activities (palm oil sales, fish farming, and petty trade), and fishing. They also generated income from the sale of wild foods, such as game meat and mushrooms, transport services, included in the "other" category.

Figure 5. Sources of Cash Income as a Percentage of Annual Cash Income



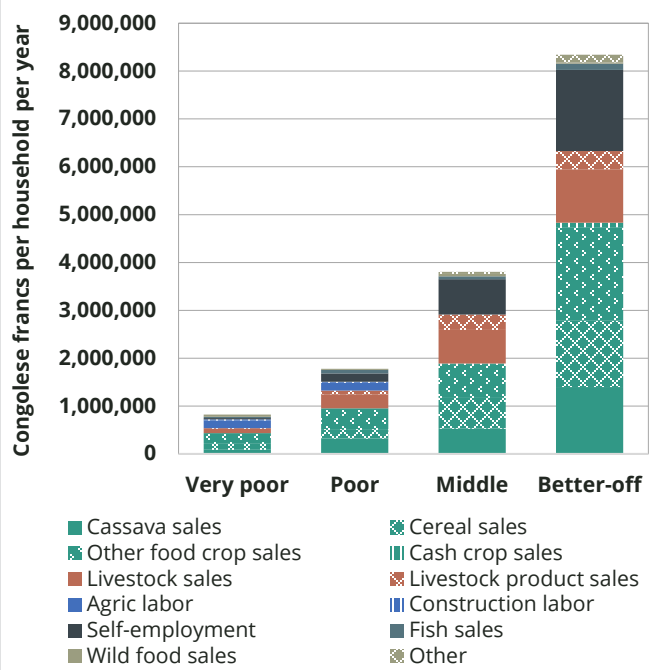
Very poor households primarily obtained income from crop sales, which accounted for 50-55% of total income. Labor payments contributed 20-25% of total income, livestock sales and product sales contributed 10-15%, wild foods and fish sales combined contributed 5-15%, and the remaining 2-5% was earned from self-employment.

Poor households generated 50-60% of their cash income from crop sales. They also earned 5-15% of their total annual cash income from labor, 15-25% from livestock and livestock product sales, 5-15% from self-employment, and 2-7% from wild foods and fish sales.

Middle households earned 45-55% of their total annual cash income from crop sales, 25-30% from livestock and livestock product sales, 15-25% from self-employment, and the remaining 2-5% from wild foods and fish sales during the reference year.

Better-off households secured 50-65% of their total annual cash income from crop sales, 15-20% from livestock sales, 20-25% from self-employment, and 1-3% from wild foods and fish sales.

Figure 6. Total Annual Cash Income



Differences between wealth groups in the absolute amount of cash income generated during the reference year were large. Figure 6 and Table 4 illustrate this gap. Better-off households earned about 10 times more cash income than very poor households. The differences between wealth groups in per capita cash income was smaller than for total income. Better-off households earned three to four times the annual per capita cash income of very poor households. There was a progressive increase in annual per capita cash income with wealth.

Table 4. Income Summary Table (Congolese Francs or CDF)

Wealth Group	Very Poor	Poor	Middle	Better-Off
Annual income per household[3]	500,000–1,100,000	1,500,000–2,200,000	3,000,000–5,000,000	7,000,000–10,000,000

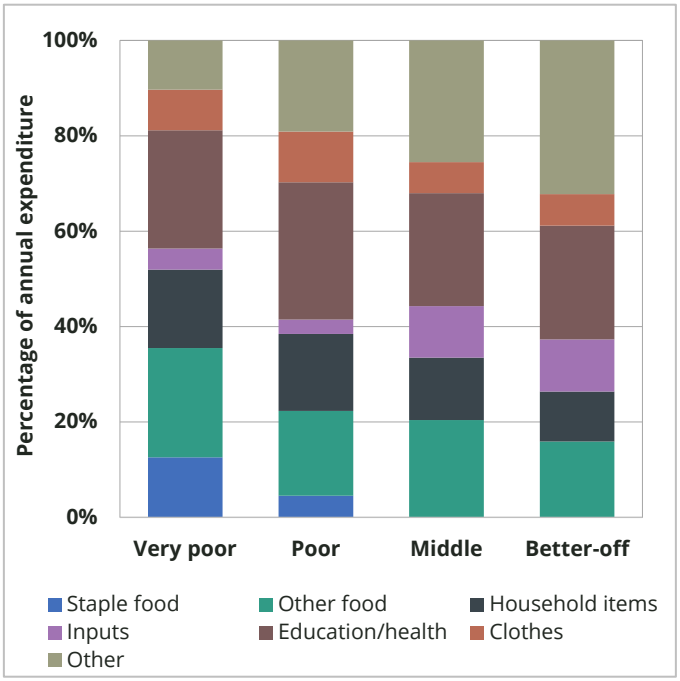
Expenditure Patterns

Figure 7 presents expenditure patterns for the reference year (January to December 2023). While absolute expenditure increases with wealth in line with total cash income, this graph's expenditure breakdown by percentage shows the *relative* amount of income spent on different categories. Households in the zone need to cover a range of essential expenditures over the year. These include staple foods, non-staple foods, household items/services (e.g., condiments including salt, soap, tea, coffee, lighting, milling), productive inputs, social services (which include health and education), clothing, transport, and other essential and non-essential items. Households did not purchase water.

Households from all wealth groups spent significant proportions of their annual incomes on staple and non-staple foods. As the Sources of Food section notes, poorer households secured between 15-40% of their annual food energy needs from food purchases, whereas wealthier households obtained 5-10% of their annual food energy needs from this source.

[3] The average exchange rate from January to December 2023 was 1 USD = 2,382 CDF.

Figure 7. Total Annual Cash Expenditure by Category



Very poor households' expenditure on staple foods accounted for 10-15% of annual expenditure in the reference year. Non-staple foods made up 20-25% of total expenditure, household items (e.g., lighting and grinding costs) 10-20%, productive inputs less than 5%, social services (health and education) 20-30%, clothing/shoes 5-15%, and other items (e.g., transportation, phone credit, festivals) 5-15%.

Poor household expenditure on staple foods accounted for about 5% of annual expenditure. Non-staple foods spending was 15-20% of total expenditure, household items 10-20%, productive inputs less than 5%, social services 25-35%, clothing/shoes 5-15%, and other 15-25%.

Middle and better-off households did not spend on staple foods. Middle households spent 15-25% of total annual expenditure on non-staple foods, 15-20% on household items, 5-15% on productive inputs, 20-30% on social services, 5-10% on clothing/shoes, and 20-30% on other items. Better-off households' expenditure on non-staple foods was 10-20% of annual expenditure, household items 5-15%, productive inputs 5-15%, social services 20-30%, clothing/shoes about 5-10%, and other items 30-35%.

Expenditure on health and education and "other" are the largest categories of expenditure for all wealth groups in the reference year, representing 30-40% of total expenditures for very poor households, 45-50% for poor households, 45-55% for middle households, and 50-60% for better off households.

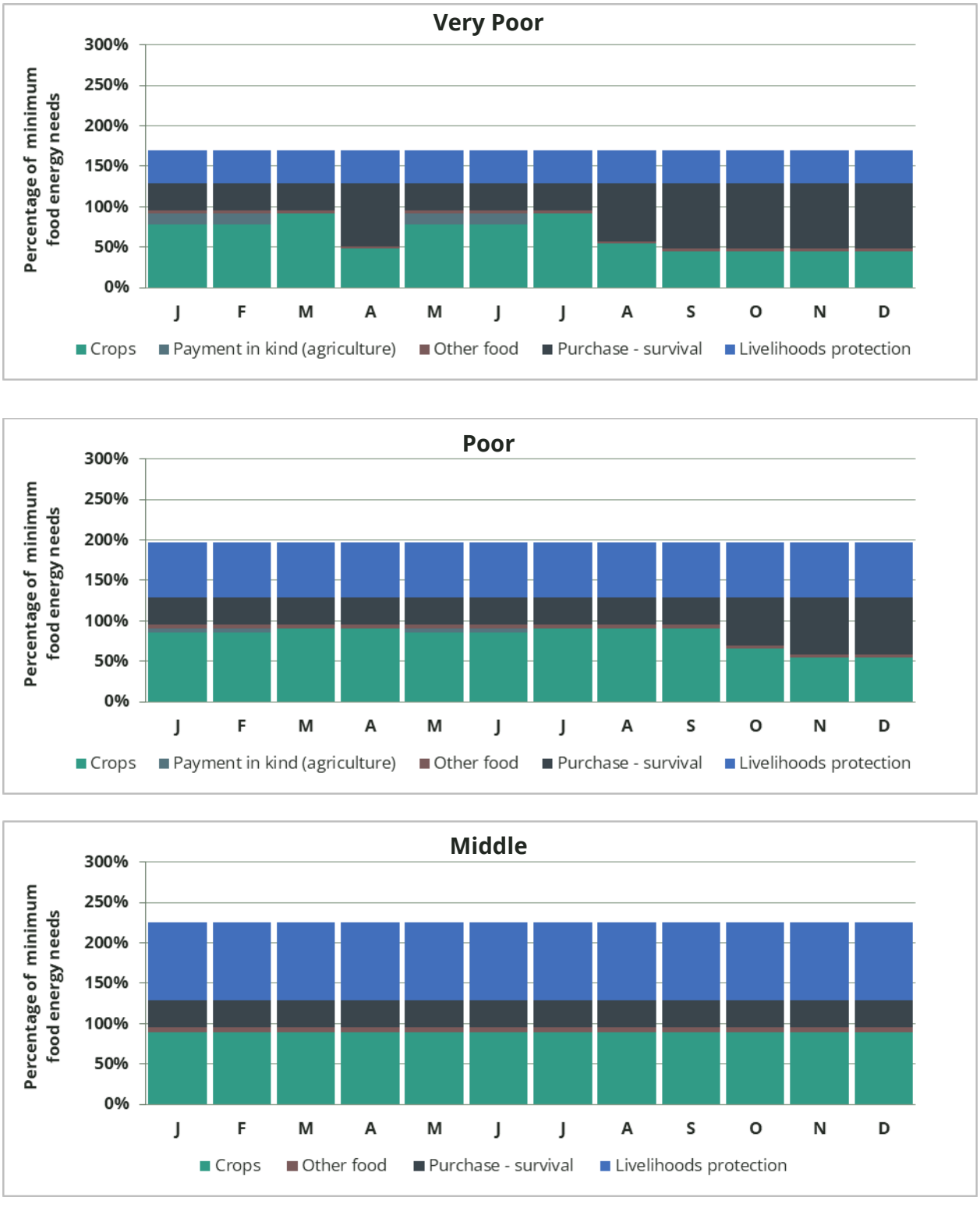
Food Access Calendars

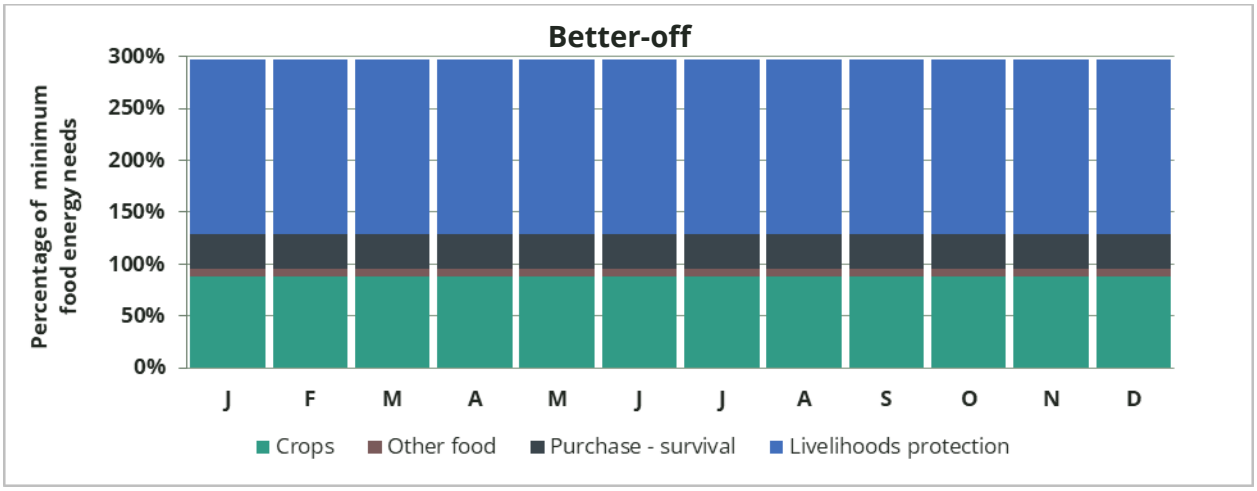
The graphs in Figure 8 present monthly food and cash access calendars for the four wealth groups.

Households in all wealth groups were able to meet their survival and livelihoods protection thresholds year-round in the reference year. The main harvest period in this livelihood zone started in January and the second harvest period started in May. Very poor households obtained some food from payment in-kind for casual agricultural labor (in teal) and relied on market purchases to meet their needs in April and from August to December, while poor, middle, and better off households are more self-sufficient from their own production. The dark blue "livelihoods protection" sections of

the bars increase as a proportion of the total with wealth because wealthier households can afford to spend more on productive inputs, health and education.

Figure 8. Seasonal Food and Cash Access Calendars per Wealth Group





Poor Female-Headed Households

Female-headed households make up a small portion of very poor and poor households, as shown in the wealth breakdown above (see Figure 3). During fieldwork, data collectors conducted in-depth interviews with poor female-headed households. In CD26, the female heads of households are widows or single mothers. Female-headed households face similar constraints and characteristics as male-headed households in the same wealth group but are further disadvantaged by a lack of adult male labor, which may lead to additional constraints on certain types of asset ownership, productive work, or income-generating activities.

Figure 9 shows that poor female-headed households and poor male-headed households share a similar pattern of food access, except for meat from their own livestock and fishing, which only concerned poor male-headed households. In the reference year, both groups met their annual minimum food needs from similar food sources, mainly their own crops and food purchases. Poor male-headed households cultivated slightly more land than the poor female-headed households and thus harvested slightly more and had slightly more calories from crop production. Other constraints faced by poor female-headed households consisted of limited access to productive assets, such as land and agricultural equipment, and less livestock — only few poultry.

Figure 10 shows that both poor female-headed households and poor male-headed households had some of the same sources of cash income in the reference year, except for livestock products sales, construction labor, and fish sales, which only concerned poor male-headed households. The main sources of cash income for poor female-headed households were, in order of importance, crop sales, agricultural labor payments, minor contributions from livestock (poultry) sales, self-employment (palm oil sales), and wild foods sales (mushrooms).

Poor female-headed households earned about half the total annual cash income of poor male-headed households in the reference year. Poor female-headed households had a smaller number of

members in the reference year (4-6) than male-headed households (5-9), but their per capita cash income was still around 50% less than poor male-headed households' per capita cash income.

Figure 9. Sources of Food: Poor Households vs Poor Female-Headed Households

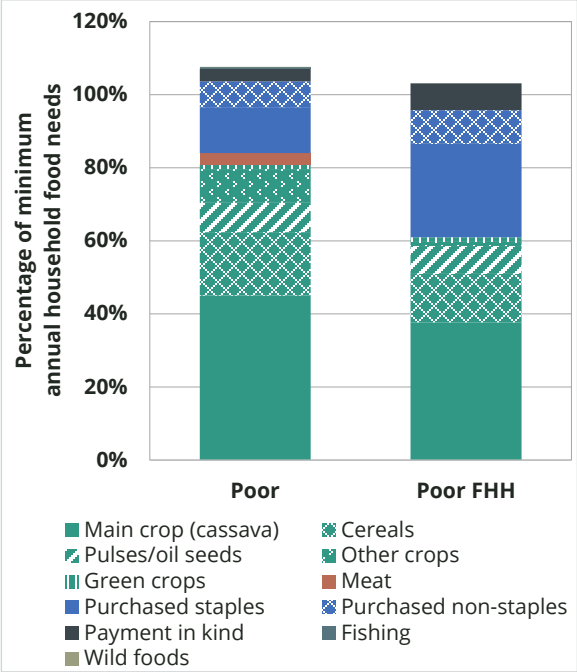
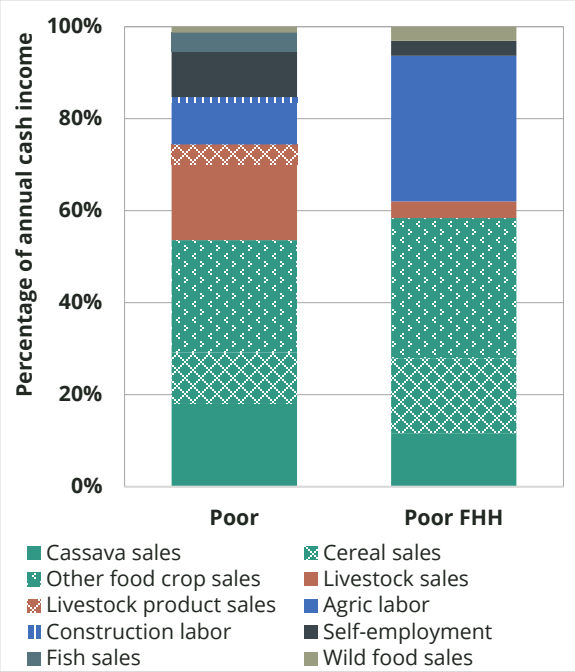


Figure 10. Sources of Cash: Poor Households vs Poor Female-Headed Households



Crop sales made up a slightly higher percentage of annual cash income for poor female-headed households (50-65%) compared to poor male-headed households (50-60%). Labor also made up a higher percentage of annual cash income for poor female-headed households (30-35%) compared to poor male-headed households (5-15%). Livestock sales made up a much smaller percentage of annual cash income for poor female-headed households (about 4%) compared poor male-headed households (more than 20%). Self-employment and wild foods each made up about 3% of total cash income for poor female-headed households, compared to approximately 10% and 5%, respectively, for poor male-headed households.

Response Strategies

In response to hazards and years with poor production, households attempt to meet their minimum food needs and cash requirements through several strategies. Below are some common strategies households employ.

All households try to reduce expenditure on non-essential or more expensive items first, such as cutting down on festival costs or not buying clothes or utensils that year. Households consume less rice and maize in favor of cassava flour, which is the cheapest staple.

Very Poor and Poor Households

Very poor and poor households try to increase cash income through the intensification of casual labor activities to earn more cash. However, in bad years, as more people flood the labor market, this option quickly loses value because wage rates drop and jobs are harder to find, pushing households to activities such as picking and transporting straw and increasing hunting.

Middle and Better-Off Households

Middle and better-off households cope with hazards differently. Middle and better-off households sell additional livestock to cover basic food and non-food expenses in bad years. They also increase self-employment activities, such as petty trade and motorcycle transport business.

Key Parameters for Monitoring

The key parameters in Table 5 are food and income sources that substantially contribute to the household economy in the *High Food Crop Production and Trading Livelihood Zone*. These should be monitored to track potential losses or gains to local household economies through ongoing monitoring systems or periodic assessments.

Table 5. Key Parameters for Monitoring

Item	Key Parameter – Quantity	Key Parameter – Price
Crop production	• Maize Seasons A and B – quantity produced • Cassava – quantity produced • Groundnuts Seasons A and B – quantity produced • Cowpeas Season A – quantity produced • Rice Season B – quantity produced	• Maize Seasons A and B – producer price • Cassava – producer price • Groundnuts Seasons A and B – producer price • Cowpeas Season A – producer price • Rice Season B – producer price
Livestock production	• Pigs – herd size • Goats – herd size • Sheep – herd size	• Pigs – producer price • Goats – producer price • Sheep – producer price
Other food and cash income	• Palm oil – quantity produced • Fishing – quantity caught • Wild foods – quantity • Cultivation labor – number of days worked • Harvest labor – number of days worked • Petty trade – demand	• Palm oil sales – producer price • Fishing – producer price • Wild foods – producer price • Cultivation labor – wage rates • Agricultural labor (harvest) – wage rates • Petty trade – daily earnings
Expenditure		• Cassava – consumer price • Palm oil sales – consumer price

CD27 Livelihood Zone

Reference Year: December 2022–November 2023

Agro-Pastoral: Staple Crops, Small Stock, and Cattle with Wild Products Livelihood Zone

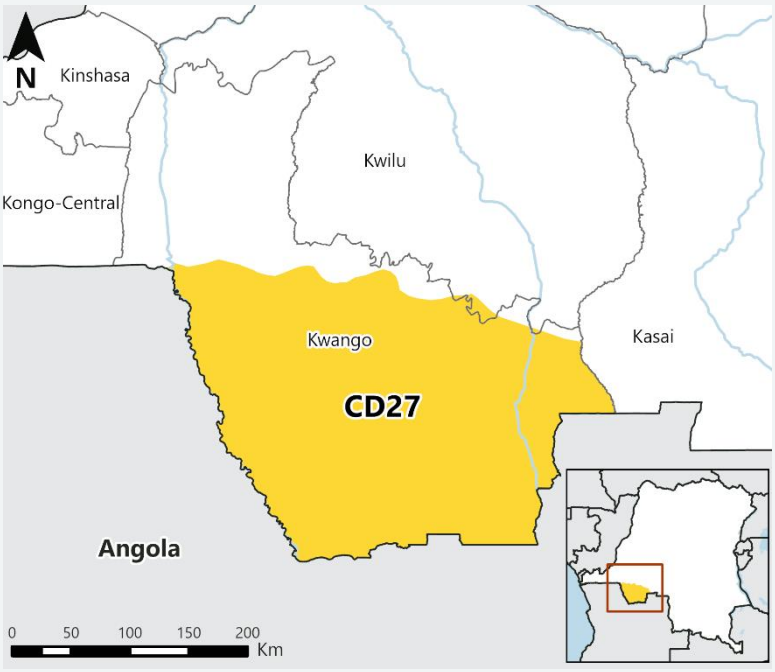


Figure 1. CD27 Livelihood Zone Map

Summary: The *Agro-Pastoral: Staple Crops, Small Stock, and Cattle with Wild Products Livelihood Zone* (CD27) is an agro-pastoral zone encompassing the territories of Kahemba, Feshi, and Kasongolunda, as well as parts of Popokabaka and Gungu, in Kwango Province, located in the southwestern part of the Democratic Republic of the Congo (DRC). The climate in the zone is tropical, characterized by relatively high temperatures throughout the year, with annual average temperatures ranging from 20°C to 35°C, a relative humidity of about 75%, and rainfall between 800 and 1,000 millimeters (mm). The key economic activities are agriculture, including selling surplus produce, livestock raising and sales, and trade. The main sources of food for households are their own crops and market purchases. Very poor and poor households rely on labor payments to pay for food. Middle and better-off households are involved in cattle rearing, but only better-off households benefit from selling cattle. Households from all wealth groups benefit from wild foods as a source of food and income.

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Zone Description

The *Agro-Pastoral: Staple Crops, Small Stock, and Cattle with Wild Products Livelihood Zone* (CD27)[1] encompasses the territories of Kahemba, Feshi, and Kasongolunda, as well as parts of Popokabaka and Gungu, in Kwango Province, located in the southwestern part of the DRC. These territories border Angola to the south and are part of the greater Kasai region.

The zone has a tropical climate, characterized by relatively high temperatures throughout the year. The hottest months, September to November, reach a daytime average of around 30°C to 35°C, while daytime averages in the cooler months, May to August, during the Dry Season, reach approximately 20°C to 25°C. The zone features high humidity, averaging around 75% in daytime. Annual rainfall ranges between 800 and 1,000 mm. The topography of the zone is diverse, consisting of plains, plateaus, valleys, and riverine areas. The natural vegetation is a mix of grassy and shrubby savannah, bushland, and small pockets of light forest. Wild foods include seasonal caterpillars and mushrooms, and firewood (often processed into charcoal) is widely exploited.

Several substantial, seasonal rivers traverse the zone including the Feshi, Kehemba, Kwenge, Kwilu, and Lutshima, which are vital for domestic use and for agriculture. Infrastructure in the zone includes the key national roads RN1, RN9, and RN37, which connect various important locations. The main towns in the zone are Kahemba, serving as a hub for administrative and economic activities; Feshi, known for local trade and agricultural activities; Kasongolunda, a key center providing services to the surrounding rural areas; Popokabaka, which plays a significant role in commerce and transportation; and Gungu, known for its agricultural markets and local industries. The population of CD27 is 1,704,471, with an average population density of approximately 27 people per square kilometer.[2]

The livelihood activities for rural households in this zone includes crop production, livestock rearing, and seasonal paid labor (local agriculture and construction). Households supplement these activities through additional sources of food and income such as fishing, wild foods gathering, migratory labor, remittances, and self-employment. Self-employment activities primarily involve the sale of charcoal and firewood as well as petty trade.

In this zone, most of the soil is sandy and low in fertility. Despite these limitations, the zone has moderate crop production, as well as further potential given the availability of unused arable land. Cassava is grown year-round under rainfed conditions, primarily for domestic consumption. Other crops cultivated by households under rainfed conditions for consumption and sale include maize, groundnuts, cowpeas, beans, Bambara nuts, and pumpkins. There are two main seasons for these

[1] Fieldwork for the current profile was undertaken from July 16 to August 08, 2024. The information presented in this profile refers to the reference year, which was the consumption year that covered the period from December 2022 to November 2023. Provided there are no fundamental and rapid shifts in the economy, the information in this profile is expected to remain valid for approximately five to 10 years (i.e., until 2028-2033). All prices referred to in the document are for the reference year.
[2] FEWS NET Data Explorer, population data (2023), accessed 2025, https://fdw.fews.net/data-explorer/.

rainfed crops: Season A runs from July to January and Season B from January to May. Amaranth, tomatoes, onions, and peppers are cultivated throughout the year using irrigation. Perennial crops, such as bananas and plantains, also contribute to the household livelihoods in this zone.

Cultivation practices in CD27 commonly involve intercropping, where households grow crops together to maximize land use and improve yields. Combinations include cassava with maize and pumpkin, and maize with groundnuts. Some crops, such as cowpeas and beans, are cultivated separately. Crop production across all wealth groups relies typically on manual labor for preparing land, planting/sowing, weeding, harvesting, and threshing. To manage these tasks, wealthier (i.e., middle and better-off) households, who hold more land, typically hire local labor, generally from poorer (i.e., very poor and poor) households, with payments made in cash or directly in food, known as payment in-kind. Despite the reliance on manual labor, households from all wealth groups in the zone typically do not uses agricultural inputs. Crops are typically stored in sacks, barrels, or on drying racks. The zone lacks farmer cooperatives, meaning that farmers do not benefit from the collective resources and support that such organizations might provide.

Raising livestock centers on cattle, goats, pigs, and poultry, all of which are managed with either free-range grazing or foraging. These animals feed predominantly on crop residues and natural grasses, with cattle also receiving nutritional supplements like salt licks. Water for livestock is sourced from rivers throughout the year, regardless of the season, and there is no cost associated with accessing this water. Households sell animals for income. There is a seasonal trend in livestock sales, consistent across all wealth groups in the zone. The only meat eaten or sold is typically from pigs. Purchases of livestock by households are not common. Livestock do not typically migrate for grazing.

The zone experiences several hazards that affect its economy and livelihoods. Roughly every three years, there are damaging rainfall irregularities, like a late start to the season and/or long dry periods during the growing cycle. Crop pests are an issue every year; soil degradation has been a problem for the past three years; and livestock diseases are a perennial issue. Frequent crop diseases and pests include cassava mosaic virus and fall armyworm infestations of maize. Serious livestock diseases include *peste des petits ruminants* (a virus in small ruminants closely related to rinderpest) and avian influenza. Other risks include human disease outbreaks, particularly colds, malaria, and water-related diseases that cause gastrointestinal issues.

Households from all wealth groups obtain drinking water from rivers. Households also use these same water sources for other purposes, notably washing clothes and watering livestock. No payment is required for accessing water. Sanitation facilities differ slightly between wealth groups. Poorer households typically use basic pit latrines, while wealthier households have access to improved latrines with slabs. Regarding waste disposal, one method used by households from all wealth groups is to dig a hole (serving as a garbage can) on their property to deposit waste. Households from all wealth groups have access to health services at local health centers. While

middle and better-off households may also use hospital services, the transportation and treatment costs are often unaffordable for poorer households.

In terms of energy for lighting, very poor and poor households generally rely on flashlights, whereas middle and better-off households have access to more advanced options like battery-powered lanterns and electricity from solar panels. Cooking fuel also shows some variation: very poor and poor households mainly use firewood, while middle and better-off households use firewood and the more expensive charcoal. For communication, there is a noticeable difference in mobile phone usage. Very poor and poor households typically use basic mobile phones, while middle and better-off households use smartphones, specifically Android devices. Educational attainment also varies, with children from very poor and poor households reaching primary or sometimes secondary level, and more children from middle and better-off households achieving secondary as well as higher levels of education. When it comes to financial services, households from all wealth groups rely on private individuals for credit. There are no formal savings facilities available to households, regardless of their wealth.

Markets

Market access in the zone is notably challenging for households due to poor road conditions. During the Rainy and Dry Seasons, the roads are generally dilapidated and excessively sandy, making market access difficult, particularly in the Dry Season when sand conditions worsen. The roads that connect the villages within the zone are unpaved and in poor condition, further complicating transportation and trade activities. There is no national highway. Although there are several functioning bridges in the zone, local people rated overall access to markets from fair to poor.

The main agricultural products sold in the zone include maize, cassava, groundnuts, cowpeas, and beans, with peak sales occurring at harvest in January, February, and May. Households sell livestock like goats, cattle, pigs, and poultry, with peak sales in December, January, June, and September. In addition, gathered wild foods, like caterpillars and mushrooms, are significant food sources, with caterpillars sold from July to December and mushrooms from March to December. The commercial routes within and outside of the zone are crucial for the movement of agricultural and livestock products. Traders transport the zone's agricultural products — maize, cassava, groundnuts, cowpeas, and beans — along routes connecting Kahemba, Feshi, Kenge, Shamajamo, Idiofa, Kikwit, Masimanimba, Gungu, Kinshasa, and even reaching Angola. Peak sales for these products are in January, February, and May. Peak sales for livestock like goats, cattle, pigs, and poultry, which are also traded along these routes, occur in December, January, June, and September. The livestock trade extends to key locations like Kahemba, Feshi, Kikwit, Masimanimba, Kenge, Tshikapa, Kinshasa, and further to Congo-Brazzaville and Angola. Additionally, sales of seasonal caterpillars and mushrooms follow these commercial routes.

In terms of the labor market available to households in CD27, the employment market operates predominantly around the local rural areas, where 75% of casual work is found. About 15% of work

is done in local towns and the remaining 10% of labor is by workers migrating seasonally outside the zone, typically traveling to Kinshasa and Angola. Men typically migrate for work, and this pattern remains consistent each year. There is no significant inbound migration for labor within the zone.

Timeline and Reference Year

The baseline assessment refers to a specific period called the "reference year." In the *Agro-Pastoral: Staple Crops, Small Stock, and Cattle with Wild Products Livelihood Zone,* the reference year covers the consumption period from December 2022 to November 2023. During community leader interviews, data collectors asked informants to score the last five years in terms of seasonal performance with "1" indicating a poor season and "5" indicating an excellent season. Table 1 summarizes the responses of the community leaders.

Table 1. Timeline

Production Year/Season	Score	Critical Events
2024/Season B	–	Delayed rains, an overall rainfall deficit, and crop pests in Season A. Households adapted by engaging in additional labor, fishing, gathering, trade, migration, and selling livestock and charcoal to cope. Season B was not characterized.
2023-2024/Season A	2	
2023/Season B	4	Good rainfall, stable production, and consistent prices.
2022-2023/Season A	4	
2022/Season B	4	Good rainfall, stable production, and consistent prices.
2021-2022/Season A	4	
2021/Season B	4	Good rainfall, stable production, and consistent prices.
2020-2021/Season A	4	
2020 Season B	4	Good rainfall, stable production, and consistent prices.
2019-2020/Season A	4	

5 = Excellent season for household food security (e.g., due to good rains, good prices, good crop yields)
4 = Good season or above average season for household food security
3 = Average season for household food security
2 = Below-average season for household food security
1 = Poor season for household food security (e.g., due to drought, flooding, livestock disease, pest attack)

Note: Production year refers to the farming year, usually beginning with the start of the main rains.

Key informants ranked from Season A of 2019-2020 to Season B of 2023, including the reference year, as “4” (good or above average) and Season A of 2023-2024 as “2” (below average) in terms of household food security. The seasons from 2019-2020 to 2023 were characterized overall by favorable conditions, which allowed households to maintain their livelihoods without needing extensive coping strategies. During Season A of 2023-2024, households used coping strategies, like increasing labor, fishing, gathering, trade, migration, and selling livestock and charcoal. The reference year was characterized by moderate to high agricultural, gathering, and livestock-rearing productions, and agricultural product prices remained affordable throughout the year.

Seasonal Calendar for Reference Year

The seasonal calendar (see Figure 2) illustrates the main economic activities and events of the reference year. It traces the rainy months, livestock activities, agricultural activities, other important income activities periods, and stress and high expenditure periods.

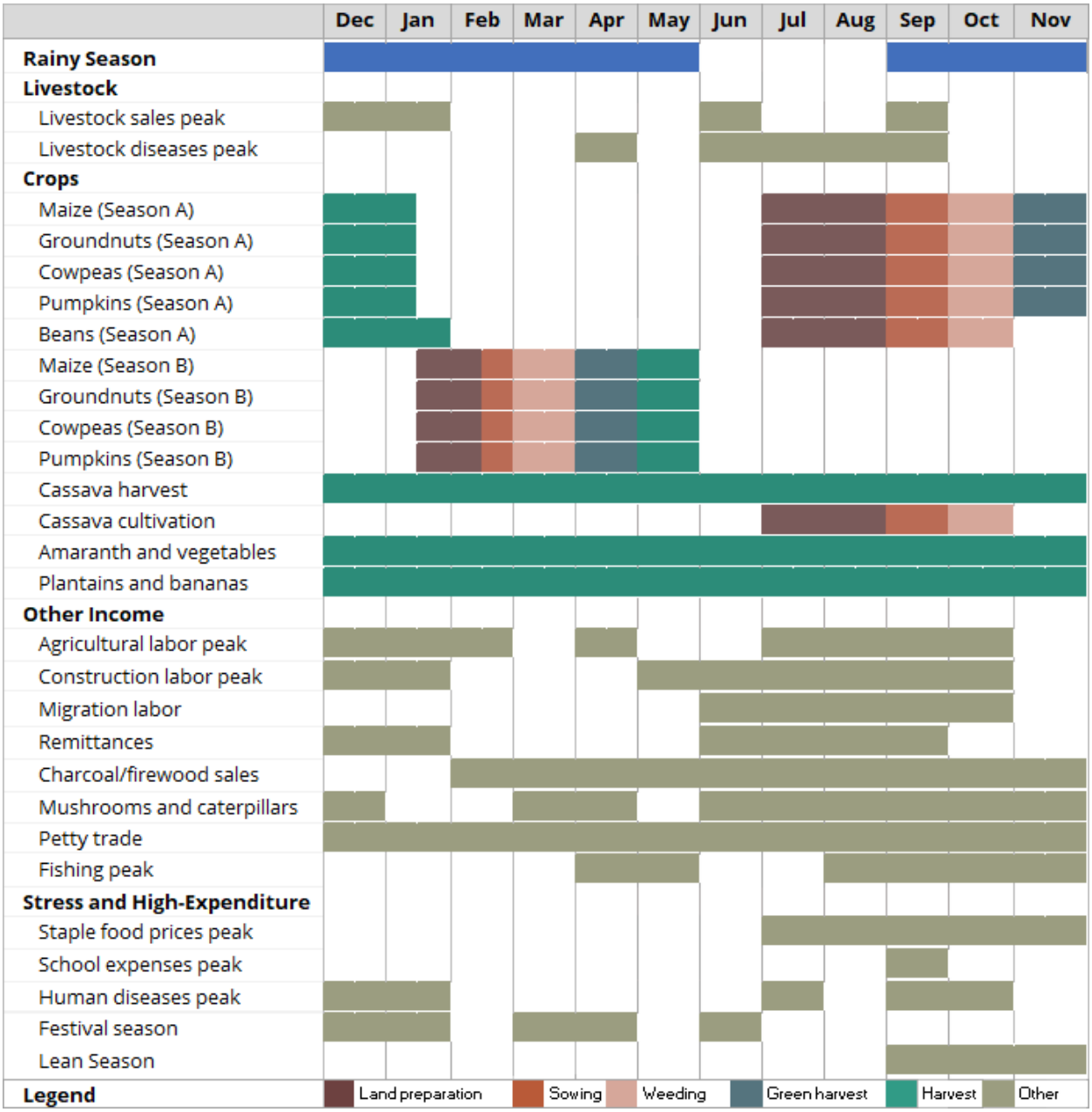
Rains in this zone fall in a single, nine-month long period from September to May. During this period, several main food crops enjoy two production cycles, Season A and Season B. The Dry Season occurs from May to August. Season A is from September to January, and Season B is from January/February to May. Land preparation for the main crop, cassava, begins in July and continues through August, followed by planting seedlings in September and weeding in October. Cassava is harvested throughout the year. Maize, groundnuts, cowpeas, and pumpkins are cultivated in both seasons, but the main crop is in Season A, with land preparation in July/August, sowing in September, weeding in October, and harvesting in December/January. Season B starts with preparing land in January to February, sowing in February, weeding in March, and harvesting in May. In Season A, “green” consumption of maize and groundnuts occurs in November, and in Season B in April. “Green“ refers to maize cobs that are cut before full maturation and groundnuts that are likewise dug up. Some households do this to improve palatability, but for poorer households, it is also a way to reduce the amount of food they need to buy at peak prices in the weeks before the harvest begins.

Households primarily cultivate beans during Season A, with households preparing land from July to August, sowing in September, weeding in October, and harvesting in December/January. Amaranth and vegetables are cultivated year-round under irrigation, allowing for their consumption and sale throughout the year, while bananas and plantains are grown and harvested year-round under rain-fed conditions.

After the Dry Season, the renewal of surface water and pasture for livestock leads to improved physical condition and increased reproduction. Gestation periods are 5-6 months for goats and approximately four months for pigs. Households mostly sell livestock during December, June, and September. December sales are driven by purchases in the festive season, June sales by the need for payment for end-of-year school exams, and September sales likewise by the need for payment at

the start of the school year. Animal slaughter, typically of pigs, occurs mostly during the holiday period from December to January.

Figure 2. Seasonal Calendar



Firewood collection and charcoal production and sales occur throughout the year, except during December and January when people are busy with the harvest and celebrating the holiday festivals. Fishing generally takes place in two main periods: April to May and August to November. Agricultural paid labor is most intensive from July to October, December to February, and in April. Construction activities primarily occur from December to January and from May to October. Labor migration occurs mainly in the Dry Season from June to October when there is less agricultural work at home

and to prepare for the build-up to the next harvest. Petty trade is a year-round activity and provides consistent income for those engaged in it. The peak periods for wild mushroom picking and caterpillar gathering fall between June and December and again from March to April.

Livestock disease outbreaks typically occur in April and from June to September, while human disease outbreaks generally take place in December/January, July, and September/October. Food prices are particularly high from July to November, until the main harvest. The Lean Season, the most challenging period in terms of food access, begins in September and extends through November.

Table 2 outlines the typical division of labor, distinguishing between shared and non-shared tasks. Shared tasks among men, women, boys, and girls include harvesting; selling crops; managing livestock, including slaughter and livestock sales; collecting and selling firewood; producing and selling charcoal; petty trade; gathering wild foods; and fetching water and firewood for domestic use. Men are primarily responsible for tasks like land preparation, construction of new houses and repairs to old roofs, making and selling handicrafts, labor migration, and fishing. Women, on the other hand, are solely responsible for planting, sowing, weeding, threshing, collecting and selling wood, and for doing most household chores, including collecting water, cooking, feeding small children, laundering clothes, and collecting firewood. In terms of livestock, men handle tasks like selling livestock, constructing enclosures, managing animal health, and slaughtering, while women focus mainly on rearing, feeding, and selling poultry.

Table 2. Typical Division of Labor

Shared Tasks	Women's Tasks	Men's Tasks
• Harvesting • Crops sales • Livestock tasks, including slaughter and sales • Charcoal production and sales • Timber wood collection and sales • Petty trade • Wild foods gathering and sales • Water fetching and firewood collection for domestic use	• Planting, sowing, weeding, threshing • Firewood collection and sales • Most of the household chores	• Land preparation • Construction • Handicrafts • Labor migration • Gathering and managing transfers • Fishing

Wealth Breakdown and Productive Assets

Several key factors are primarily responsible for wealth distribution in the zone, including the amount of cultivable land owned, the size of households (affecting labor availability), the number of livestock owned, and the possession of other assets, like bicycles and motorcycles. Middle and better-off households typically own and cultivate more land than poorer households, have more family labor (as well as the ability to hire others), and possess greater numbers of livestock and

other assets compared to poorer households. Renting land is not a common practice among households in CD27; however, leaving land fallow is. Women are allowed to inherit land in the zone, and they are free to use land from their deceased husbands (if widowed) or land given to them by their families. In addition, new land is freely available depending on proximity and a household's capacity to clear it for first tilling. There are no significant differences in livestock production practices across wealth groups, and women typically do not purchase or inherit livestock independently.

Table 3 summarizes the types and numbers of productive assets that typical households within each wealth group own and/or manage. Asset holdings are shown in a range that reflects the diversity of households' situations within a wealth group. Figure 3 shows the percentage of households within the zone that falls in each wealth group. The wealth categorization of households in the zone was carried out by the communities themselves.

Table 3. Wealth Breakdown

Household Size and Productive Assets	Very Poor	Poor	Middle	Better-Off	Poor Female-Headed
Household size	5-6	6-8	10	12-14	4-6
Land (hectares [ha])	0.25-0.75	0.5-1.5	2-4	5-6	0.4-0.8
Land cultivated (ha)	0.2-0.6	0.5-0.8	1-2	2-3	0.3-1
Land cultivated – food crops (ha)	0.1-0.3	0.3-0.4	0.5-1	1-2	0.2-0.4
Land cultivated – cash crops (ha)	0.1-0.3	0.2-0.4	0.5-1	0.5-1.5	0.2-0.4
Cattle	0	0	0-4	0-12	0
Pigs	0	0	0-5	0-8	0
Goats	0-3	2-4	5-10	8-16	1-3
Poultry	4-6	5-10	15-17	25-35	5-7
Motorcycles	0	0	0-2	1-2	0
Bicycles	0	0	1-2	1-3	0

In zone CD27, arable land is freely available, and every household clears and cultivates fields according to their means, including available labor. During the reference year, poorer households cultivated about 70% of the land they owned, whereas wealthier households cultivated approximately 50% of the land they owned. Poorer households either do not have the available labor to treat all their land or they decide to sacrifice that labor for paid work, which brings a more

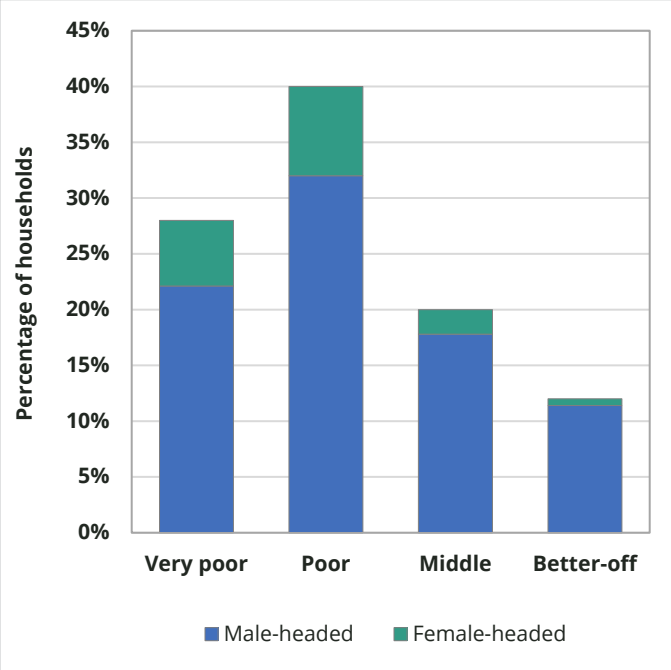
guaranteed income. Wealthier households typically own substantially more land than they can afford to cultivate with paid labor, and some is left fallow.

Since agricultural inputs are not typically purchased in the zone, differences in crop yields are minimal. Therefore, the quantity produced by farms depends essentially on the cultivated space used by each wealth group. Only wealthier households tend to grow cash crops like plantains and peppers. Very poor and the poor households concentrate on staple food production. Households across all wealth groups sell around half of the cassava and maize they produce.

Very poor households cultivated 0.2-0.6 ha of land, with 0.1-0.3 ha dedicated to food crops and 0.1-0.3 ha to cash crops. Poor households cultivated 0.5-0.8 ha, with 0.3-0.4 ha allocated to food crops and 0.2-0.4 ha to cash crops. Middle households cultivated 1-2 ha, dividing 0.5-1 ha for food crops and 0.5-1 ha for cash crops. Better-off households cultivated 2-3 ha, with 1-2 ha for food crops and 0.5-1.5 ha for cash crops. Poor female-headed households cultivated 0.3-1 ha, with 0.2-0.4 ha for food crops and 0.2-0.4 ha for cash crops. There is a progressive increase in land area cultivated with increasing wealth. Overall, better-off households cultivated more than six times more land cultivated by very poor households; on the other hand, they have about twice as many family members, so the difference per capita is less.

Figure 3. Wealth Breakdown

Note: All results are the mid-point of a range



Livestock are a significant source of income in this zone, especially for wealthier households, serving as an important means of investing, saving, and safeguarding against difficult years. The main types of livestock kept are cattle, pigs, goats, sheep, and poultry. Poorer households consume virtually no meat, and wealthier households only very modest amounts — livestock are essentially raised for selling. Households from all wealth groups in the zone own livestock; even the very poor make some 1.5% of their total income from selling poultry. For those who own them, the other livestock provide annual income and some financial security for hard times. Very poor households typically own a maximum of three goats and 4-6 poultry. Poor households may own 2-4 goats and 5-10 poultry. In contrast, poor female-headed households are usually limited to owning 1-3 goats and 5-7 poultry. Wealthier households have far more substantial livestock assets, detailed in Table 3.

In terms of other asset ownership, poorer households do not own bicycles, whereas middle households generally have 1-2 bicycles and better-off households may have 1-3 bicycles. Wealthier households also own up to two motorcycles. Wealthier households have the resources to hire labor from poorer households for all the main agricultural tasks. In contrast, poorer households have only their own labor.

Household size tends to increase with wealth. Very poor and poor female-headed households typically have 5-6 members, poor households have 6-8 members, middle households about 10 members, and better-off households 12-14 members.

The proportion of households in the community is distributed as follows: very poor households 20-35%, poor households 30-50%, middle households 15-25%, and better-off households 10-15%. The proportion of female-headed households decreases as wealth increases. In the poorer wealth groups, 15-25% of households are female-headed, while in the middle wealth group 5-15% are female-headed and in the better-off group wealth group up to 10% of households are female-headed. It is important to note that in this livelihood zone, land is not a limited resource, and women can own land.

Sources of Food

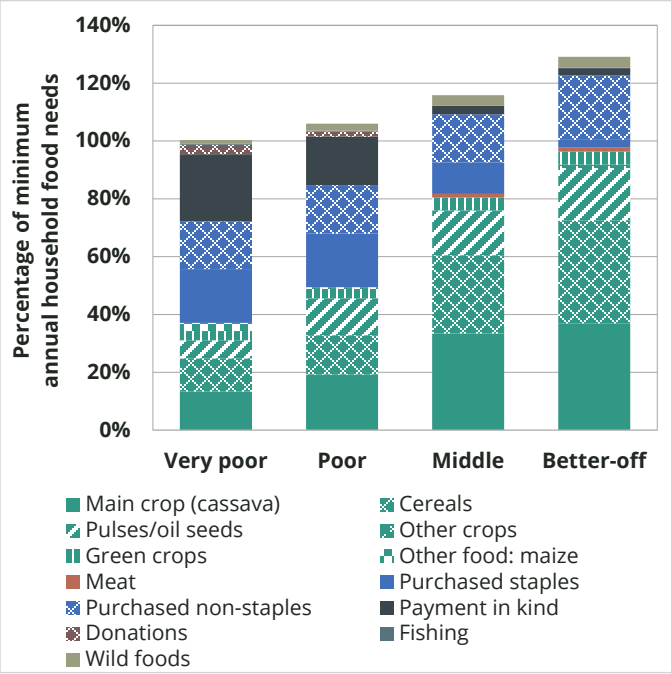
Figure 4 presents the sources of food for households in different wealth groups in the livelihood zone for the period from December 2022 to November 2023. December represents the start of the consumption year because it is when the consumption of the products of the main harvest season starts. Food is presented as a percentage of the minimum annual kilocalorie (kcal) needs of the household, based on the internationally accepted standard of 2,100 kcal per person per day.

There were two main sources of food in this zone for households from all wealth groups: their own crops and market purchases. Payments in-kind were another important source for poorer households. Other minor sources of food included donations, fish, other crops, and collected wild foods. There was a clear, progressive increase in the amount of food consumed with rising wealth. Very poor households consumed 95-105% of their minimum annual food needs, poor households consumed 100-110%, middle households consumed 110-120%, and better-off households consumed 120-135%.

Households' own crops were the most important single source of food overall in the livelihood zone. For very poor households, their own crop consumption covered 30-40% of their minimum annual food needs, 45-50% for poor households, 75-80% for middle households, and upwards of 90% for better-off households. Cassava was the main crop consumed, which households used fresh and dried. Households had a variety of uses for dried cassava chips (*cossettes*): grinding them into flour, rehydrating them for cooking, or using them in various other forms in traditional dishes. Cassava leaves are also commonly consumed, often served alongside *fufu*. Very poor households obtained

10-15% of minimum annual food needs from cassava, poor households obtained 15-20%, middle households 30-35%, and better-off households 35-40%.

Figure 4. Sources of Food



Households from all wealth groups obtained 3-5% of minimum annual food needs from green consumption. This was from groundnuts and maize cultivated in Seasons A and B. Poorer households obtained 10-15% of minimum annual food needs from cereals (e.g., maize), while wealthier households obtained 25-40% of minimum annual food needs in this category. Pulses and oil seeds (e.g., groundnuts, cowpeas, beans, and Bambara nuts) were important sources of vegetable protein and fat. Very poor households obtained 5-8% of minimum annual food needs from these crops, poor households obtained 10-15%, and wealthier households 10-20%. “Other crops” were essentially plantains and sweet bananas, but these were only consumed to a minimal extent as they are essentially a cash crops in CD27.

Purchases were the second most important source of food in the livelihood zone. These foods consisted of staples and non-staples that were purchased by households from all wealth groups. Maize, rice, and cassava flour were the main purchased staples. Very poor and poor households obtained 15-20% of minimum annual food needs from this category, while middle households obtained 10-12%, and better-off households obtained 2-3%. Non-staple foods included groundnuts, beans, cowpeas, sugar, meat, palm oil, milk, dried fish, fresh fish, caterpillars, and mushrooms. Households from all wealth groups obtained 15-25% of minimum annual food needs from these purchased non-staple foods.

Payments in-kind were a crucial source of food for households in the poorer wealth groups. Very poor households obtained about 20% of their minimum annual food needs from payments in-kind, and poor households 10-15%. Food eaten while migrants were away from the household was about 3% and is included in the “payment in kind” category in Figure 4. Animal protein was absent from the diets of very poor and poor households, except for occasionally caught fresh fish. For middle and better-off households, meat from their own animals and purchased powdered milk, meat, and dried fish contributed a relatively small amount of their diets, 3% of minimum calorie requirements for middle households and 6% for the better-off. Donations, in cassava, accounted 3% and 2% of annual food needs for the very poor and poor, respectively, and “other” food contributed another 3% and

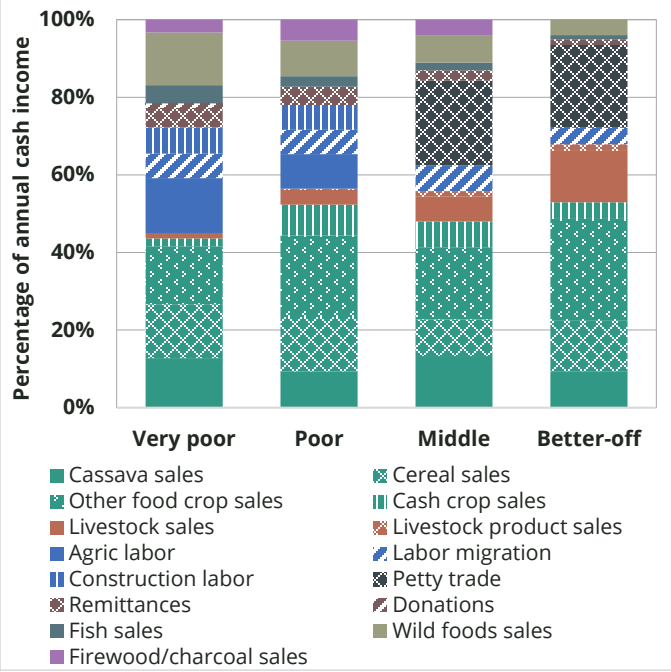
1%, respectively. Fishing and collecting wild foods contributed less than 3% to the annual calories of poorer households and 2-5% for wealthier households. There was no food aid in the livelihood zone in the reference year.

Overall, the reference year was average in terms of food security, with households from all wealth groups meeting their minimum annual food energy needs.

Sources of Cash Income

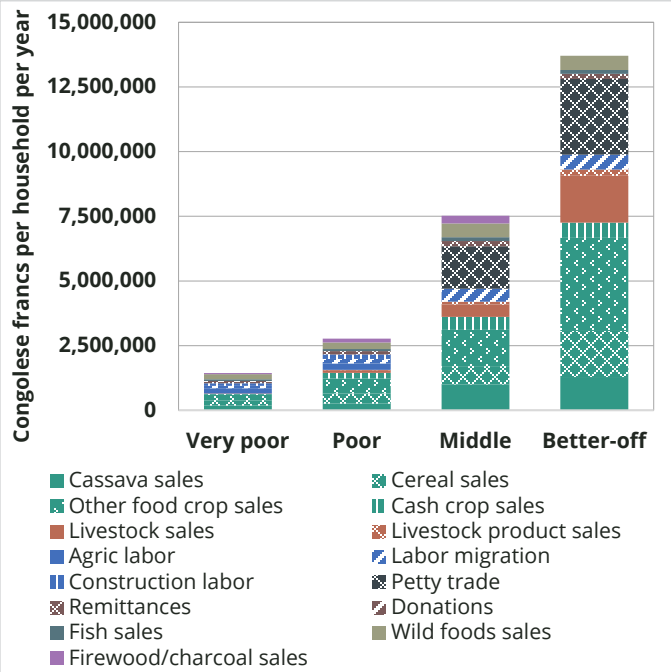
As seen in Figure 5, households from all wealth groups obtained a substantial part of their annual income from the sale of crops. Otherwise, the pattern of income generation differed sharply between poorer and wealthier households. Crop sales accounted for around 50% of total annual income across all four wealth groups. The pattern of income was not greatly different between the groups for the categories of different crops: cassava, cereals (essentially maize), and other crops, including groundnuts, cowpeas, beans, Bambara nuts, plantains, sweet bananas, pumpkins, and cassava leaves. Regarding cash crops, middle and better-off households sold significantly more beans than poorer households, the better-off sold much more plantains than all other groups, and the poor increased their income with irrigated vegetables, amaranth, and cassava leaves.

Figure 5. Sources of Cash Income as a Percentage of Annual Cash Income



Better-off households stood out in terms of livestock and livestock product sales, obtaining 10-20% of their total income from these sources compared with 5-10% for middle, 3-5% for poor, and 1-1.5% for very poor households. Otherwise, there was a major divide in sources of income between poorer and wealthier households. Local paid labor accounted for 20-30% of total income for the very poor and 5-15% for the poor, and trade contributed 20-25% for the middle and 15-25% for the better-off. All groups earned significant income from migrant work, 6-12% of total income for very poor, poor, and middle, and 3-5% for the better-off. In terms of the proportion of total income, firewood and charcoal sales were most profitable for poor and middle households, perhaps because very poor households could not provide the necessary labor. But it was the very poor who profited most from wild foods and fish.

Figure 6. Total Annual Cash Income



Comparing the absolute amount of cash income between wealth groups, the differences were large. This is illustrated in Table 4 and Figure 6. Better-off households earned approximately 10 times the cash income of very poor households. Given the differences in household size, the differences between wealth groups in *per capita* cash income was smaller than for total income. Nevertheless, there was a progressive increase in annual per capita income with increasing wealth, and the better-off households earned as much as five times the annual per capita cash income of very poor households.

Table 4. Income Summary Table (Congolese Francs or CDF)

Wealth Group	Very Poor	Poor	Middle	Better-Off
Annual income per household[3]	1,300,000–1,600,000	2,000,000–3,500,000	6,000,000–9,000,000	12,000,000–16,000,000

Expenditure Patterns

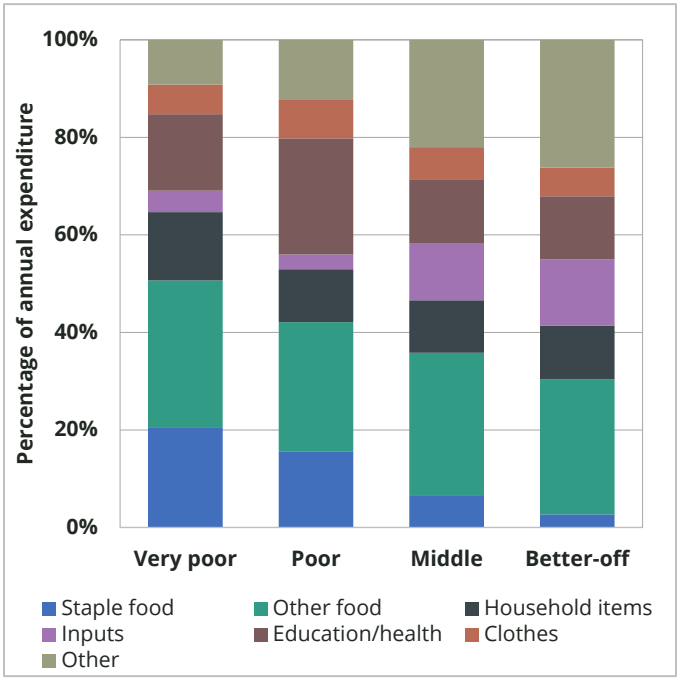
Figure 7 presents expenditure patterns for the reference year from December 2022 to November 2023. While absolute expenditure increases with wealth in line with total cash income, this graph's expenditure breakdown by percentage shows the *relative* amount of income spent on different categories. Households in the zone need to cover a range of essential expenditures over the year. These include staple foods, non-staple foods, household items/services (including salt, soap, tea, coffee, lighting, milling, etc.), productive inputs, social services (e.g., health and education), clothing, transportation, as well as other essential and non-essential items.

Households from all wealth groups spent significant proportions of their annual income on staple and non-staple foods. As noted in the Sources of Food section, poorer households secured 30-40% of their annual food energy needs from food purchases, while wealthier households obtained 20-30%. Poorer households had a greater dependence on staple food purchases compared with the

[3] The average exchange rate from December 2022 to November 2023 was 1 USD = 2,257 CDF.

wealthier households. This difference would be more marked if it were not for the payments in-kind, which greatly substituted for staples foods purchases.

Figure 7. Total Annual Cash Expenditure by Category



However, it is also notable that Figure 4 shows staple and non-staple foods making roughly equal contributions to the minimum food needs of the very poor and poor households, while the cost of these contributions is skewed toward the non-staples. Very poor household expenditure on staple foods accounted for 15-25% of total annual expenditure; non-staple foods accounted for 25-35%. Poor household expenditure on staple foods accounted for 10-20% of total expenditure and non-staple foods for 20-30%. Non-staple foods are more expensive calorie for calorie, but they are not luxury choices among poorer households; pulses are an essential contribution to their diet, and oil is an essential item for cooking and for palatability.

The remaining expenditures for the very poor were 10-20% on household items (including lighting and grinding costs), less than 5% on productive inputs, 10-20% on social services (health and education), 4-10% on clothing/shoes, and 5-15% on “other” items (including transportation, phone credits, festivals, etc.).

For the poor, household items were 9-12% of annual expenditure, production inputs less than 5%, social services 20-30%, clothing/shoes 5-10%, and “other” 10-15%.

Middle households allocated about 6% of their total annual expenditure to staple foods, 25-35% to non-staple foods, 9-12% to household items, 10-15% to productive inputs, 10-15% to social services, 5-10% to clothing and shoes, and 20-25% to “other” items.

Better-off households spent approximately 3% of their annual expenditure on staple foods, 25-35% on non-staple foods, 9-12% on household items, 10-20% on productive inputs, 10-15% on social services, 4-8% on clothing and shoes, and 20-30% on “other” items.

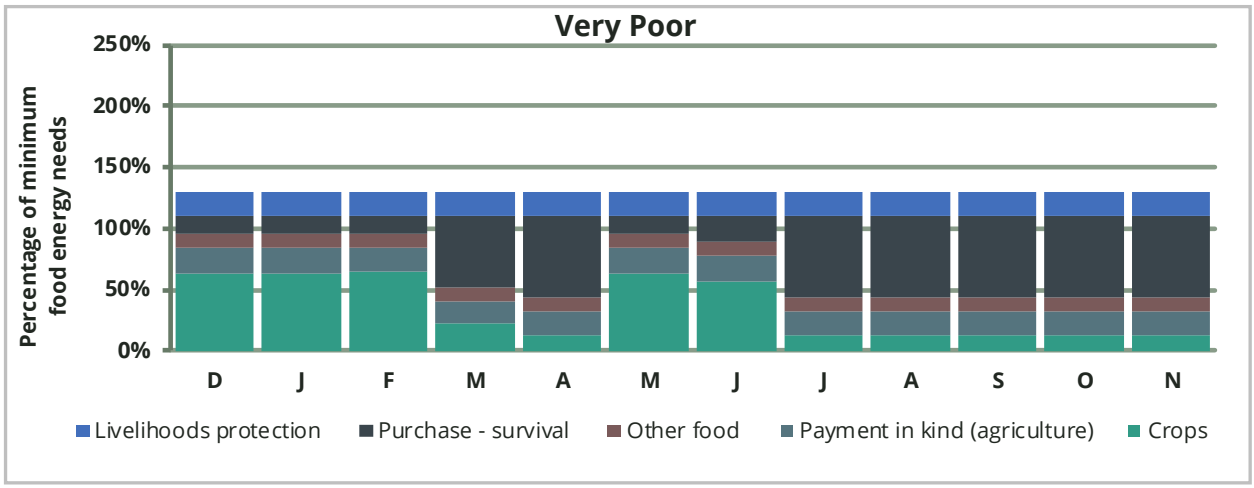
In summary, expenditure on food, social services, and on “other” are the categories that weighed most heavily on total spending for all wealth groups in the reference year, representing 70-80% of total expenditures for poorer households, and 65-75% of total expenditures for wealthier households. Households did not purchase water.

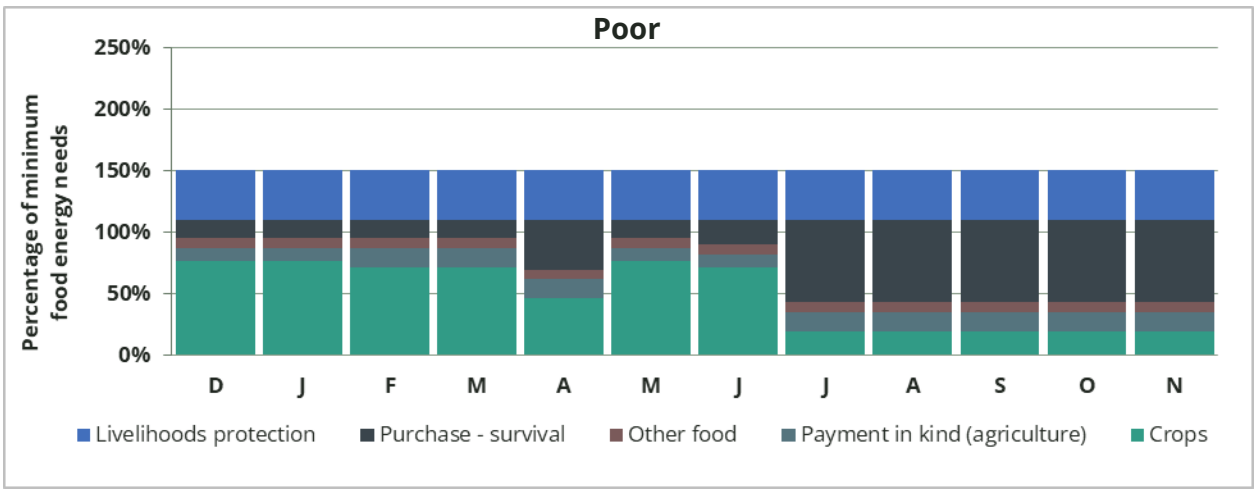
Food Access Calendars

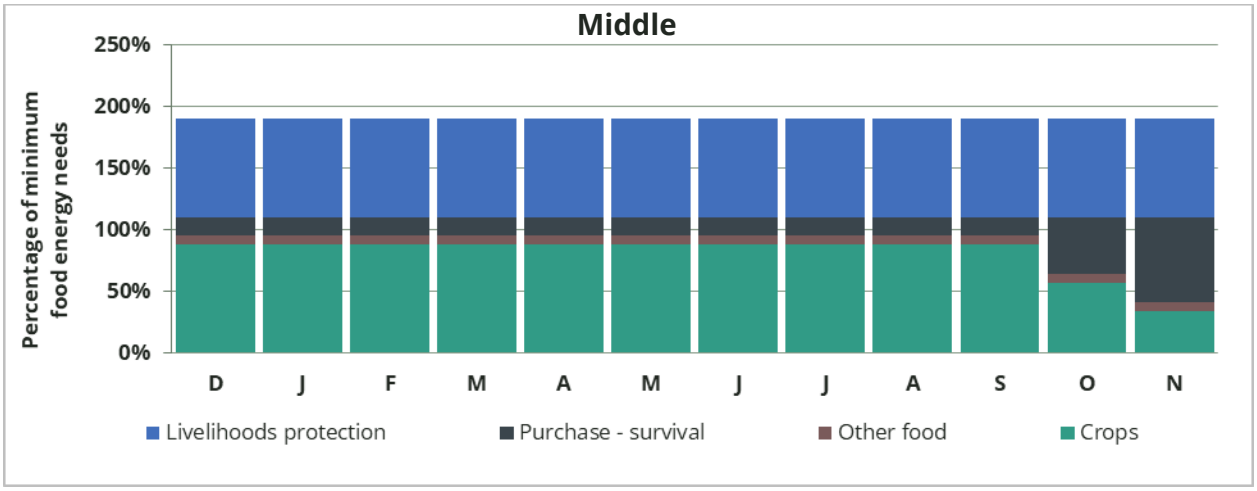
The graphs in Figure 8 present monthly food and cash access calendars for the four wealth groups.

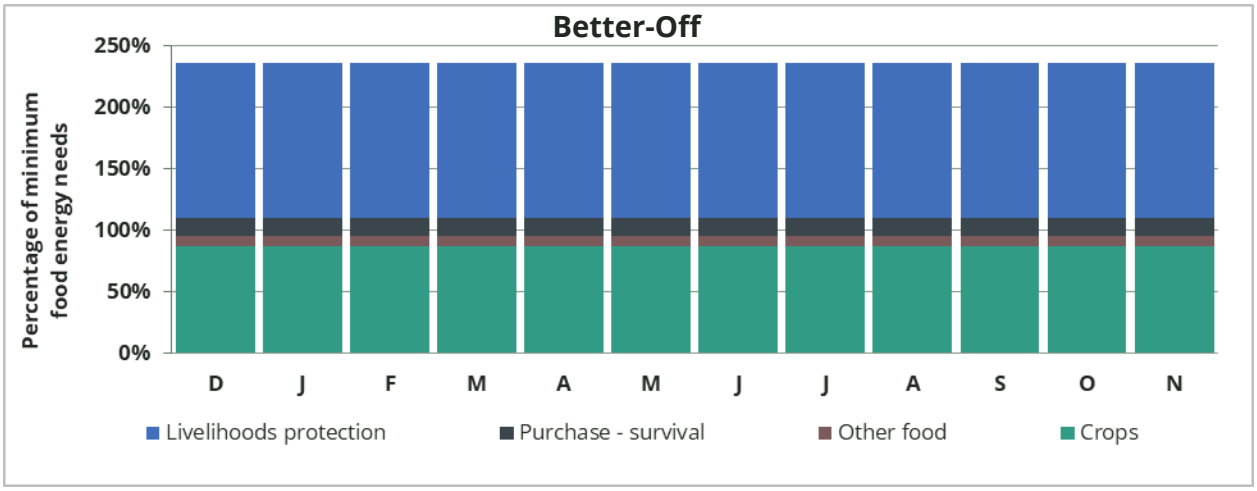
Households in all wealth groups were able to meet their survival and livelihoods protection thresholds year-round in the reference year. The main harvest period in this livelihood zone started in December and the second harvest period started in May. Payment in-kind for casual agricultural labor is important for very poor and poor households. Middle and better-off households are less reliant on purchases and spend a large proportion of their total income on productive inputs, health, and education (shown as "livelihoods protection" in the graphs).

Figure 8. Seasonal Food and Cash Access Calendars per Wealth Group









Poor Female-Headed Households

Female-headed households are found in each of the wealth groups, as shown in the wealth breakdown (see Figure 3). During the field work, data collectors conducted in-depth interviews with poor female-headed households, who represent 20% of all poor households. Female-headed households are those of either widows or single mothers who are divorced or were abandoned by their husbands. This group faces similar constraints and characteristics to male-headed households in the same wealth group, but they are further disadvantaged by a lack of enough adult male labor, which potentially leads to additional constraints on types of asset ownership, productive work, or income-generating activities.

Figure 9 shows that poor female-headed households share a similar pattern of food access with and poor male-headed households, except for fish (only men go fishing, and otherwise fish is an expensive item to purchase.) In the reference year, poor male-headed households and poor female-headed households met their annual minimum food energy needs from similar food sources, mainly their own crops, food purchases, and payments in-kind. Poor male-headed households

cultivated slightly more land than their female counterparts and thus harvested slightly more, leading to more calories from crop production. Poor female-headed households owned somewhat fewer livestock (goats and poultry) than poor male-headed households and had more limited access to agricultural equipment.

Figure 9. Sources of Food: Poor Households vs Poor Female-Headed Households

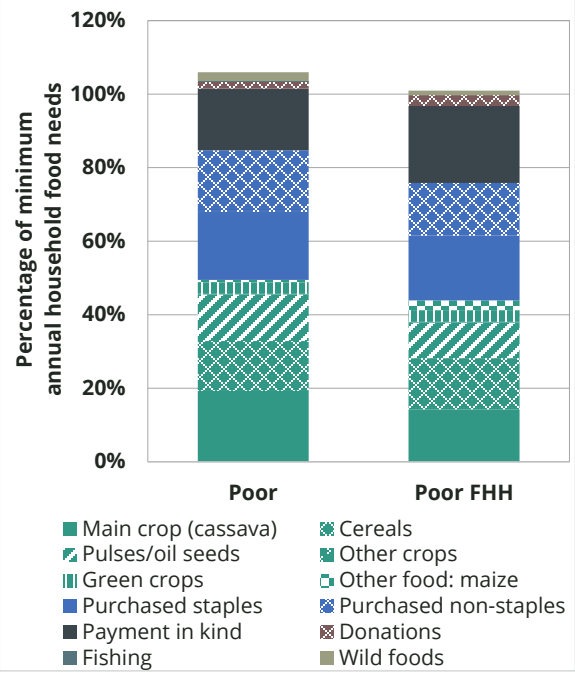
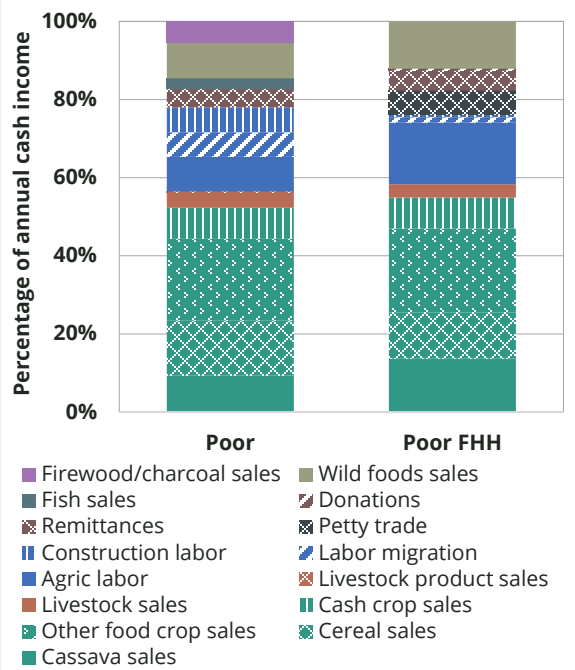


Figure 10. Sources of Cash: Poor Households vs Poor Female-Headed Households



The income picture in Figure 10 shows that poor male-headed households and poor female-headed households had similar sources of cash income in the reference year except for livestock products sales, firewood and charcoal sales, and fish sales, which only concerned poor male-headed households. On the other hand, petty trade and donations were sources of income only for poor female-headed households. The main sources of cash income for these households, in order of importance, were crop sales, paid agricultural labor, and the sale of wild foods, like mushrooms, caterpillars, and yams.

Comparing total cash income, poor female-headed households earned 60-65% less than the poor male-headed households in the reference year. However, poor female-headed households had a smaller number of members (4-6) than male-headed households (6-8), so their per capita cash income was 15-20% smaller. Crop sales made up a slightly higher percentage of annual cash income for poor female-headed households, 50-60% compared to 50-55% for poor male-headed households. Wild foods sales also contributed a higher percentage of annual cash income for poor female-headed households, at 10-15%, compared to approximately 9% for poor male-headed households.

Paid labor made up a higher percentage of annual cash income for poor male-headed households, 20-25% compared to 15-20% for poor female-headed households. Livestock sales also made up a slightly higher percentage for poor male-headed households, about 4% compared to 3% for poor female-headed households. Remittances for both households made up 10-15% of total annual cash income.

Response Strategies

In response to hazards and years with bad production, households attempt to meet their minimum food needs and cash requirements through several strategies. Households implemented various responses depending on their wealth group, though most of them were similar. Below are some common strategies employed by households.

Households from all wealth groups try to reduce expenditure on non-essential or more expensive items first, like reducing on festival costs or not buying clothes or utensils that year. Households also consume less rice and maize in favor of cassava flour, which is the least expensive staple.

Very Poor and Poor Households

Very poor and poor households try to increase cash income by intensifying charcoal sales and wild foods sales. They also try to increase paid labor activities. However, in lean years, as more people enter the labor market, this option quickly loses its value due to falling local wage rates and fewer job opportunities; this in turn pushes people to increase work migration to more favorable locations.

Middle and Better-Off Households

Middle and better-off households cope with hazards differently. In lean years, they sell additional livestock to cover basic food and non-food expenses. They also increase self-employment activities, like petty trade and fishing. In rare cases, they may engage in wild foods sales.

Key Parameters for Monitoring

The key parameters listed in Table 5 are food and income sources that make a substantial contribution to the household economy in the zone These should be monitored to track potential losses or gains to local household economies through ongoing monitoring systems or periodic assessments.

Table 5. Key Parameters for Monitoring

Item	Key Parameter – Quantity	Key Parameter – Price
Crop production	• Maize Seasons A and B – quantity produced • Cassava – quantity produced • Groundnuts Seasons A and B – quantity produced • Cowpeas – quantity produced • Beans – quantity produced • Plantains – quantity produced • Bananas – quantity produced • Vegetables – quantity produced • Cassava leaves – quantity produced • Amaranth leaves – quantity produced • Bambara nuts – quantity produced	• Maize Seasons A and B – producer price • Cassava – producer price • Groundnuts Seasons A and B – producer price • Cowpeas – producer price • Beans – producer price • Plantains – producer price • Bananas – producer price • Vegetables – producer price • Cassava leaves – producer price • Amaranth leaves – producer price • Bambara nuts – producer price
Livestock production	• Cattle – herd size • Goats – herd size • Pigs – herd size	• Cattle – producer price • Goats – producer price • Pigs – producer price
Other food and cash income	• Cultivation labor – number of days worked • Harvest labor – number of days worked • Fishing – quantity caught • Wild foods – quantity • Construction labor – number of days worked • Migration labor – number of days worked • Remittances – volume • Charcoal/firewood sales – quantity sold • Petty trade – demand	• Cultivation labor – wage rates • Harvest labor – wage rates • Fishing – fisherman price • Wild foods – producer price • Construction labor – wage rates • Migration labor – wage rates • Remittances – amount received • Charcoal/firewood sales – daily earnings • Petty trade – daily earnings
Expenditure		• Maize – consumer price • Cassava flour – consumer price

CD28 Livelihood Zone

Reference Year: December 2022–November 2023

Western High Production of Staple Crops, Groundnuts, and Palm Oil Livelihood Zone



Figure 1. CD28 Livelihood Zone Map

Summary: The *Western High Production of Staple Crops, Groundnuts, and Palm Oil Livelihood Zone* (CD28) is in an agricultural zone in the southwestern Democratic Republic of the Congo (DRC). Rainfall levels in this zone are moderate to high, ranging from between 800 to 1,500 millimeters (mm) per year. Crop production is the main livelihood activity, supplemented with livestock, labor, and trade activities. The zone is relatively self-sufficient, producing surplus crops that are sold locally and in neighboring towns. Market purchases complement households' consumption of their own-crop and livestock production, particularly for poorer households or for non-staple foods not grown in the zone. Food deficits are rare, but during bad years, households rely on imported staple and other foods. Market access is fair to poor due to poor maintenance of main roads and remoteness of parts of the zone. The security situation is stable.

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Zone Description

The *Western High Production: Staple Crops, Groundnuts, and Palm Oil Livelihood Zone* (CD28)[1] is an agricultural zone that covers part of southwestern DRC. This livelihood zone comprises several administrative territories, including Bagata, Bulungu, Gungu, Idiofa, Kikwit, and Masi-Manimba. Notably, small portions of the Bagata, Gungu, and Masi-Manimba Territories extend into the adjacent *Cassava, Maize, and Groundnuts Livelihood Zone* (CD29). The urban centers of Idiofa and Kikwit are the most densely populated in Kwilu Province. The zone is in a tropical climate with average temperatures ranging from 20°C in the Cold Season (March to September) to 25°C in the Hot Season (January to April).[2] The average annual rainfall is around 1,500 mm, supporting the agricultural activities that are central to households' livelihoods in this area.[3]

The topography includes plains, plateaus, valleys, and rivers, such as the Kabango, Kwenge, Kwilu, and Lukemi Rivers. Despite the availability of unused farmland, soil fertility is poor, which limits agricultural potential. However, in northern Bulungu, most soils are clay-based, ferralitic, and sandy. Soils are particularly degraded around Kikwit because of human intervention: deforestation for charcoal and traditional agricultural practices, including seasonal bush fires, as well as the unplanned expansion of housing construction in Kikwit and Idiofa. The vegetation is mostly savannah and farmland, reflecting the region's agricultural focus. The zone is in an area of high population density, with an average of approximately 90 people per square kilometer and a total population of 6,584,154.[4]

The *Western High Production: Staple Crops, Groundnuts, and Palm Oil Livelihood Zone* (CD28) is primarily recognized for its agricultural production — particularly of palm oil and diverse food crops such as cassava, maize, groundnuts, cowpeas, plantains, amaranth, and squash — under rainfed conditions. These agricultural products drive the local economy. Cassava is cultivated year-round, whereas maize, groundnuts, and other crops are grown in two main seasons. The first of these seasons runs from September to January (Season A) and is the most important. The second, Season B, is less important and runs from March to May. Cultivated land areas are large compared to some other zones, leading to larger food surpluses that households, especially middle and better-off households, sell in the urban markets. However, the challenges of declining soil fertility and climate variability pose significant risks to the sustainability of these livelihoods, especially for very poor and poor households. The zone is food-sufficient and relies heavily on subsistence agriculture; only foods not grown in the zone, like rice, are imported.

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[1] Fieldwork for the current profile was undertaken from June 12, 2024 to July 15, 2024. The information presented in this profile pertains to the reference year, which was the consumption year from December 2022 to November 2023. If no fundamental and rapid shifts in the economy occur, the information in this profile is expected to remain valid for approximately five to 10 years (i.e., until around 2028-2033). All prices in the profile are for the reference year.
[2] Kwilu Province, Cellule d'Analyses des Indicateurs de Développement (CAID), March 26, 2024, https://caid.cd/?page_id=12038#:~:text=La%20pluviom%C3%A9trie%20est%20comprise%20entre,hydrographique%20tr%C3%A8s%20dense%20et%20vari%C3%A9.
[3] EWX Next Generation Viewer, https://earlywarning.usgs.gov/fews/ewx/index.html.
[4] FEWS NET Data Explorer, population data (2023), accessed 2025, https://fdw.fews.net/data-explorer/.

Palm oil production occurs year-round. During the colonial era, European companies produced palm oil in the natural palm groves and plantations, attracting many agricultural workers to this area. Industrial production no longer exists, and the condition of palm groves and plantations has declined, reducing employment opportunities for many agricultural workers. Artisanal palm oil extraction in villages has emerged across the zone. Palm wine (known locally as *malafu* or *nsamba*) is an income source in addition to palm oil. The wine is fermented in jerry cans and calabashes before being sold.

Livestock production in this zone is primarily practiced by wealthier (i.e., middle and better-off) households. Livestock ownership represents a form of savings; most households own a few goats, pigs, and poultry. These animals typically graze on open pastures, and during the Rainy and Dry Seasons, rivers serve as the primary water source. Wealthier households participate in livestock trade, selling live animals in Feshi, Gungu, and Idiofa districts and in the main cities. Holiday seasons and state exams influence the sale of livestock, particularly during December, January, April, June, and July. Poorer (i.e., very poor and poor) households are less involved in livestock production, primarily engaging in agricultural labor or small-scale trade to supplement their income.

In addition to agriculture and livestock, significant economic activities include the sale of charcoal, trade, and farm labor. Very poor and poor households mainly produce charcoal, whereas women from middle and better-off households dominate trade activities. Farm labor, often performed by men, women, and children from poorer households, is a common source of income, especially during the peak agricultural months. Additionally, very poor and poor households commonly engage in some traditional practices, such as hunting, fishing, and gathering wild foods.

CD28 experiences several hazards that affect its economy and livelihood. The main hazards include drought, crop pests, livestock diseases, and increased commodity prices. Drought occurs in one out of every three years and severely disrupts agricultural production, which leads to reduced crop yields. Drought also exacerbates water scarcity, which is vital for human consumption and livestock, further intensifying the hardship that households face. Livestock diseases include *pasteurellosis,* which affects goats, and avian influenza, which affects pigs and poultry. Livestock loss due to disease can lead to a substantial decline in household income and food security because livestock are a source of meat and a form of savings and capital. Pests present another major challenge annually. These infestations, including common crop diseases like cassava mosaic and armyworm, consistently undermine agricultural productivity. The persistent presence of pests requires households to invest in mitigation measures, which often strain already limited resources.

Soil depletion has emerged as a significant hazard over the past three years, further diminishing the land's fertility. This degradation reduces the capacity of soil to support healthy crop growth, necessitating the use of fertilizers or other soil enhancement techniques that may not be readily accessible or affordable for many households.

Access to essential services varies significantly across wealth groups within the zone. Very poor and poor households primarily access drinking water through springs and rivers, which requires no

payment. Sanitation is rudimentary, with most households using simple pit latrines. Healthcare access is limited to basic health centers, and educational attainment typically does not go beyond primary or secondary levels. Primary schools are found at the village level; secondary schools operate in larger towns. Poorer households usually send their children through primary school; better-off households can send their children through college, but many stop at secondary school. Middle and better-off households have better access to improved sanitation, health centers, and hospitals. They also have access to solar panels for lighting and use a mix of firewood and charcoal for cooking. Mobile phone use is common; poorer households tend to use basic mobile phones, and wealthier groups tend to use smartphones. Financial services are scarce but may be accessed through various means — mostly in the form of informal loans (from friends, family, or neighbors) for poorer households. Access to formal credit is difficult. Savings banks are scarce. Informal loans through village savings and loan associations exist among households, usually for three to six months. These interest-free loans are mainly used to pay for cereals during the Lean Season and are generally repaid in cash.

Markets

Significant challenges characterize market access within this zone, particularly due to the poor condition of feeder roads. During the Rainy and Dry Seasons, access to markets remains difficult because the roads have deteriorated and are inadequately maintained. However, areas closer to the tarmac road linking Kikwit to Kinshasa have relatively good market access. The combination of tarmac roads and rural tracks service the zone, but these routes are generally in bad condition, exacerbating transportation issues, especially in the absence of bridges and given their remoteness from major urban centers. As a result, market access in this zone is generally fair to poor, limiting the ease with which goods and services can be traded within and outside the zone.

The primary crops traded in the zone follow well-defined trade routes, moving from local markets to larger regional and national markets. The main crops sold include maize, cassava, groundnuts, cowpeas, squash, and palm oil. The trade route these crops travel through typically starts from Kikwit and extends through Bulungu, Bandundu, and Masi-Manimba before reaching larger hubs such as Kinshasa, Tshikapa, Central Kongo, and even neighboring Angola and Congo-Brazzaville. The peak sale periods for these crops are generally in December, January, February, and May, with some variations for products like palm oil, which also has peak sales in November, June, July, and August. It takes several market connections to move commodities from local markets to destination markets.

In addition, households sell livestock, including goats, pigs, and poultry. Livestock follow the same trade routes as crops, and livestock trade traditionally consists of transporting live animals on foot to market centers or towns/cities, either for local consumption or for export to other countries. However, with limited access to grazing and water sources and with insecurity hindering livestock mobility, vehicular long-distance transportation of live animals is expanding. The peak sale months for livestock are December, January, April, June, and July — coinciding with festival months and the Lean Season.

Households complement their food production by purchasing staple foods when their crop stocks deplete and by purchasing non-staple foods throughout the year. The main food items purchased include maize, cassava, rice, cowpeas, beans, sugar, milk, fish, and cooking oil. Imported food commodities (rice, cooking oil, and beans) follow the reverse of the established trade routes, coming from larger markets, such as Kinshasa and Tshikapa, for distribution through the region back to Kikwit and other local markets.

The labor market is a critical aspect of the local economy; many members of the population depend on work opportunities locally or in nearby towns to sustain their livelihoods. Approximately 55% of casual work is conducted within local rural areas and 30% in nearby towns. The remaining 15% of casual labor occurs outside the zone, with Kinshasa being the primary destination for those seeking work beyond local markets.

Timeline and Reference Year

The baseline assessment refers to the reference year in the *Western High Production of Staple Crops, Groundnuts, and Palm Oil Livelihood Zone,* which covers the consumption period from December 2022 to November 2023. During community leader interviews, data collectors asked informants to score the last five years in terms of seasonal performance, with "1" indicating a poor season and "5" indicating an excellent season. Table 1 summarizes the response of the community leaders.

Overall, most years in CD28 have experienced average to above average agricultural production. Still, key informants ranked the reference year seasons as "4" (above average) and "3" (average) in terms of household food security. The latter half of 2024 was affected by prolonged dry spells and pest infestations, resulting in average production — considered relatively poor in the local context. These conditions forced households to adapt through various coping strategies, including increased labor, fishing, gathering of wild foods, trade, transfers, livestock sales, and charcoal sales.

Table 1. Timeline

Production Year/Season	Score	Critical Events
2024/Season B	3	Drought, pests, average production.
2023-2024/Season A	4	Excess rain, good production, stable price.
2023/Season B	3	Drought, pests, average production.
2022-2023/Season A	4	Excess rain, good production, stable price.
2022/Season B	4	Excess rain, good production, stable price.
2021-2022/Season A	4	Excess rain, good production, stable price.
2021/Season B	5	Excess rain, good production, stable price.
2020-2021/Season A	5	Excess rain, good production, stable price.

2020/Season B	4	Excess rain, good production, stable price.
2019-2020/Season A	4	Excess rain, good production, stable price.

5 = Excellent season for household food security (e.g., due to good rains, good prices, good crop yields)
4 = Good season or above-average season for household food security
3 = Average season for household food security
2 = Below-average season for household food security
1 = Poor season for household food security (e.g., due to drought, flooding, livestock disease, pest attack)

Note: "Production season" refers to the outcome of the agricultural production cycle that peaked during the Rainy Season and events that affected livelihoods until the end of the Lean Season.

Seasonal Calendar for Reference Year

The seasonal calendar in Figure 2 illustrates the main economic activities and events of the reference year. It traces the rainy months, agricultural activities, labor and livestock, food purchasing periods, and Lean Season.

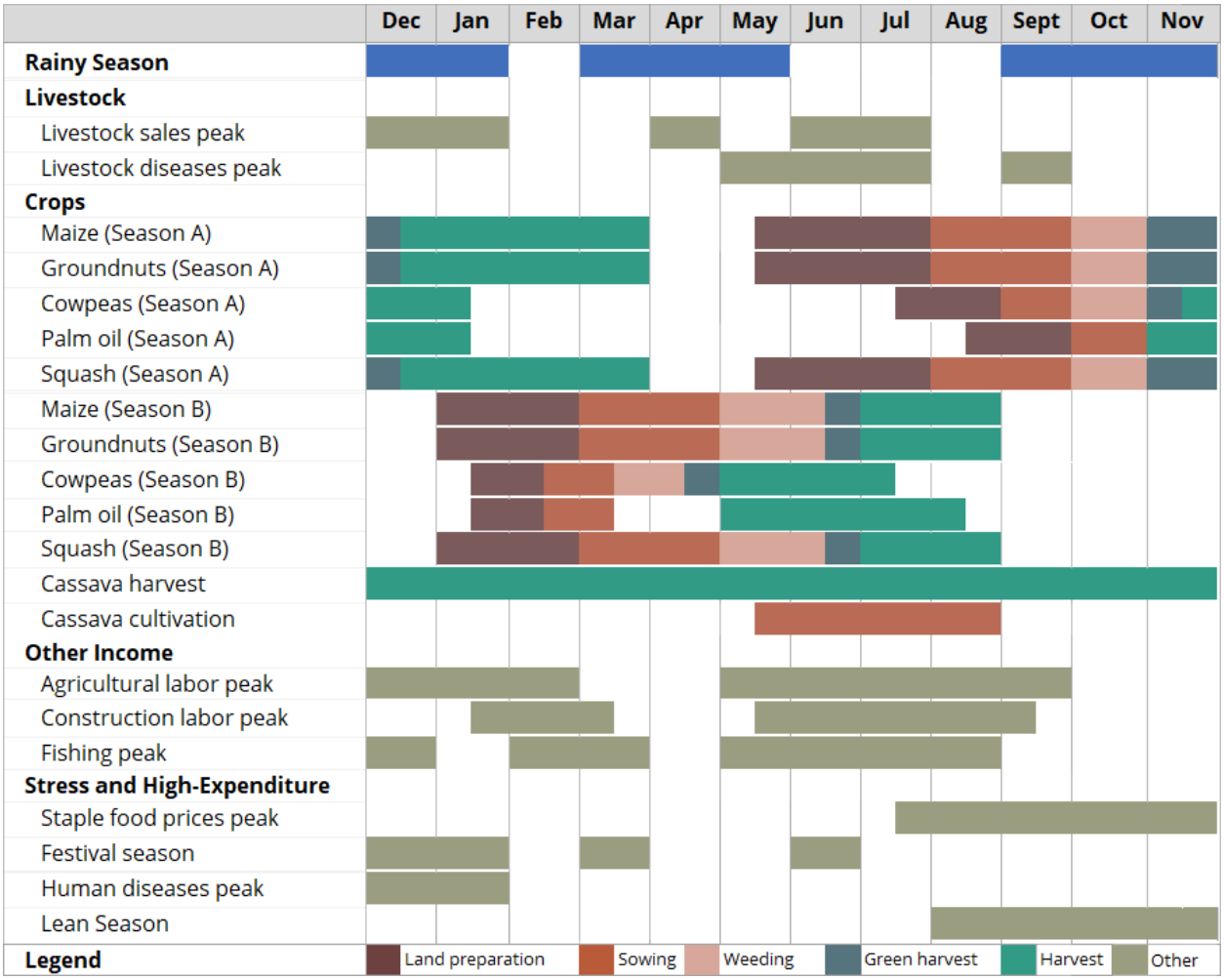
The seasonal calendar for the zone reveals a well-defined cycle of agricultural, livestock, and economic activities that sustain the livelihoods of households throughout the year. The year is divided into two primary seasons: the Rainy Season — from September to January (Season A) and from March to May (Season B) — and the Dry Season — in February and spanning from June to August. These seasons dictate the timing of critical agricultural activities, such as soil preparation, planting, and harvesting.

Households focus on land preparation and planting between May to September. Land preparation happens during the Dry Season in June to August, so planting can start with the rains in September. The second production season starts with land preparation in January and February and planting at the end of February to April, as the rains provide the necessary conditions for crop growth. The harvesting of crops, particularly maize, groundnuts, squash, and cowpeas, is concentrated in December to March for the first season and May to August for second season, when the Dry Season provides optimal conditions for drying and storing produce. Cassava, a staple crop in the zone, is harvested year-round, reflecting its importance in the local diet. Similarly, palm oil production is an ongoing activity, peaking from May to August and again in November to January. These crops and others are often combined during planting and harvesting (i.e., intercropped). For example, cassava and maize are a common combination, as are squash or maize and groundnuts. In contrast, cowpeas are typically grown as an individual crop.

Livestock activities closely align with the agricultural calendar. The success or failure of keeping livestock depends largely on the outcome of the Rainy Season. During the Rainy Season, surface water and pasture availability for livestock production improves, thereby increasing reproduction and productivity. Livestock sales are highest in December, January, April, June, and July, driven by

seasonal demand during the holidays and school exam time. The risk of livestock disease increases during the transitional periods at the start and end of the long dry period from May to July and in September. During these periods, there is increased expenditure on livestock drugs.

Figure 2. Seasonal Calendar



Labor demand fluctuates with the seasons. The need for agricultural labor is highest from December to July, driven by the intensive activities of soil preparation, planting, and harvesting. In contrast, the demand for non-agricultural labor remains steady throughout the year, providing critical income opportunities during the Dry Season, when agricultural work diminishes.

Human diseases, just like livestock diseases, can occur at any time of the year. However, diseases such as malaria peak during the warm Rainy Season, from December to January.

The Lean Season — the most difficult period in terms of access to food due to depleted food stocks, especially for poorer households, and high food prices — mainly occurs from August to November. These months are also hot months and the start of the Season A rains. Food prices peak during the

Lean Season, when household food stocks are low. Prices are lowest in December, January, and March, corresponding with the harvest periods when food is most abundant.

Households engage in various other seasonal activities, such as the year-round sale of firewood and charcoal, mushroom, and fruit picking during the Rainy Seasons, and fishing from December to March and May to October, when water bodies are most accessible.

This seasonal calendar reflects the intricate balance of activities that households in the zone must navigate to ensure their economic stability and food security throughout the year. The rhythm of the seasons dictates not only agricultural production but also the broader economic activities that sustain the community.

Table 2 shows the typical division of labor by gender. Men and boys are largely responsible for all livestock production, trade/small business, and labor/self-employment activities. Women are mostly involved in domestic work, including cooking, taking care of children, laundry, and (with men and children) agriculture. Men also engage in domestic work, including water collection.

Table 2. Typical Division of Labor

Shared Tasks	Women's Tasks	Men's Tasks
• Crop harvesting • Crop sales • Petty trade • Collection of water for domestic use	• Crop planting, weeding, threshing • Collection and sale of firewood • Household chores – cooking, laundry, and cleaning • Caring for young children • Wild foods collection and sale	• Agricultural (pre-harvest) labor – land preparation • Livestock herding • Slaughter of animals • Fencing and building animal shelter • Construction labor • Migratory labor • Fishing • Sale of livestock • Charcoal production and sale • Straw collection and sale • Motorcycle transport

Wealth Breakdown and Productive Assets

Table 3 summarizes the types and numbers of productive assets that typical households within each wealth group own and/or manage. Asset holdings are shown in a range that reflects the diversity of households' situations within a wealth group. Figure 3 shows the percentage of households within the zone that falls in each wealth group. The socioeconomic categorization of households in the zone was carried out by the communities themselves.

The main determinants of wealth in this zone are the amount of land owned and cultivated, the number of people in the household as it relates to adults able to work, and the types and numbers

of livestock owned. Other wealth determinants include the ability to engage in commerce/small business and ownership of productive assets, such as motorcycles, grinding mills, and energy generators.

Table 3. Wealth Breakdown

Household Size and Productive Assets	Very Poor	Poor	Middle	Better-Off	Poor Female-Headed
Household size	5-7	7-8	9-10	10-14	4-6
Land owned (ha)	0.3-0.5	0.5-1	2-4	4-6	0.3-0.7
Land cultivated (ha)	0.3-0.5	0.5-0.75	1-1.5	1-3	0.3-0.7
Land cultivated - food crops (ha)	0.1-0.3	0.3-0.5	0.5-1	0.5-1.5	0.1-0.5
Land cultivated - cash crops (ha)	0.1-0.3	0.1-0.3	0.3-0.5	1	0.1-0.3
Irrigated land (ha)	0-0.0015	0.015-0.1	0.03-0.09	0.25-0.5	0
Pigs	0	0	0-12	0-20	0
Goats	0-3	2-4	5-10	8-15	1-3
Poultry	2-10	5-10	15-35	25-45	4-6
Motorbikes	0	0	1-2	1-3	0
Grinding mills	0	0-1	0-3	0-3	0
Generators	0	0	0-2	0-2	0
Solar panels	0	0- 1	1-3	2-4	0

Crops are a significant source of income, and access to and control over land are significant wealth indicators. All households in CD28 own land, with wealthier households owning and cultivating areas of land three to six times larger than very poor households. In agricultural areas, the ability to cultivate larger plots, especially for food and cash crops, directly affects food security and income levels. The more land a household owns and cultivates, the greater the household's access to food and cash.

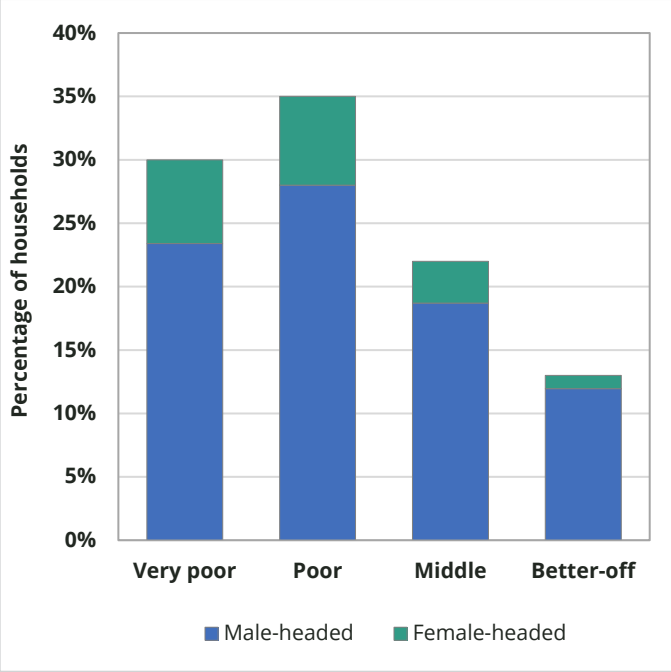
Labor availability and the ability of households to hire additional labor determine the ability to cultivate land, manage livestock, and engage in other income-earning activities. Household size increases with wealth. Larger households (9-14 members) tend to fall into the middle and better-off wealth groups. Conversely, very poor and poor households consist of 5-8 members. The more adults that are able to work for a household, the more income the household can generate from the main

agricultural livelihood activities and other self-employment activities. The ability of larger households to generate more income also enables wealthier households to pay for additional labor to supplement their own labor.

Livestock are crucial to households from all wealth groups in the livelihood zone; livestock provide a source of income and a means of investing, saving, and coping in difficult years. The more livestock a household owns, the better access the household has to food and cash. Livestock directly contribute to food security by providing meat and serving as the primary source of cash income (through the sale of live animals). Households in all wealth groups in CD28 own livestock, but wealthier households have larger herds, enhancing their economic stability and ability to sustain livelihoods.

Figure 3. Wealth Breakdown

Note: All results are the mid-point of a range.



The main types of livestock that households in this zone keep are pigs, goats, and poultry. Cattle and sheep ownership is unusual in the zone. Goats and pigs are the most significant and valuable livestock in CD28 because they provide households with economic security. Wealthier households keep all types of livestock and have relatively large holdings. In contrast, poorer households own a few goats and poultry. Very poor households tend to own 1-2 goats, and poor households tend to own 2-4 goats.

Commerce/small business is an important economic activity in CD28. Middle and better-off households with the necessary resources typically engage in commerce. Wealthier households own 1-3 motorcycles and 1-4 generators or solar energy equipment. Poorer households, on the other hand, have few productive assets, except for some goats and their own labor.

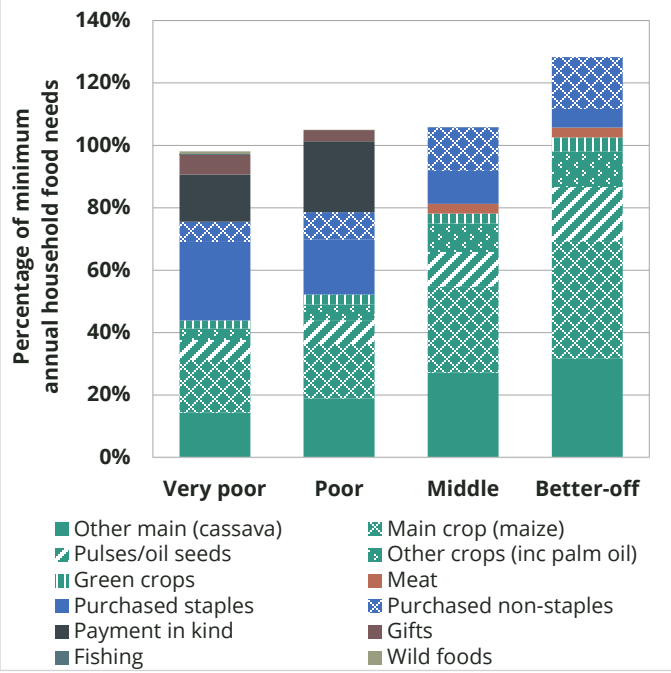
Very poor households constitute 25-35% of this livelihood zone, poor households 30-40%, middle households 15-30%, and better-off households 10-15%.

Sources of Food

Figure 4 presents the sources of food for households in different wealth groups in CD28 for the period December 2022 to November 2023 (the reference year). December represents the start of the consumption year, when the main harvest begins and the Lean Season ends. Food is presented

as a percentage of the annual caloric needs of the household based on the internationally accepted estimate of 2,100 kilocalories (kcal) per person per day.

Figure 4. Sources of Food



There were three main sources of food in this zone and four minor sources in the reference year. For households from all wealth groups, the main food sources were their own crop production and market purchases, in addition to payments in-kind for very poor and poor households. The minor sources included livestock production, wild foods, fishing, and gifts.

The contribution of households' own crop production depends on the level of land area cultivated and investments in production through additional labor and purchasing inputs. Middle and better-off households owned and cultivated more land and hence obtained more food from their own crop production in the reference year. Maize and cassava were the major food crops, contributing over 50% of calories from crops across all wealth groups. Pulses and palm oil were also important crops, contributing diversity to consumed crops. Crops accounted for 40-55% of annual needs for very poor and poor households and 75-105% of annual needs for middle and better-off households.

Purchased foods were the second most significant food source for households from all wealth groups, contributing about 20-35% of annual needs in the reference year. Very poor and poor households did not meet their food needs from their own crop production, so they had to rely on markets to complement their own food production, which explains their higher calories from purchased foods. Middle and better-off households purchased non-staple foods and some staple foods, such as rice and wheat flour, which were imported into the zone. The variation in purchased calories meant that variations in food prices affected household groups differently.

Very poor and poor households complemented their food access by exchanging labor, mostly in agricultural activities paid for in kind in addition or in cash. This source accounted for 10-20% and 20-25% of annual food needs, respectively. The availability of labor opportunities and the capacity of wealthier households to hire labor was therefore critical for the food security of poorer households, demonstrating the interdependence of wealth groups for sustainable livelihood access.

For very poor and poor households, minor food sources included gifts, contributing up to 10% of food needs. For middle and better-off households, minor food sources also included meat from

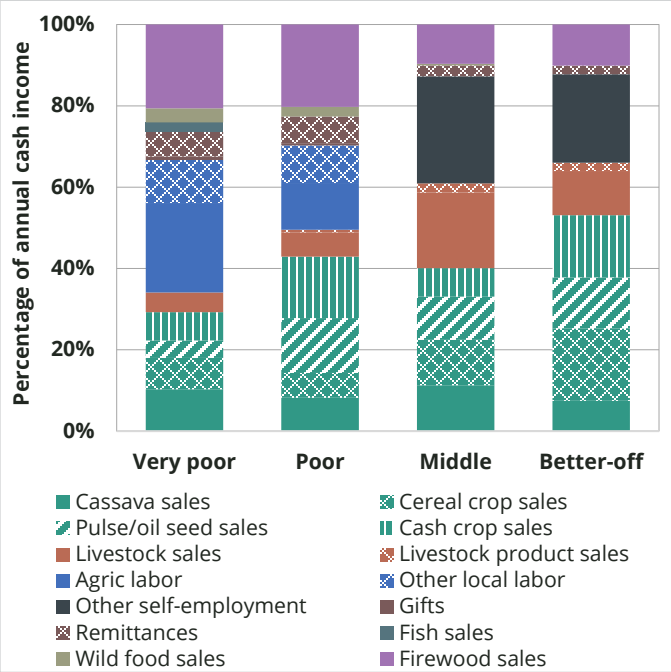
their own livestock, contributing up to 5% for both wealth groups. Wild foods, another minor food source, contributed to about 1% of food needs for very poor and poor households.

Overall, the reference year was average in terms of food security, with households from all wealth groups meeting or nearly meeting their minimum annual food energy needs.

Sources of Cash Income

Crop sales and livestock sales were the main income-generating activities in CD28 in the reference year. The main means of obtaining cash income varied by wealth group (see Figure 5). Middle and better-off households had a similar income profile, with crop sales, small business, and livestock sales constituting the top three sources of cash. For the very poor, wage labor, crop sales, and self-employment were the top three sources of cash.

Figure 5. Sources of Cash Income as a Percentage of Annual Cash Income



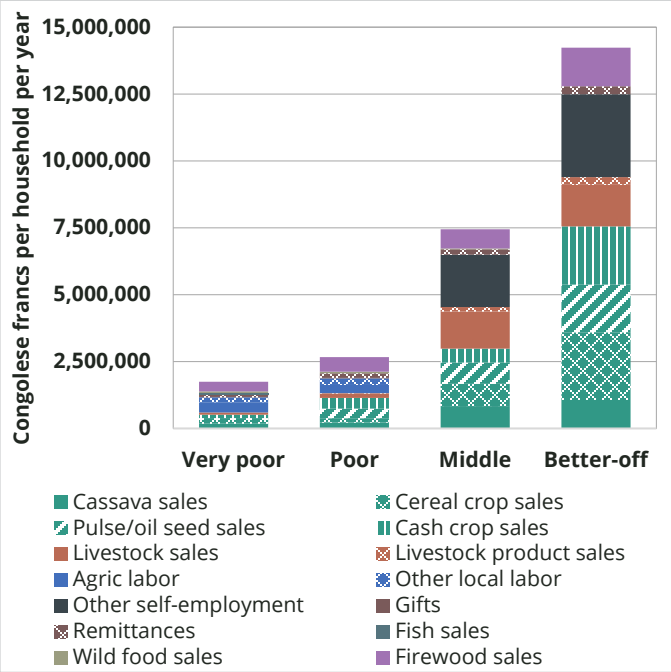
Crop sales were the main income source for all wealth groups, contributing approximately 30% of income for very poor households and between 40-55% for poor, middle, and better-off households, increasing with wealth. Livestock income was the third most important source of cash for middle and better-off households. It generated roughly 10-15% of total cash income for better-off households and roughly 20% for middle households. This was an income source for all wealth groups. It generated roughly 5% of total cash income for very poor households and 5-10% for poor households. This variation stemmed mostly from ownership of different livestock, with wealthier households selling goats and pigs and very poor households selling a few goats and poultry.

Firewood sales and remittances were other income sources that all wealth groups accessed in the reference year. These were more important for very poor and poor households; approximately 20% of their annual income was from firewood sales and 5-10% of their annual income was from remittances. In comparison, middle and better-off households obtained around 10% of their incomes from firewood sales and less than 5% from remittances in the reference year.

Middle and better-off households supplemented their incomes with petty trade/small businesses, and very poor and poor households supplemented their incomes by providing labor to wealthier

households for casual agricultural and domestic work. Wage labor was an important cash income source for very poor and poor households. It generated roughly 30% of total cash income for very poor households and 15-25% for poor households. The main types of labor were cultivation, construction, and harvesting. Additionally, poorer households earned small amounts of income from gifts, fish, and wild foods sales.

Figure 6. Total Annual Cash Income



Differences between wealth groups in the absolute amount of cash income generated during the reference year were large. Overall, the better-off earned about eight times the annual cash income of the very poor. Differences between wealth groups in per capita cash income were large, but smaller than for total income. Overall, the better-off earned about four times the annual per capita cash income of the very poor. There was a progressive increase in annual per capita cash income with increasing wealth. This gap is illustrated in Figure 6 and in Table 4.

Table 4. Income Summary Table (Congolese Francs or CDF)

Wealth Group	Very Poor	Poor	Middle	Better-Off
Annual income per household[5]	1,500,000-2,000,000	2,400,000-2,900,000	5,000,000-10,000,000	10,000,000-20,000,000

Expenditure Patterns

Figure 7 presents expenditure patterns for the reference year, December 2022 to November 2023. Although absolute expenditure increased with wealth in line with total cash income, this graph's expenditure breakdown by percentage shows the *relative* amount of income spent on different categories. Households in the zone needed to cover a range of essential expenditures over the year, including staple foods, non-staple foods, household items/services (like salt, soap, tea, lighting, milling), productive inputs, social services (e.g., health and education), clothing, and other essential and non-essential items.

[5] The average exchange rate from December 2022 to November 2023 ranged from 1 USD = 2,200-2,500 CDF.

Figure 7. Total Annual Cash Expenditure by Category

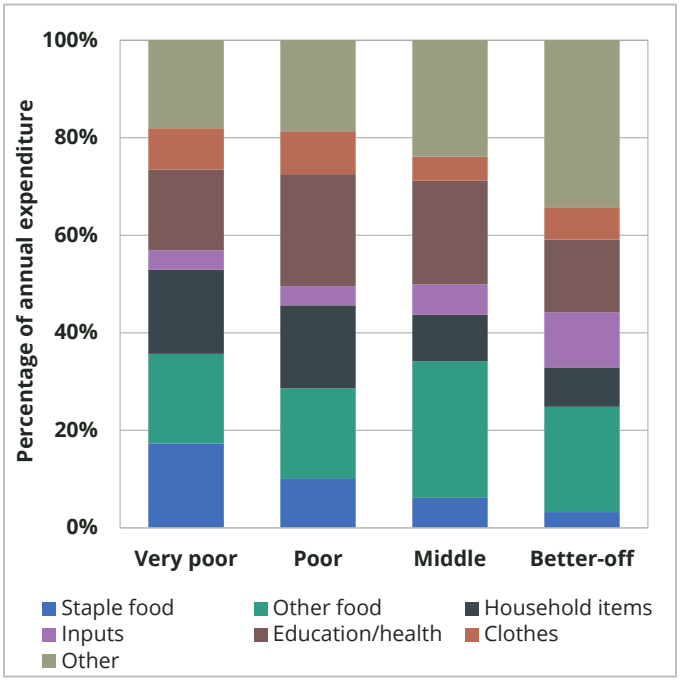


Figure 7 shows that households from all wealth groups spent significant proportions of their annual income on staple and non-staple foods. As the Sources of Food section above notes, households in this zone complemented their own food production with purchases to meet their food needs and to obtain foods that they did not produce. Non-staple foods accounted for 15-20% of total expenditure by very poor and poor households and 20-30% by the middle and better-off. The main non-staple foods purchased were vegetable oil, palm oil, sugar, cowpeas, and beans. There was a progressive decrease in the share of expenditure on staple foods as wealth increased. Staple foods accounted for 10-20% of total expenditure for very poor and poor households and less than 10% for middle and better-off households. The main staple foods purchased were maize, cassava, and rice.

Other non-essential items were an expenditure category for all wealth groups, accounting for 15-20% of total expenditure for very poor and poor households and roughly 35% for better-off households. The main items in this category were transport, gifts, and other non-essential items.

Health and education accounted for 20-25% of total expenditure for middle and poor households and roughly 15% for very poor and better-off households. Better-off households' per capita expenditure was close to two times that of per capita expenditure by poor households.

Inputs were not among the top three expenditures for either very poor households or better-off households. Inputs accounted for roughly 5% of total expenditure for very poor, poor, and middle households and roughly 10% for the better-off households. The main items in this category were labor, tools, and seeds.

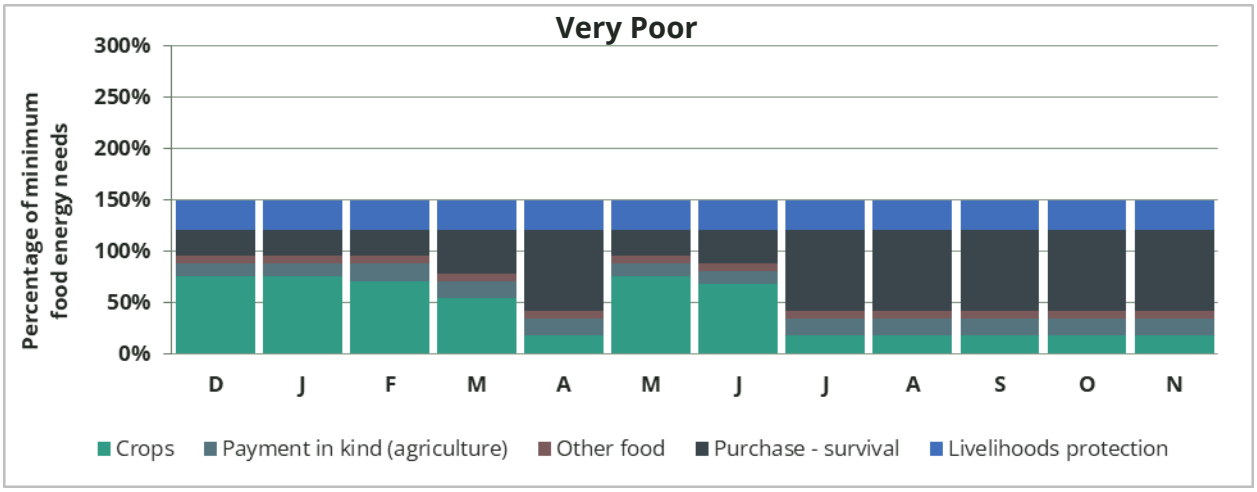
Food Access Calendars

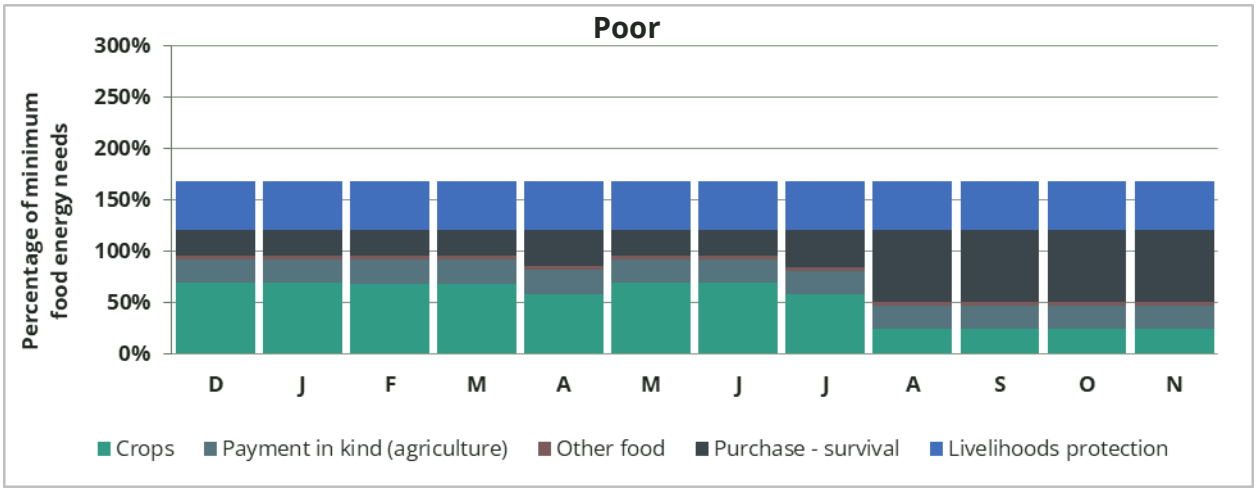
The graphs in Figure 8 present monthly food and cash access calendars for the four wealth groups.

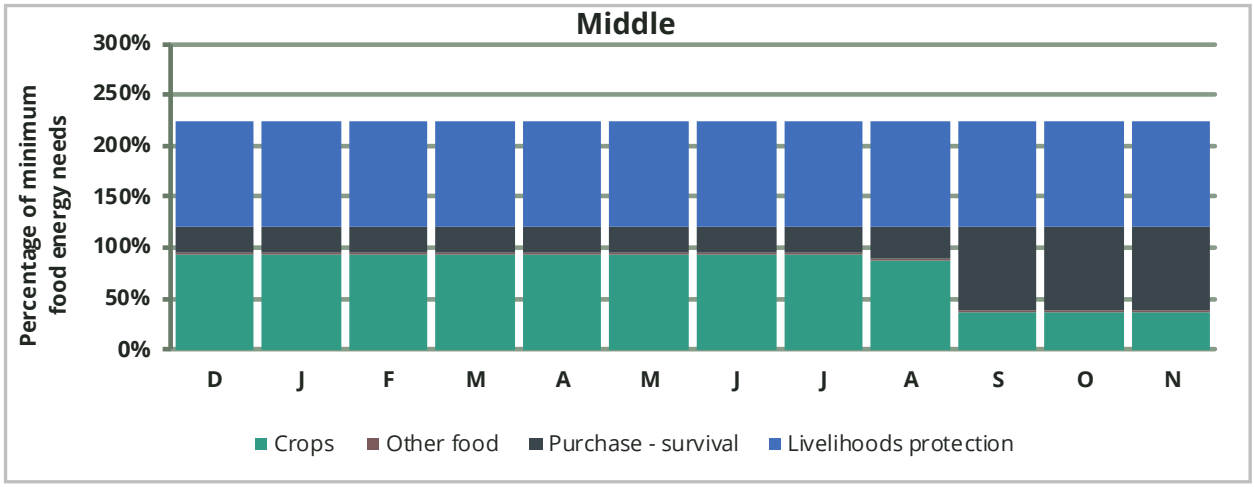
Households from all wealth groups were able to meet their minimum survival and livelihood protection thresholds year-round in the reference year, with a peak reliance on food purchases from April and in July to November, particularly for very poor households. The Season A harvest starts in December and the Season B harvest starts in May. The dark blue "livelihoods protection" sections of

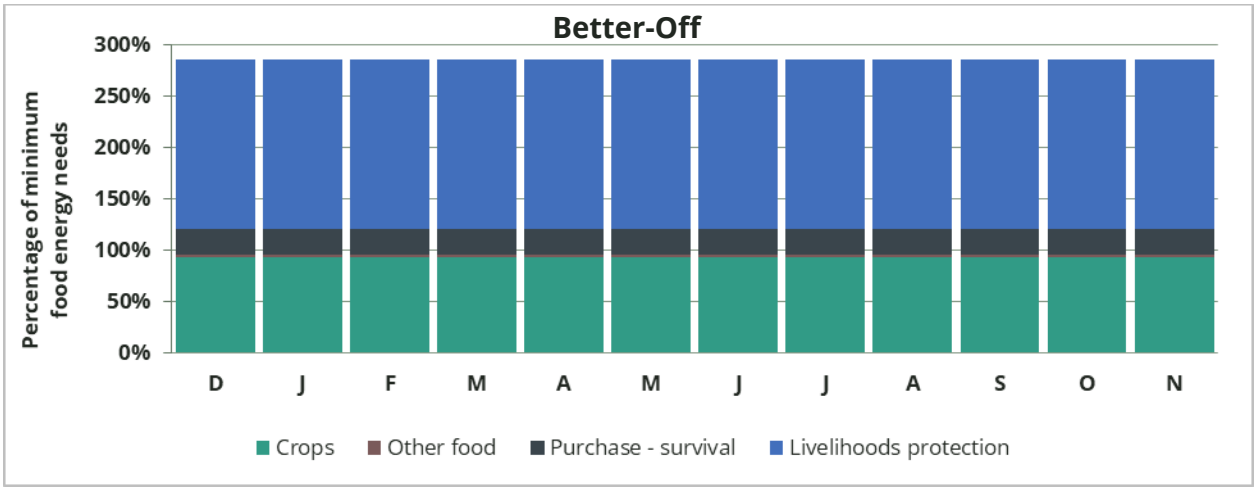
the bars increase as a proportion of the total with wealth because wealthier households can afford to spend more on productive inputs, health, and education.

Figure 8. Seasonal Food and Cash Access Calendars per Wealth Group









Poor Female-Headed Households

Female-headed households exist in each wealth group, as the wealth breakdown in Figure 3 shows. During fieldwork, data collectors conducted in-depth interviews with poor female-headed households. In these households, women were responsible for decision-making related to daily activities and financial expenditures. Poor female-headed households faced constraints similar to the constraints that poor male-headed households faced, but poor female-headed households were further disadvantaged by a lack of adult male labor. In general, the lack of adult male labor has the potential to lead to additional constraints on types of asset ownership, productive work, or income-generating activities. Notably, women in CD28 have the right to inherit and own land and to sharecrop land with men. They also have the right to buy, inherit, and receive gifts of livestock.

Figure 9 shows that poor female-headed households and poor male-headed households had similar patterns of food access, both meeting their annual minimum food energy needs mainly from their own crop production and market purchases. Poor male-headed households cultivated slightly more land than poor female-headed households and thus harvested slightly more and had slightly more calories from crop production than the poor female-headed households.

The income picture in Figure 10 shows that poor male-headed households and poor female-headed households had similar sources of cash income in the reference year, except for construction labor and firewood sales, which were only income sources for poor male-headed households.

Despite having similar sources of cash income, poor female-headed households earned less than half the annual income of poor male-headed households. First, poor female-headed households sold slightly less pulses, cassava, and cash crops than the poor male-headed households sold. Second, poor male-headed households had more income from livestock and meat sales because they had slightly more livestock compared to the poor female-headed households. Third, poor male-headed households had more income from agriculture labor, as they had more working adults compared to poor female-headed households. Fourth, poor male-headed households had more

adults to work in construction labor and collect firewood/produce charcoal for sale. Fifth, poor female-headed households had more income from fish sales. Income from remittances and gifts was similar for poor female-headed households and poor male-headed households.

Figure 9. Sources of Food: Poor Households vs Poor Female-Headed Households

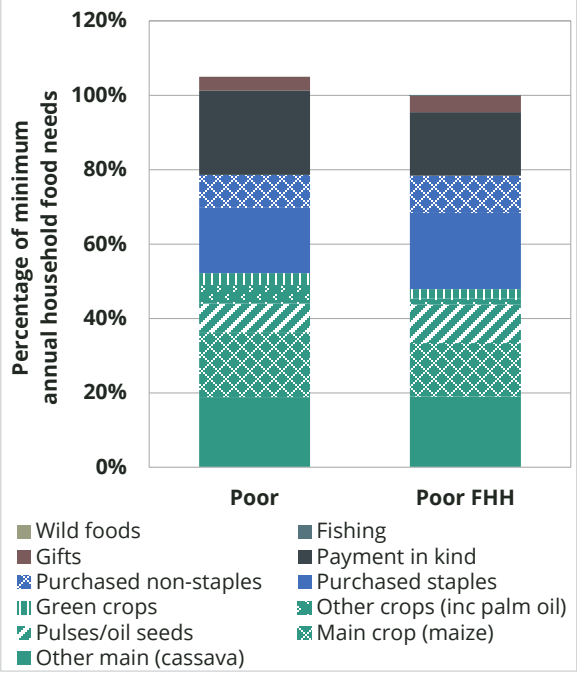
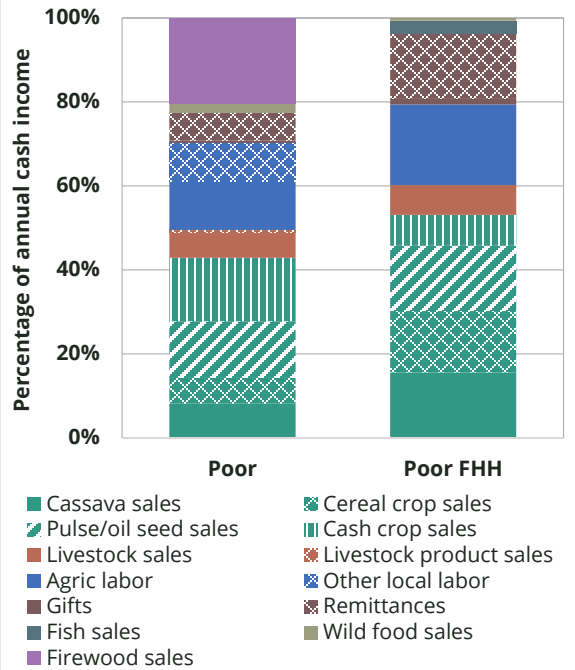


Figure 10. Sources of Cash: Poor Households vs Poor Female-Headed Households



Response Strategies

In response to hazards and years with bad production, households attempt to meet their minimum food needs and cash requirements through several strategies. Below are some common strategies employed by households.

Households from all wealth groups try to reduce expenditure on non-essential or more expensive items first, such as by cutting down on festival costs or not buying clothes or utensils that year. Households consume less rice in favor of cassava or maize, which are the cheapest staples.

Very Poor and Poor Households

Very poor and poor households try to increase cash income through the intensification of casual labor activities. However, in bad years, as increasing numbers of people flood the labor market, this option quickly loses its value because wage rates drop, and jobs are harder to find. Poorer households also intensify self-employment activities, such as the sale of firewood and charcoal and the collection of wild foods in bad years.

Middle and Better-Off Households

Middle and better-off households cope with hazards differently. Middle and better-off households sell additional livestock to cover basic food and non-food expenses in bad years and to destock when the local environment cannot support all the livestock. They also increase self-employment activities, such as trade.

Key Parameters for Monitoring

The key parameters in Table 5 are food and income sources that make a substantial contribution to the household economy in the *Western High Production of Staple Crops, Groundnuts, and Palm Oil Livelihood Zone.* These should be monitored to track potential losses or gains to local household economies through ongoing monitoring systems or periodic assessments.

Table 5. Key Parameters for Monitoring

Item	Key Parameter – Quantity	Key Parameter – Price
Crop production	• Maize Season A – quantity produced • Maize Season B – quantity produced • Cassava – quantity produced • Groundnuts Season A – quantity produced • Groundnuts Season B – quantity produced • Cowpeas Season A – quantity produced • Palm oil – quantity produced • Cassava leaves – quantity produced • Squash Season A – quantity produced	• Maize Season A – producer price • Maize Season B – producer price • Cassava – producer price • Groundnut Season A – producer price • Groundnut Season B – producer price • Cowpeas Season A – producer price • Palm oil – producer price • Cassava leaves – producer price • Squash Season A – producer price
Livestock production	• Pigs – herd size • Goats – herd size	• Pigs – price per animal • Goats – price per animal
Other food and cash income	• Cultivation labor – number of days • Harvesting labor – number of days • Construction labor– number of days • Domestic work – number of days • Remittances – volume • Firewood/charcoal – quantity sold • Straw collection – quantity sold • Petty trade – demand	• Cultivation labor – wage rates • Construction labor – wage rates • Domestic work – wage rates • Remittances – amount received • Firewood/charcoal sales – producer price • Straw – producer price • Petty trade – daily earnings
Expenditure		• Cassava – consumer price • Maize – consumer price

CD29 Livelihood Zone

Reference Year: January 2023–December 2023

Cassava, Maize, and Groundnuts Livelihood Zone

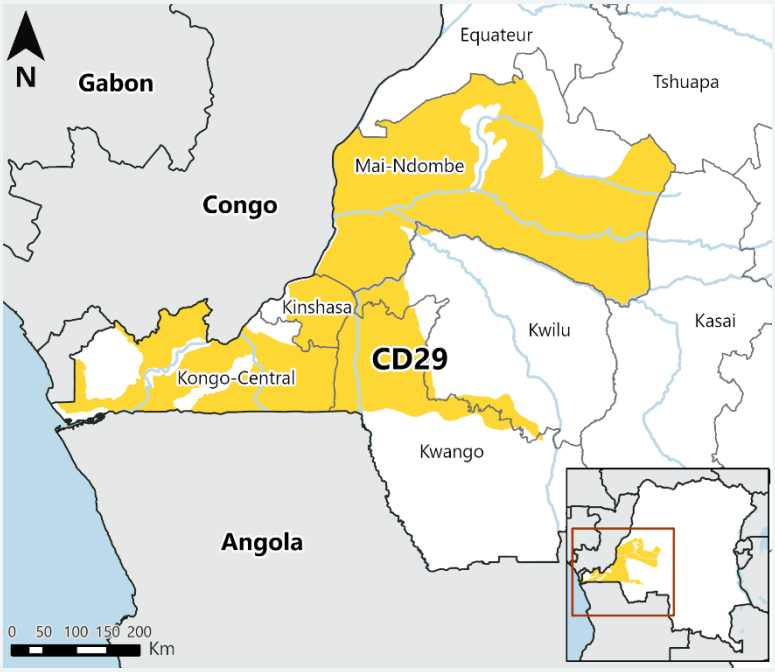


Figure 1. CD29 Livelihood Zone Map

Summary: The *Cassava, Maize, and Groundnuts Livelihood Zone* (CD29) is one of the largest livelihood zones in the Democratic Republic of the Congo (DRC), spanning several provinces, including Kongo-Central, Kwango, Kwilu, parts of Mayi-Ndombe, and skirting the Kinshasa peri-urban zone. Rolling plains and plateaus characterize the zone, with some water-rich and fertile areas along key rivers. The climate is tropical, with distinct Wet and Dry Seasons that play a major role in determining the agricultural calendar. The zone is a net exporter of staple and non-staple foods, supplying the demand of the Kinshasa market. Fertile sandy-clay and clay soils characterize the zone, supporting the relatively productive cultivation of its primary crops: cassava, maize, pulses, and groundnuts.

Agriculture is predominantly rain-fed. The zone's economy relies heavily on crop production, and crop sales provide well over half of the total annual cash income for all wealth groups, supplemented by petty trade, firewood collection, charcoal production, and the sale of wild foods. Poorer households engage in paid agricultural labor within the zone. Livestock rearing of goats, pigs, sheep, and poultry plays a minor role, mainly for income through occasional sales. Market access is challenging due to poor infrastructure, especially during the Rainy Season. The major commercial hubs include Kenge, Kisantu, and Madimba, and the key destination is Kinshasa.

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Zone Description

The *Cassava, Maize, and Groundnuts Livelihood Zone* (CD29)[1] is one of the largest livelihood zones in the DRC. The zone spans multiple provinces in the country's western portion, including parts of Kongo-Central, Kwango, Kwilu, Mai-Ndombe, and the outskirts of Kinshasa. It borders Angola to the south and the Congo-Brazzaville to the north and west. The population of CD29 is 5,949,298, with an average population density 34 people per square kilometer.[2] Rolling plains and plateaus characterize the zone, with some water-rich and fertile areas along key rivers, such as the Congo, Kwango, Inkisi, and Lufimi. The terrain is mostly flat or gently undulating, interspersed with hills in certain areas. The region also has significant savannah and scrubland vegetation, particularly in the zone's more elevated or dry parts. More fertile areas near rivers support agriculture. Larger rivers, like the Congo, Kwango, and Lufimi, and Lake Mai-Ndombe are important natural features in terms of agricultural irrigation potential and as transportation routes. The climate is tropical, with distinct Wet and Dry Seasons, which play a major role in determining the agricultural calendar. The average rainfall per year is about 1,560 millimeters.[3] Rainfall patterns are favorable for crop production, although the zone can experience variability in rainfall, leading to occasional droughts or flooding in some areas.

The zone includes fertile plains that are highly conducive to agriculture. Soil quality is good. The soils in Kwango Province are sandy-clay and fertile, while the soils in Kongo-Central are clay and fertile. Cassava, which is highly resistant to dry spells, forms the backbone of food security in the zone. Households harvest cassava throughout the year to meet household consumption needs and to sell for cash. Cassava leaves are a common part of meals. Farmers grow maize, groundnuts, cowpeas, sweet potatoes, and beans in two main seasons. Season A, the more significant, productive season, tends to dominate because of better rainfall distribution, while Season B may face challenges, such as inconsistent rains and occasional crop failures. Households grow various vegetables for consumption and sale in local markets, including squash, eggplant, tomatoes, and peppers. Farmers grow these crops in rain-fed and irrigated systems, depending on the availability of water resources. Households also cultivate perennials: oil palms, plantains, and dessert bananas, more for commercial sale than domestic consumption. The zone is a net exporter of staple and non-staple foods, supplying the demand of the Kinshasa market.

Livestock production is limited in the zone, but it complements the predominant agricultural activities by contributing cash to all households. Households typically rear goats, pigs, sheep, and poultry for sale rather than consumption. Also, households sometimes sell livestock products to local markets, but they do not rely heavily on livestock for food security. Livestock get water from rivers, marshes, streams, and natural ponds during the Rainy and Dry Seasons. Men typically handle

[1] Fieldwork for the current profile was undertaken from August 14 to September 11, 2024. The information presented in this profile refers to the reference year, which was the consumption year that covered the period January to December 2023. Provided there are no fundamental and rapid shifts in the economy, the information in this profile is expected to remain valid for approximately five to 10 years (i.e., until 2028-2033). All prices referred to in the document are for the reference year.
[2] FEWS NET Data Explorer, population data (2023), accessed 2025, https://fdw.fews.net/data-explorer/.
[3] FEWS NET Early Warning Explorer CHIRPS dataset 2022-2023 and 2023-2024 average.

the care, sale, and slaughter of goats, pigs, and sheep, whereas women are primarily responsible for rearing poultry. Livestock sales peak during festive seasons and at the start of the school year, when people need extra cash to pay for school fees and materials.

Agricultural paid labor is the second most important source of income for poorer (i.e., very poor and poor) households, while petty trade is more important for wealthier (i.e., middle and better-off) households. Land preparation, planting, sowing, weeding, and harvesting are the main activities requiring substantial labor input. Households carry out land preparation by hand digging, a labor-intensive process that involves significant physical effort and is generally done by men. Weeding is usually done by women, while men and women plant/sow and harvest together. Agricultural laborers are paid in cash or in kind (i.e., in food), with payments for land preparation, planting/sowing, and weeding made in cash, while harvesting labor is compensated with food and cash.

Commerce, including petty trade, is essential for households in all wealth groups, and all household members, including children, participate. Men typically sell manufactured goods and agricultural products, while women sell small items, fruits, vegetables, and gathered products. Most petty trade occurs in local markets and along the roads connecting villages to larger towns and cities, especially Kinshasa. Kinshasa is one of Africa's biggest cities, with a population of around 17 million out of a national total of 100 million. The city serves as a great trade hub not only for the region in which CD29 is located but also far beyond to the west, north, east, and south. In the zone, households often sell their goods in nearby market centers. Still, poorer households face challenges in reaching larger, more profitable markets due to poor road infrastructure, especially during the Rainy Season when access becomes especially difficult.

The collection and sale of charcoal and firewood are common sources of income, particularly for poorer households. Charcoal production involves harvesting trees, primarily from savannah and forest areas, followed by burning the wood in kilns or pits to produce charcoal. Households sell the charcoal locally or transport it to nearby towns and cities, notably Kinshasa, where there is significant demand for it as a primary cooking fuel source. Firewood collection is also a widespread activity. Households gather firewood from forests and scrublands, often near rivers or remote areas. They sell the firewood either directly in local markets or use it to produce charcoal. Like charcoal, firewood is in high demand for cooking and heating, as it is much more affordable than charcoal to use and is the fuel of choice for the poorer rural majority.

Income from wild foods plays a supplementary role in the livelihoods of poorer households. The most common wild foods include mushrooms, fruits, edible leaves, and tubers collected in forested and savannah areas. Households consume these wild foods and sell them in local markets. Very poor households are the most dependent on these activities for income. Fishing is limited in the zone; again, it is mainly a source of income for poorer households. People fish near rivers and water bodies within the zone, especially along the Kwango River. Households sell the fish fresh, as there is no tradition of drying or smoking fish in this zone. Men engage in hunting game in forested areas.

Households face several key hazards that significantly affect their livelihoods. These hazards occur with varying frequency and have a range of effects on agricultural and livestock productivity and market access. Pests and crop diseases, such as fall armyworm (for maize) and crop rot due to excess water in the soil (for cassava and sweet potatoes) occur almost annually, leading to reduced agricultural yields and food insecurity. Cassava mosaic disease does not significantly impact this zone because farmers use improved varieties from INERA (*Institut National pour l'Étude et la Recherche Agronomique*). Flooding and heavy rainfall happen approximately every two years and often damage crops and infrastructure, particularly affecting poorer households. Livestock diseases, including peste des petits ruminants, swine erysipelas, and glanders, are common and negatively impact herd productivity. High temperatures and rain irregularities occur every two years, reducing crop and livestock productivity and further straining household resources. Poor infrastructure, significantly deteriorating roads, and limited market access exacerbate the effects of other hazards by making it difficult for households to transport goods or access necessary services. Conflict in the zone, carried out by armed militias, causes displacement, limiting people's ability to cultivate and maintain livestock. Localized conflict in the past few years has displaced households and limited market access.

Access to sanitation, clean water, and health services is limited, particularly for poorer households. For water, households rely on open wells, rivers, and boreholes. Access to safe drinking water is inconsistent, with most households using untreated water from these sources. There is no payment for water. Sanitation infrastructure is similarly underdeveloped, with traditional pit latrines being the most common form of sanitation across all wealth groups. Access to healthcare services is constrained by both geographic distance and affordability. The main healthcare facilities in the zone are dispensaries and health centers, which offer limited services. There are also a few privately run health posts. In cases of serious illness, wealthy households can go to nearby hospitals. Education access varies based on household wealth. The maximum education level achieved is generally primary school for members of poorer households, while children in wealthier households are more likely to have access to secondary and higher education. Access to secondary education is limited, and the cost of schooling, including fees and materials, can be a barrier for poorer households.

Markets

Market access is a significant challenge because of the poor state of road networks. Only a few major roads, such as the National Route 1 (RN1), connect the zone. RN1 links two major commercial centers to the southwest of Kinshasa: Kinshasa and Matadi. In Kongo-Central Province, the N16 goes from Kisantu south to the Angola border. Eastward, the N1 runs through the zone into Kwilu Province, while the N17 branches northward off the N1 toward Bandundu. Otherwise, almost all roads in the zone are dirt roads that become difficult or impassable during the Rainy Season, severely limiting household access to markets, especially those in more remote areas. This poor infrastructure affects the ability of farmers to transport their agricultural products to larger markets. As a result, households often face lower prices for their produce in local markets, which are more

accessible but less profitable. The lack of bridges and the deteriorating condition of roads further complicate transportation. Even stretches of national highways may become impassable in the Rainy Seasons.

The main commercial hubs in the *Cassava, Maize, and Groundnuts Livelihood Zone* are Kenge and Madimba in the east and Kisantu in the west, with Kinshasa serving as a final destination for the trade of all goods, including agricultural produce like cassava, maize, and groundnuts. The commercial routes for most commodities typically start at local markets, move through the hubs, and then reach Kinshasa, where prices are higher, providing better returns for wealthier households who can afford the transport costs. Local markets within the livelihood zone are important for initial sales, but the larger towns play a crucial role in absorbing surplus production, particularly during peak sales. Vegetables, being perishable, are often prioritized for faster transport to urban centers, where they can be sold quickly. The main vegetable trade route is from local markets through Kisantu and then to Kinshasa.

Nearly all paid labor takes place within the livelihood zone and is predominantly agricultural work. A small amount of other non-agricultural local labor, such as construction, also occurs, and there are enough work opportunities within the zone that seasonal work migration is not common.

As for staple foods purchased by households, most, especially maize and cassava, come from within the zone. The exception is rice, which is not grown locally and must be imported to the zone either from Kinshasa or Angola and traded to local markets.

Timeline and Reference Year

The baseline assessment refers to a specific period called the “reference year.” The reference year in the *Cassava, Maize, and Groundnuts Livelihood Zone* covers the consumption period from January to December 2023. During community leader interviews, data collectors asked informants to score the last five years in terms of seasonal performance, with “1” indicating a poor season and “5” indicating an excellent season. Table 1 summarizes the responses of the community leaders.

Overall, most years in the zone are average or above average in terms of household food security. Adequate rainfall, particularly during the Rainy Seasons from September through February and in April, ensures sufficient water supply for crops, contributing to high yields. Conversely, unpredictable weather patterns, such as droughts or excessive rainfall, lead to poor production years. Often, the rain patterns are favorable in the zone. Outbreaks of pests and diseases can also contribute to bad production years. Common issues include infestations by fall armyworms, which can devastate maize crops if not managed effectively.

Violent disputes over taxation arise from time to time. The Mobondo militia carried out several attacks in 2022, 2023, and 2024. The Mobondo militia is active in an area east of Kinshasa, centered around Mbankana. This localized conflict affects people’s access to land and hinders market access.

Table 1. Timeline

Production Year/Season	Score	Critical Events
2023/Season B	3	Abundant rainfall.
2022-2023/Season A	3	Abundant rainfall but with high temperatures and crop pests and disease.
2022/Season B	2	Excessive heat, crop pests, and disease.
2021-2022/Season A	3	Abundant rainfall tempered by high temperatures and crop pests.
2021/Season B	4	Good agricultural production due to favorable conditions. Ample and consistent rainfall.
2020-2021/Season A	4	Good agricultural production due to favorable conditions. Ample and consistent rainfall.
2020/Season B	3	Good agricultural production due to favorable conditions.
2019-2020/Season A	4	Good agricultural production due to favorable conditions.
2019/Season B	3	Abundant rainfall tempered by high temperatures and crop pests.
2018-2019/Season A	3	Abundant rainfall tempered by high temperatures and crop pests.

5 = Excellent season for household food security (e.g., due to good rains, good prices, good crop yields)
4 = Good season or above-average season for household food security
3 = Average season for household food security
2 = Below-average season for household food security
1 = Poor season for household food security (e.g., due to drought, flooding, livestock disease, pest attacks)

Seasonal Calendar for Reference Year

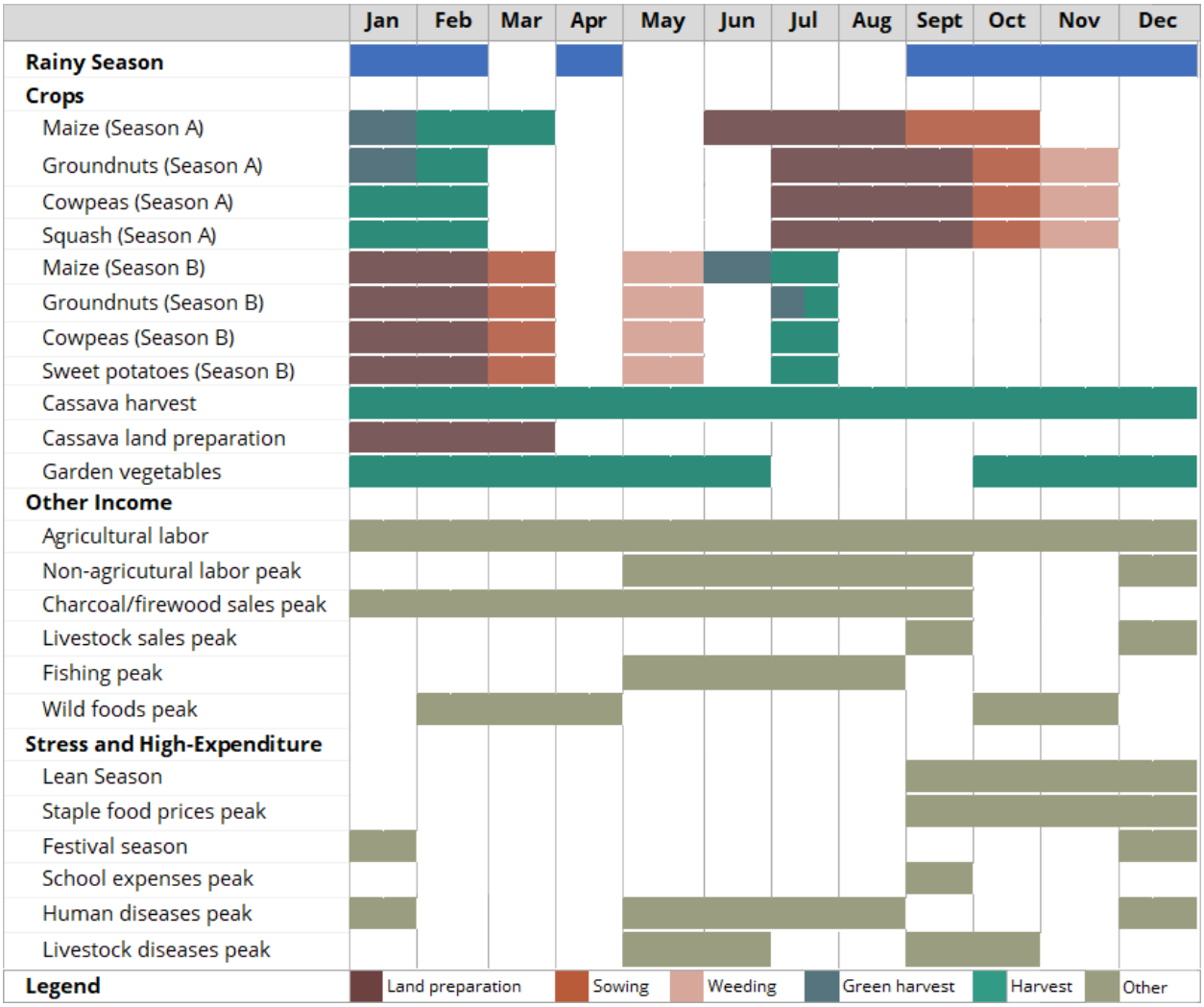
The seasonal calendar (Figure 2) illustrates the reference year's main economic activities and events. It traces the rainy months, agricultural activities, off-farm income-generating activities, food-purchasing periods, etc.

The agricultural economy in the *Cassava, Maize, and Groundnuts Livelihood Zone* revolves around two main Rainy Seasons, September through February and April. Most food crops are rainfed, and rains dictate their crop cycles. The notable exception is cassava, the primary food crop, which is harvested throughout the year. Market vegetables (tomatoes, peppers, and eggplant) require irrigation and, therefore, are not dependent directly on rainfall. Households grow these vegetables year-round, though sales peak from October to June.

Agricultural production is divided into two main seasons for maize, groundnuts, beans, squash, and cowpeas: Season A and Season B. Season A is the dominant agricultural season, and its consistent

rainfall contributes to better overall agricultural performance. Season A starts with planting in September/October and ends with harvests in January/February. Season B begins with planting in March and concludes with harvests in July. Occasional weather disruptions mark this season, including extreme heat and inconsistent rain patterns, which can lead to reduced yields and crop damage. As a result, Season B tends to be less productive than Season A. Farmers only grow sweet potatoes in Season B.

Figure 2. Seasonal Calendar



Agricultural labor is paid either in cash or in kind, depending on the activity. Land preparation, sowing, and weeding are typically paid in cash. Payment for work during harvest might include food, such as maize, and cash. Non-agricultural labor is highest from May through September (corresponding to most of the Dry Season). The demand for charcoal and firewood is consistent, driven by its widespread use as a cooking fuel in rural and urban areas. Although it is sold year-round, peak months for charcoal and firewood sales are January through September. Petty trade involves men, women, and children from all wealth groups throughout the year. Wild foods (mushrooms, fruits, and edible leaves) collected from the forest provide household food and

income. The peak season for gathering and selling other wild foods is February to March and October to November. Women and children often collect wild foods while conducting other activities in the forest like gathering firewood. Fishing peaks during the Dry Season from May to August. The sale of livestock, though not one of the main sources of income for households in CD29, is a source of extra cash. Peak sales are driven by the fees and material expenses associated with the start of the school year in September and extra cash needed for the holiday festivities in December.

Periods of increased stress and higher expenditures cluster around September and December, again corresponding to school fees and holidays. Higher prices for staple foods correspond to peak market demand from September through December. Festivals in December require greater expenditure on clothing and food. The Lean Season for poorer households similarly occurs from September through December, when stocks run low before the main harvest in January. “Green harvest” of maize and groundnuts involves gathering these crops before they reach full maturity. This practice allows poorer households to access food before the main harvest, providing some substitution for purchase. Other households may relish eating “fresh” crops. Human diseases, just like livestock diseases, can occur at any time of the year. However, human diseases peak a few times yearly in January, May/June, and September/October. Livestock disease tends to occur most frequently in May/June and September/October.

Table 2 shows the typical division of labor. Men and women share many agricultural, including planting and harvesting. Some tasks, such as land preparation and weeding, are split along gender lines. Men, women, and children all participate in petty trade. Women are involved in wild foods foraging, prepared food sales, and most domestic work (cooking, taking care of children, laundry, firewood collection, water collection). Men are primarily responsible for livestock production activities, fishing, hunting, construction, and taxi service.

Table 2. Typical Division of Labor

Shared Tasks	Women’s Tasks	Men’s Tasks
• Agricultural labor – planting and harvesting • Firewood collection and sale • Charcoal production and sale • Crop sales • Petty trade	• Agricultural labor – weeding • Collection and sale of wild foods • Poultry care and sales • Household water collection • Household firewood collection • Meal preparation • Laundry • Care and feeding of young children	• Agricultural labor – land preparation • Goat, sheep, and pig care and sales • Hunting • Fishing • Construction labor • Motorcycle transport

Wealth Breakdown and Productive Assets

Table 3 summarizes the types and numbers of productive assets that typical households within each wealth group own and manage. Asset holdings are shown in a range that reflects the diversity of households' situations within a wealth group. Figure 3 shows the percentage of households within the zone that falls in each wealth group. Members of the communities in the zone conducted the socioeconomic categorization of households.

Table 3. Wealth Breakdown

Household Size and Productive Assets	Very Poor	Poor	Middle	Better-Off	Poor Female-Headed
Household size	4-6	6-8	9-11	10-15	5-7
Land owned (hectares [ha])	0.25-0.75	0.75-1	1-3	2-5	0.5-1
Land cultivated (ha)	0.25-0.75	0.75-1	1-3	2-5	0.5-1
Land cultivated – food crops (ha)	0.2-0.4	0.25-0.75	0.75-1	1-1.5	0.25-0.35
Land cultivated – cash crops (ha)	0.1-0.3	0.2-0.3	0.5-0.75	1	0.2-0.3
Pigs	0	0	0-5	0-8	0
Sheep	0	0	0-3	0-10	0
Goats	0-2	1-3	4-10	5-15	0
Poultry	3-8	5-10	15-25	20-30	5-8
Motorcycles	0	0	1	2	0
Mobile phones	0	1	1-2	2-4	0

Ownership of land is the most important determinant of wealth in the zone. All wealth groups cultivate food crops, and the area cultivated increases progressively with increasing wealth. Overall, better-off households cultivate close to five times the area cultivated by very poor households. Adjusted for household size, better-off households cultivate about twice as much land per capita as poorer households. Market garden crops, such as tomatoes, eggplant, and squash, are common throughout the livelihood zone and are cultivated by all wealth groups. As wealth increases, so does the area under cash crop production. Overall, better-off households cultivate five times more cash crops (or twice as much per capita) than very poor and poor households. This is because market gardening requires hiring labor to dig water wells. The middle and better-off wealth groups produce a surplus of crops for sale. The very poor and poor wealth groups grow enough food to cover their

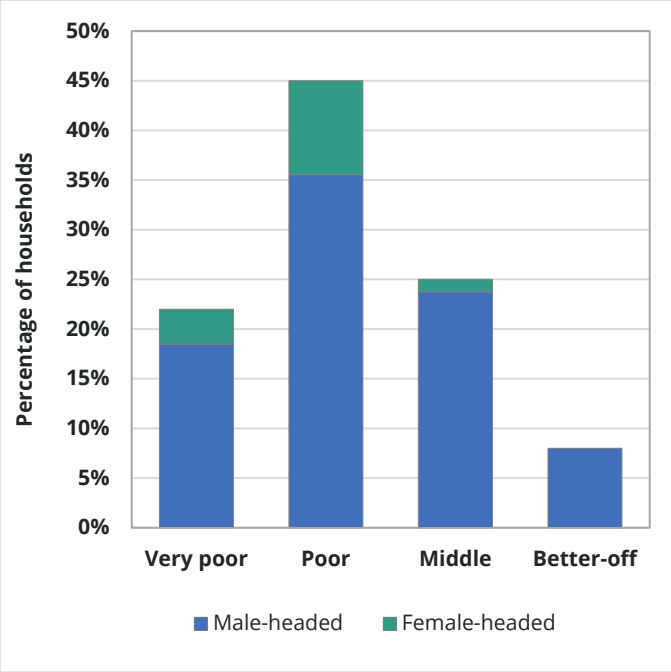
minimum consumption needs. However, due to accumulated needs for cash, they sell significant amounts immediately post-harvest and repurchase later in the year.

The availability of household labor is an important determinant of wealth in the zone (measured by the income the average household generates from labor-based activities outside their own farms). Middle and better-off households have larger household sizes than very poor and poor households and, therefore, have more labor for agricultural production and for caring for livestock. Middle and better-off households also hire additional laborers from the very poor and poor wealth groups for cultivation and harvesting labor. Time spent working for others limits the labor poorer households can devote to their own crop and livestock production, and they must make a cost-benefit judgment in this regard.

Ownership of livestock is also a key indicator of wealth in the zone. Common livestock include pigs, goats, sheep, and poultry. Middle and better-off households typically own pigs and sheep, while goats and poultry are distributed across all wealth groups, with higher ownership levels correlating with increased wealth. Middle and better-off households exclusively own motorcycles and more mobile phones than poor households.

Figure 3. Wealth Breakdown

Note: All results are the mid-point of a range

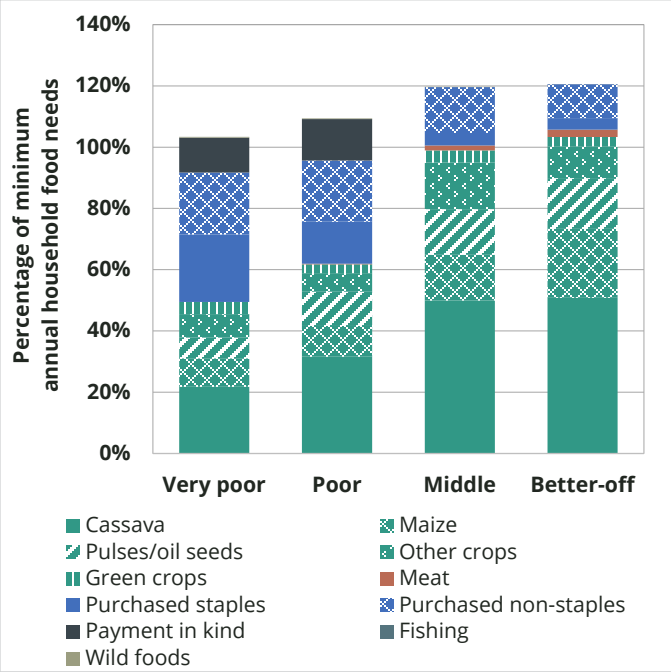


Female-headed households are present in all wealth groups except the better-off, with the largest proportion found among the poor (about 20%). Female-headed households among the very poor comprise just over 15% of households, and about 5% of middle households (see Figure 3). Regarding land ownership, poor female-headed households possess assets that fall between those of very poor and poor households, and they typically inherit land from their deceased husbands. Poor female-headed households cultivate 0.25-0.35 ha, compared to the average of 0.45 ha cultivated by poor households. Regarding livestock, poor female-headed households have fewer assets than very poor households. Neither group owns pigs; poor female-headed households do not own goats, while very poor households own an average of one.

Sources of Food

Figure 4 presents the food sources for households in different wealth groups in the CD29 from January to December 2023. January represents the start of the consumption year because it is when the main harvest begins. The figure presents food for the household as a percentage of 2,100 kilocalories (kcal) per person per day for 12 months, the internationally accepted minimum calorie requirement.

Figure 4. Sources of Food



Beginning with total food consumption, the amount consumed increased progressively with increasing wealth. Very poor households consumed just over 100% of their minimum annual food needs, and better-off households consumed roughly 120%. The main sources of food were their own crops and market-purchased foods, complemented by payment in-kind for agricultural work performed by poorer households.

Households' own crop production (particularly cassava and maize) was the most important food source for all households in the livelihood zone. The middle and better-off wealth groups grew enough crops to cover their minimum consumption needs while selling substantial surpluses. Overall, from their own crop production, very poor households consumed roughly 50% of their minimum annual food needs, poor households about 60%, middle households about 100%, and better-off households 100-105%

Purchased foods were the second most important food source in the livelihood zone. The most important staple foods were cassava flour, rice, and maize. Of these foods, poorer households purchased 20-25% of their minimum annual food needs and wealthier households roughly 5%. Only the poorer households bought cassava flour and maize. Households in all wealth groups bought some rice — the wealthier *only* rice. As a preferred staple not produced in the zone, the price of rice in the reference year was three times that of cassava flour.

All wealth groups purchased non-staple foods, the most important of which were vegetables, palm oil, sugar, cowpeas, and beans. Very poor households purchased 20% of their minimum annual food needs of these non-staple foods, and better-off households 10%.

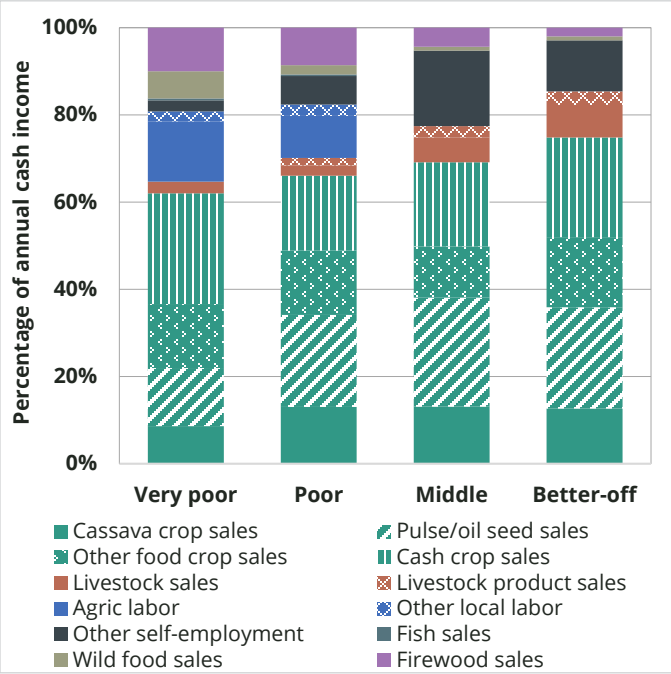
Payment in-kind was a food source in the livelihood zone for poorer households only. The very poor and poor wealth groups received payment in-kind (roughly 10-15% of their minimum annual food needs) from agricultural work during harvests. Payment was in the form of cassava, maize, and groundnuts.

Wild foods were a minor food source in the livelihood zone, consumed mainly by the very poor wealth group (less than 1% of minimum annual food needs). Wild foods consumption is low because forests and their products are patchy in the mainly savannah zone. However, sales of wild foods, as will be discussed under sources of cash income, are a small but significant source of cash for poorer households.

Sources of Cash Income

Crop sales were the primary source of cash income across all wealth groups, but wealthier households derived a larger share of their income from agricultural production and livestock (see Figure 5). Poorer households, in contrast, relied more on paid labor and activities like firewood, charcoal, and sales of wild foods to generate cash income. Middle and better-off households also had a similar income profile, with crop sales dominant and a smaller but significant amount of income from self-employment activities, notably trading.

Figure 5. Sources of Cash Income as a Percentage of Annual Cash Income



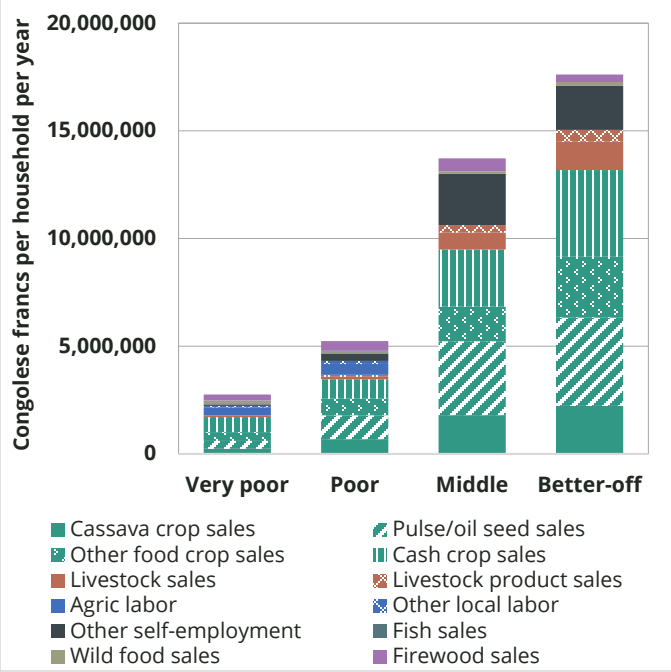
Crop sales were the most important source of cash for all households, generating roughly 65% of total cash income for poorer households and approximately 70-75% for wealthier households. The main food crops sold were cassava, groundnuts, and maize. The main cash crops sold were tomatoes, eggplants, squash, sweet potatoes, and bananas.

Wage labor served as a key income source for the very poor and poor wealth groups in the zone, primarily provided by poorer households to wealthier ones. Agricultural labor contributed about 15% of total cash income for very poor households and around 10% for poor households. The main activities included pre-harvest (land preparation, sowing, and weeding) and harvesting tasks (harvesting, threshing, and shelling). Poorer households earned less than 5% of their total income from other local labor, such as construction work.

Self-employment was also an important income source for all wealth groups, generating 15-20% of total cash income for very poor households and less than 5% for better-off households. The main types of self-employment were sales of charcoal, firewood, wild foods, and fishing. Households from all wealth groups sold firewood, charcoal, and wild foods. Petty trade was an income source for all households. Poorer households earned roughly 3-7% from petty trade, while wealthier households earned approximately 10-15% from a combination of petty trade and moto taxi service.

Livestock sales were the third most important source of cash for better-off households and were an income source for all wealth groups, generating less than 5% of total cash income for poor households and 5-10% for better-off households (these were the groups with the smallest and largest proportions). The main types of livestock sold were sheep, goats, and pigs.

Figure 6. Total Annual Cash Income



As shown in Figure 6 and Table 4, differences between wealth groups in absolute cash income generated during the reference year were substantial. Wealthier households earned more income overall and had more diversified and higher-value income sources, particularly in agriculture and livestock. In contrast, poorer households depended more on manual labor and lower-income activities like firewood and wild food sales.

Overall, better-off households earned six to seven times the cash income of very poor households. Given the greater size of their households, differences between wealthier and poorer households in per capita cash income were more moderate. Wealthier households earned two to three times the annual per capita cash income of very poor households. The per capita income of middle and better-off households was roughly the same.

Table 4. Income Summary Table (Congolese Francs or CDF)

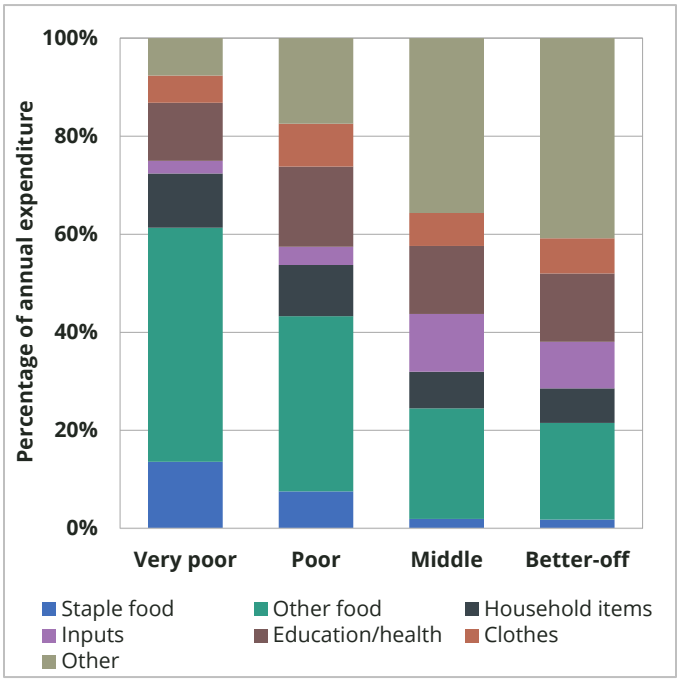
Wealth Group	Very Poor	Poor	Middle	Better-Off
Annual income per household[4]	2,000,000–3,500,000	4,000,000–6,500,000	12,000,000–16,000,000	16,000,000–20,000,000

[4] The average exchange rate from January to December 2023 was 1 USD = 2,311 CDF.

Expenditure Patterns

Figure 7 presents expenditure patterns for the reference year from January to December 2023. Although absolute expenditures increase with wealth in line with total cash income, this graph's expenditure breakdown by percentage shows the *relative* amount of income spent on different categories. Households in the zone must cover a range of essential expenditures over the year. These include staple foods, non-staple foods, household items/services (like salt, soap, tea, lighting, milling, etc.), productive inputs, social services (e.g., health and education), clothing, and other essential and non-essential items. Wealthier households had a similar pattern of expenditures, with other essential items, non-staple foods, and social services as the top three items. Poorer households shared similar expenditure patterns and spent substantially more on non-staple food.

Figure 7. Total Annual Cash Expenditure by Category



In the reference year, all wealth groups purchased non-staple ("other") foods, accounting for the largest share of total expenditures for poorer households but a far smaller proportion for the wealthier households—a testament to their varied production of non-staples. The relatively modest levels of staple food purchases by poorer households reflect CD29's high production of staples. However, poorer households' receipt of food as payment in-kind significantly substituted for staple food purchases.

The proportion of overall food expenditure decreased progressively with increasing wealth. Non-staple foods accounted for 45-50% of total expenditure by very poor households and roughly 20% by better-off households. In terms of cash spent per capita, the trend was reversed, and expenditure of the better-off households were close to that of very poor households. The main non-staple foods purchased were vegetables, palm oil, beans, cowpeas, and other food items. Staple foods accounted for the second largest share of total expenditure for very poor households: 15% for very poor households, about 10% for poor households, and less than 5% for middle and better-off households. The main staple foods purchased were rice, cassava flour, and maize.

Health and education were expenditure items for all wealth groups and accounted for roughly 10-15% of total expenditures by all households. Productive agricultural inputs were an expenditure item for all wealth groups. The share of expenditure increased progressively with increasing wealth. Agricultural inputs accounted for less than 5% of total expenditure by the poorer households

(primarily for renewing tools) and roughly 10% by middle and better-off households. There is a very sharp difference here in the level of absolute expenditure by poorer versus wealthier households: the overwhelming amount of expenditure by the latter were for hiring field labor from the former. All households spent some money on seeds.

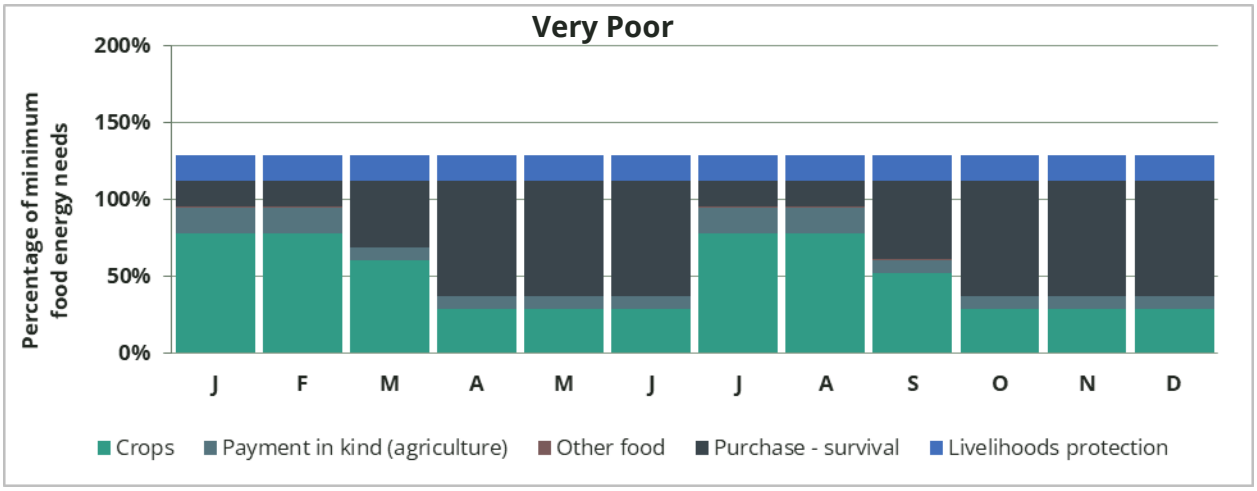
All wealth groups had “other” expenditures. The main items in this category were communication and transportation, but it also included spending on festivals and social and religious obligations. “Other” accounted for the largest share of total expenditure for better-off households. There was again a sharp division in the proportion of expenditure between poorer and wealthier households. “Other” items accounted for less than 10% of total expenditure by the very poor, about 15% for the poor, about 35% for the middle, and roughly 40% for the better-off households.

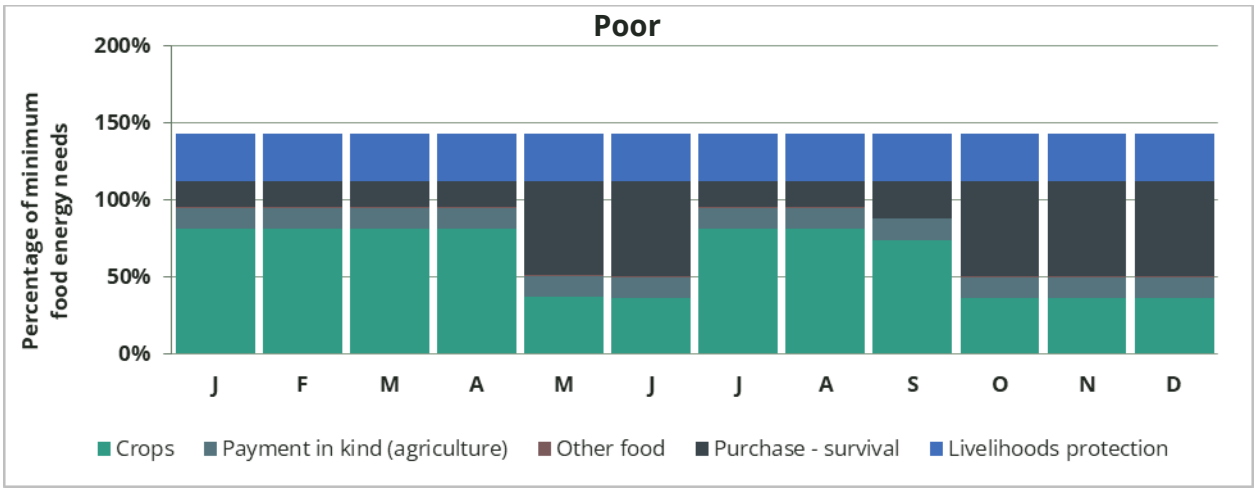
Food Access Calendars

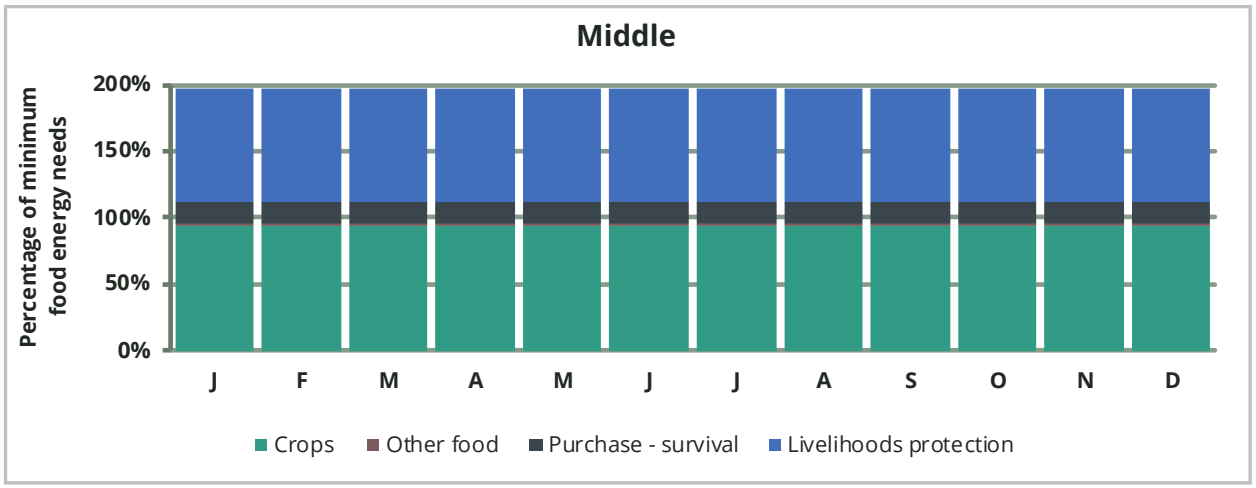
The graphs in Figure 8 present monthly food and cash access calendars for the four wealth groups.

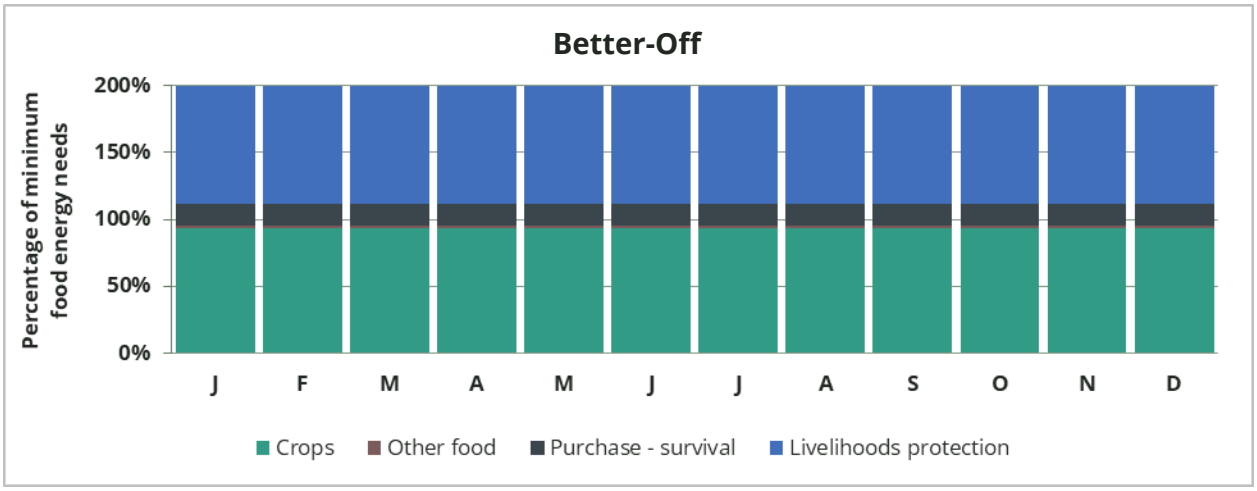
Households in all wealth groups were able to meet their survival and livelihoods protection thresholds year-round in the reference year. The main harvest period in this livelihood zone started in January and the second harvest period started in July. Very poor and poor households obtained some food from payment in-kind for casual agricultural labor (in teal). Very poor and poor households relied on market purchases to meet their needs for several months of the year, while middle and better-off households were more self-sufficient. Middle and better-off households spent a large proportion of their total income on productive inputs, health, and education (“livelihoods protection” in the graphs).

Figure 8. Seasonal Food and Cash Access Calendars per Wealth Group




Poor
Percentage of minimum food energy needs
200%
150%
100%
50%
0%
J F M A M J J A S O N D
Crops
Payment in kind (agriculture)
Other food
Purchase - survival
Livelihoods protection


Middle
Percentage of minimum food energy needs
200%
150%
100%
50%
0%
J F M A M J J A S O N D
Crops
Other food
Purchase - survival
Livelihoods protection


Better-Off
Percentage of minimum food energy needs
200%
150%
100%
50%
0%
J F M A M J J A S O N D
Crops
Other food
Purchase - survival
Livelihoods protection

Poor Female-Headed Households

Figure 9 shows that poor female-headed households and poor male-headed households share a similar pattern of food access. Poor female-headed households make up about 20% of all poor households. Beginning with total food consumption, both male- and female-headed households consumed similar amounts and over 100% of their minimum annual food needs. The main food source for all poor households was their own crop production: over 60% for male-headed households' yearly food needs, and just over 50% for female-headed households. As noted above, these households grew more than enough crops to meet their annual food needs but sold off significant portions to meet annual cash needs. For example, poor male-headed and female-headed households sold over 70% of the maize they produced and 60% of fresh cassava. Female-headed households sold nearly 70% of cassava flour produced in the reference year, while poor male-headed households sold nearly 60%.

Figure 9. Sources of Food: Poor Households vs Poor Female-Headed Households

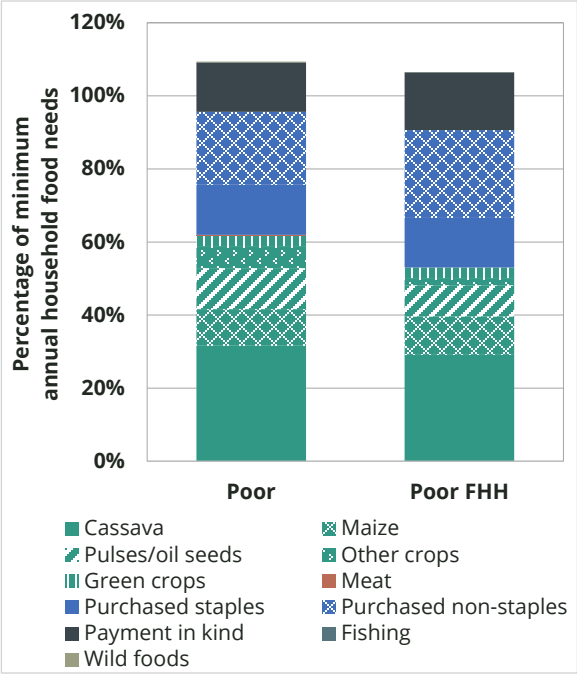
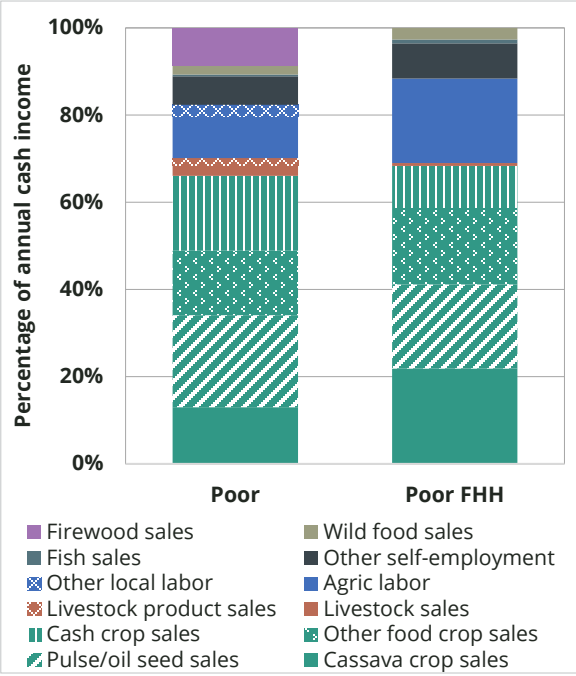


Figure 10. Sources of Cash: Poor Households vs Poor Female-Headed Households



Households' own crop production contributed 10% less food for poor female-headed households, about 50% compared to roughly 60% for male-headed households. The difference was due to slightly greater production amounts and a greater variety of crops grown by male-headed households (including cowpeas and palm oil). The amount of land cultivated per capita was roughly the same, though female-headed households devoted slightly less land to cash crop cultivation. Cassava (fresh and dried flour) comprised the bulk of crops consumed — about one-third of total food needs.

Groundnuts and maize each contributed to around 10% of food needs for male- and female-headed households. Poor female-headed households purchased slightly more non-staple foods, about 25% of kcals compared to 20% for poor male-headed households. Payments in-kind contributed slightly more food for poor female-headed households, roughly 15%.

As shown in Figure 10, poor female-headed households earned significantly less cash income than poor male-headed households, approximately 30% less overall. However, since poor female-headed households were generally smaller, their per capita cash income was about 20% lower. In order of importance, the four main sources of cash income for poor female-headed households were crop sales, wage labor, petty trade, and livestock sales (primarily poultry). Crop sales contributed a similar percentage to the total annual cash income for poor female- and male-headed households. Female-headed households earned far less from cash crops (around 10% of total cash income compared to 25% for male-headed households) but relatively more from food crop sales (60% versus 50%, respectively). Agricultural wage labor made up nearly 20% of the total income for female-headed households, slightly higher than the 15% earned by their male-headed counterparts. Income from petty trade was similar for both, contributing just under 10% of total income. Notably, poor female-headed households earned no income from firewood and charcoal sales, while these activities accounted for roughly 10% of the income of poor male-headed households.

Response Strategies

In response to hazards and years of insufficient agricultural production, households attempt to meet their minimum food needs and cash requirements through several strategies. Some responses were different across wealth groups, while others were similar. Below are some common strategies employed by households.

All households try to reduce expenditures on non-essential or more expensive items first, such as cutting down on festival costs or not buying clothes or utensils. Households consume less rice in favor of cassava, which is the cheapest staple.

Very Poor and Poor Households

Very poor and poor households try to increase cash income by intensifying casual labor activities in the zone to earn more cash. However, as increasing numbers of people flood the labor market in bad years, this option quickly loses value because wage rates drop, and jobs are harder to find. Poorer households also intensify self-employment activities, such as selling firewood and charcoal and collecting and selling wild foods.

Middle and Better-Off Households

Middle and better-off households cope with hazards differently. Middle and better-off households will increase self-employment activities, such as trading, and they will also increase livestock sales to help make ends meet.

Key Parameters for Monitoring

The key parameters listed in Table 5 are food and income sources that contribute substantially to the household economy in the *Cassava, Maize, and Groundnuts Livelihood Zone*. These parameters should be monitored to track potential losses or gains to local household economies through ongoing monitoring systems or periodic assessments.

Table 5. Key Parameters for Monitoring

Item	Key Parameter – Quantity	Key Parameter – Price
Food crop production	• Maize Season A – quantity produced • Maize Season B – quantity produced • Cassava – quantity produced • Groundnuts Season A – quantity produced • Groundnuts Season B – quantity produced • Cowpeas – quantity produced • Beans – quantity produced • Squash – quantity produced • Sweet potatoes – quantity produced • Plantains – quantity produced	• Maize Season A – producer price • Maize Season B – producer price • Cassava – producer price • Groundnuts Season A – producer price • Groundnuts Season B – producer price • Cowpeas – producer price • Beans – producer price • Squash – producer price • Sweet potatoes – producer price • Plantains – producer price
Cash crop production	• Eggplants – quantity produced • Tomatoes – quantity produced • Sweet peppers – quantity produced • Bananas – quantity produced • Palm oil – quantity produced	• Eggplants – producer price • Tomatoes – producer price • Sweet peppers – producer price • Bananas – producer price • Palm oil – producer price
Livestock production	• Pigs – herd size • Goats – herd size	• Pigs – producer price • Goats – producer price
Other food and cash income	• Wild foods – quantity • Harvest labor – number of days • Cultivation labor – number of days • Construction labor – number of days • Charcoal/firewood sales – quantity sold • Petty trade – demand • Transport services – demand	• Wild foods – producer price • Cultivation labor – wage rates • Construction labor – wage rates • Charcoal/firewood sales – producer price • Petty trade – daily earnings • Taxi service – daily earnings
Expenditure		• Cassava – consumer price

CD30 Livelihood Zone

Reference Year: January–December 2023

Market Gardening and Staple Crops Livelihood Zone

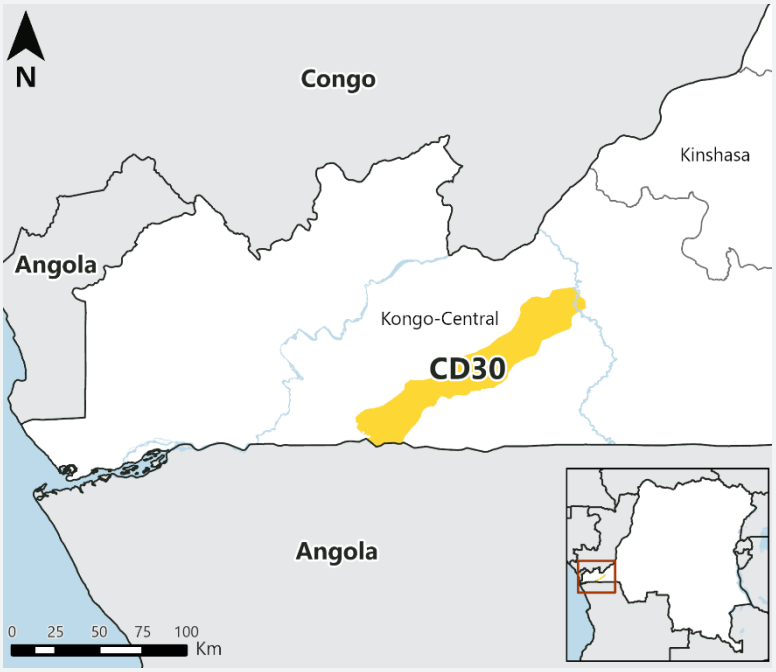


Figure 1. CD30 Livelihood Zone Map

Summary: The *Market Gardening and Staple Crops Livelihood Zone* (CD30) is a relatively small zone situated along the RN1 between Kinshasa and Matadi. The zone is a food production surplus zone. The main livelihood activities are staple crop production and market gardening. The principal food crops grown are cassava, groundnuts, and maize. Cash crops include sweet peppers, tomatoes, onions, and cabbages. The zone has good, year-round market access and links to major urban markets, like Kinshasa, to sell vegetables.

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Zone Description

The *Market Gardening and Staple Crops Livelihood Zone* (CD30)[1] is a relatively small zone located southwest of the capital Kinshasa in the Kongo-Central Province. This narrow zone straddles the main Kinshasa-Matadi highway (RN1) as it cuts through two territories in Kongo-Central, namely Songololo and Mbanza-Ngungu. The zone is surrounded by the expansive *Cassava, Maize, and Groundnuts Livelihood Zone* (CD29). The *Market Gardening and Staple Crops Livelihood Zone* (CD30) is marked by its intensive cultivation of vegetables and staple crops, serving as a key area for agricultural production and related economic activities. The fact that the RN1 cuts through this zone is notable as this road is of strategic importance and links imports and exports from the port of Bomo to Kinshasa. The zone includes the towns of Lukaya, Mbanza-Ngungu, and Songololo. It is this strategic marketing position that gives CD30 its particular emphasis on market gardening, with its perishable products, as well as sales of charcoal by poorer households.

The climate zone is tropical savanna. Rainfall is between 1,000 and 1,500 millimeters per year. The Rainy Seasons are from October to January, with December being the wettest month, and then again from March to May. The Dry Season is brief, stretching from June to September, with July being the driest month. There is another brief Dry Season in February. The average annual temperature is stable, ranging from 27°C to 29°C.[2]

The zone's topography is a varied mix of undulating plains, plateaus, hills, and river valleys. There are two mountains in the zone: Nzenze and Bangulanga, with peaks near 700 meters. The principal rivers in the zone are the Ngongo, the Muala, and the Nzundu. The vegetation is a mix of savanna grasslands and forested areas. There area is rich in timber, not generally directly exploited by households in this zone. The principal tree species include Kambala (*Milicia excelsa)*, Lubinga, Limba *(Terminalia superba)*, and Lifaki (*Entandrophragma congoense*). The population of CD30 is 882,127, with an average population density of approximately 310 people per square kilometer.[3]

CD30 encompasses fertile plains with sandy and clay soils that are highly conducive to agriculture. Soil quality is good, with fertile sand and clay soils dominating. In terms of agriculture production, it is a food surplus zone. Market access in CD30 is relatively good, with most households located within reasonable distance of market centers. The main commercial routes, like RN1, facilitate the transport and sale of produce to larger markets in Mbanza-Ngungu, Kimpese, and Kinshasa. Agricultural roads, though often in poor condition during the Rainy Season, remain passable during the Dry Season, ensuring continuous market connectivity.

[1] Fieldwork for the current profile was undertaken from May 27 to June 25, 2024. The information presented in this profile refers to the reference year, which was the consumption year that covered the period January to December 2023. Provided there are no fundamental and rapid shifts in the economy, the information in this profile is expected to remain valid for approximately five to 10 years (i.e., until 2028-2033). All prices referred to in the profile are for the reference year.
[2] Average daily mean compiled for Songolo and Mbanza-Ngungu. "Democratic Republic of the Congo Climate: Climate Zone and Historical Climate Data," Weather and Climate, https://weatherandclimate.com/democratic-republic-of-the-congo.
[3] FEWS NET Data Explorer, population data (2023), accessed 2025, https://fdw.fews.net/data-explorer/.

The main livelihood activities are the cultivation and sale of staple crops and market gardening. The main staple food crop is cassava, though maize, beans, groundnuts, and sweet potatoes are cultivated as well. Cassava is cultivated year-round as a rainfed crop, while maize, groundnuts, and sweet potatoes are grown in two main seasons per year. Households can cultivate beans up to three times per year. Market gardening plays a prominent role as well, with up to three growing seasons annually due to irrigation practices. Irrigated market vegetables grown include tomatoes, cabbage, green onions, eggplants, onions, and peppers for both household consumption and sale.

Livestock production is limited in the zone, but it does complement the predominant agricultural activities by contributing cash to households in all wealth groups. All households keep poultry, while middle and better-off households also own goats. These animals free graze on grasses and crop residues, which provide a cost-effective feeding method.

During the Rainy Season, livestock rely on water from seasonal ponds and major rivers, while in the Dry Season, secondary rivers serve as the primary water sources. Men typically handle the care, sale, and slaughter of goats, whereas women are primarily responsible for rearing poultry. Livestock sales peak at the start of the school year in September and during festive seasons in December.

Agricultural labor is the second most important source of income for poorer (i.e., very poor and poor) households, while petty trade is more important for wealthier (i.e., middle and better-off) households. Preparing land, sowing, weeding, and harvesting are the main activities requiring substantial labor input. Land preparation is typically carried out by hand digging, a labor-intensive process that involves significant physical effort and is typically done by men. Sowing, weeding, and harvesting are done by both men and women. Agricultural laborers are paid in cash or in kind, with payments for preparing land, sowing, and weeding made in cash, while harvesting labor is compensated with food and cash.

Petty trade is important for households in all wealth groups and is carried out by practically all household members, including children. Households often engage in trading small quantities of food items such as cereals, sugar, sweets, and condiments, as well as other small household items such as batteries and matches. This form of trade occurs regularly, sometimes daily, and provides a consistent source of income.

Charcoal production is an important source of supplemental income for poorer households.

Households collect various wild foods, including mushrooms and insects, and hunt wild game, all of which are either consumed or sold to enhance their diets and income. The collection of wild foods and hunting provides not only nutritional benefits, but also a form of economic security, particularly for poorer households who may rely more heavily on these resources during periods of low income.

Households in the *Market Gardening and Staple Crops Livelihood Zone* face several significant hazards that affect their livelihoods and food security. Regular flooding is a recurring issue that impacts agricultural productivity, often leading to the loss of crops and livestock. Droughts also present a major challenge, as they reduce water availability, leading to lower crop yields. Additionally,

households frequently contend with plant pests and diseases (primarily cassava mosaic disease), which can severely diminish crop production. Livestock diseases, such as Newcastle disease, further exacerbate the situation by reducing the health and productivity of animals. These hazards collectively undermine the stability of household incomes and food security in the zone.

Households have access to basic services like potable water from rivers, healthcare from dispensaries and health centers, and mobile phone communication. However, infrastructure challenges include poor road conditions during the Rainy Season, which can hinder market access and transportation of goods. Sanitation facilities consist primarily of latrines constructed with straw, and lighting is provided by flashlights and, in some cases, solar panels. Cooking fuel is primarily firewood, sourced locally.

Markets

Market access in the *Market Gardening and Staple Crops Livelihood Zone* is generally good, with households benefiting from well-established market routes and infrastructure. The primary commercial routes, such as RN1, play a crucial role in connecting the zone to larger markets in Kimpese, Kinshasa, and Mbanza-Ngungu. These routes facilitate the transportation and sale of various agricultural products, including staple crops and vegetables, and ensure that households can consistently sell their produce and purchase necessary goods. During the Dry Season, the roads remain passable and support continuous market activities. However, in the Rainy Season, road conditions can deteriorate significantly. Agricultural roads often become muddy and difficult to navigate, which affects access to markets. Despite these seasonal challenges, the presence of well-established market networks helps mitigate the impact on trade.

The main food crops traded include cassava, maize, beans, and sweet potatoes. The key trade route for these food crops is via RN1, which links the zone to major markets in Kimpese, Kinshasa, and Mbanza-Ngungu. This route ensures that food crops can reach larger urban centers where demand is high. Local markets within the zone serve as initial points of sale, where small-scale traders and households sell their produce. From these local markets, the crops are transported to regional hubs along RN1. Cash crops, predominantly vegetables like tomatoes, eggplants, and cabbages, follow similar trade routes but are often directed toward markets with higher demand and better prices. These vegetables are also transported via RN1, with the primary destinations being larger market centers in Kinshasa and Mbanza-Ngungu. The perishable nature of vegetables necessitates efficient transportation to ensure they reach markets in good condition.

In addition to vegetables, other cash-generating products like charcoal and firewood are also significant. These products are collected and sold locally before being transported to larger markets. Charcoal is sold extensively within the zone and also in urban centers along the RN1 route, capitalizing on the consistent demand for household cooking fuel. While there is a significant overlap in the trade routes for food crops and cash crops, the key differences lie in the destination markets and the urgency of transportation. Vegetables, being perishable, are often prioritized for

faster transport to urban centers for quicker sales. On the other hand, staple food crops and charcoal, which have a longer shelf life. Therefore, households may store them over extended periods, allowing for more flexibility in transportation.

Households in CD30 also benefit from the influx of traders who travel to the region to purchase goods directly from producers. This direct market interaction helps households get better prices for their products, although some traders may exploit poor market information and transportation challenges to buy goods at lower prices.

Labor sales are carried out within the livelihood zone, with casual labor undertaken within the local rural area rather than in other towns within the zone. This pattern speaks to abundant work opportunities available on farms within the zone.

Overall, market access is relatively robust, supported by established commercial routes and active local markets. Seasonal variations in road conditions pose occasional challenges, but the strong market networks and diverse trade activities help maintain economic stability for households in the zone.

Timeline and Reference Year

The baseline assessment refers to a specific period called the “reference year.” In the *Market Gardening and Staple Crops Livelihood Zone,* the reference year covers the consumption period from January to December 2023. During community leader interviews, data collectors asked informants to score the last five years in terms of seasonal performance with “1” indicating a poor season and “5” indicating an excellent season. Table 1 summarizes the response of the community leaders.

Overall, most years in CD30 are average or above average in terms of household food security. Adequate rainfall, particularly during the Rainy Seasons from mid-October through mid-January and mid-March through mid-May, ensures sufficient water supply for crops, contributing to high yields. Conversely, unpredictable weather patterns, like droughts or excessive rainfall, lead to poor production years. Often, the rain patterns are favorable in the zone. Outbreaks of pests and diseases can also contribute to bad production years. Common issues include infestations by caterpillars and grasshoppers, which can devastate crops if not managed effectively. Good access to markets via established routes like RN1 allows farmers to sell their produce efficiently. In the past five years, 2020 was the only below-average year reported. It was a difficult year for many reasons including markets disruptions due to COVID-19, weakened purchasing power, crops pests and disease, and livestock disease outbreak.

Table 1. Timeline

Production Year/Season	Score	Critical Events
2023/Season B	3	Seasonal flooding, crop pests and disease, livestock illness.
2022-2023/Season A	3	Irregular rainfall.
2022/Season B	4	Good agricultural production due to favorable conditions. Ample and consistent rainfall.
2021-2022/Season A	4	Good agricultural production due to favorable conditions. Ample and consistent rainfall.
2021/Season B	3	Difficulty sourcing seeds.
2020-2021/Season A	3	Livestock disease.
2020/Season B	2	COVID-19 restricted access to markets, social distancing, weakened purchasing power, animal disease and crops pests and disease.
2019-2020/Season A	2	Animal disease as well as crops pests and diseases.
2019/Season B	4	Generally good season for food security.
2018-2019 Season A	3	Some crop pests and disease as well as livestock disease.

5 = Excellent season for household food security (e.g., due to good rains, good prices, good crop yields)
4 = Good season or above average season for household food security
3 = Average season for household food security
2 = Below average season for household food security
1 = Poor season for household food security (e.g., due to drought, flooding, livestock disease, pest attack)

Seasonal Calendar for Reference Year

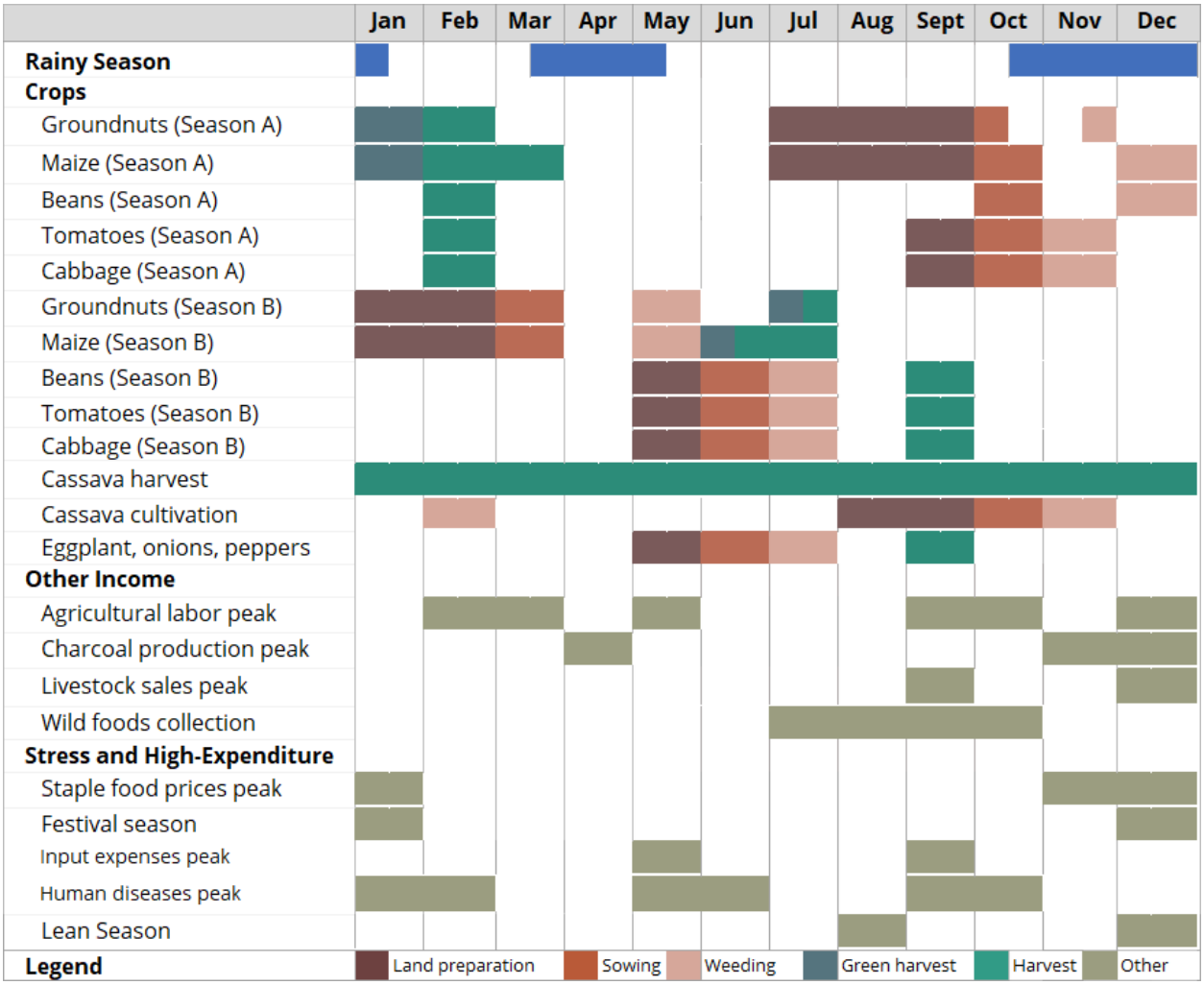
The seasonal calendar (see Figure 2) illustrates the main economic activities and events of the reference year. It traces the rainy months, agricultural activities, off-farm income generating activities, food purchasing periods, etc.

The agricultural economy in the *Market Gardening and Staple Crops Livelihood Zone* revolves around two main Rainy Seasons, October through January and March through May. Most food crops are rainfed and their crop cycles are dictated by the rains. The notable exception (and primary food crop) is cassava, which is harvested throughout the year. Irrigated cash crops, vitally important in the zone for income generation, do not depend directly on the rains and follow a slightly different cycle to that of rainfed crops.

Cassava, groundnuts, maize, sweet potato, and beans are commonly grown together in mixed-cropping systems. This practice of intercropping helps maximize land use and can contribute to better yields and soil health. Certain crops are typically cultivated individually rather than in

association with others. Notably, tomatoes, cabbages, and sometimes beans are grown separately from other crops. These crops often require specific growing conditions that are not always compatible with the mixed-cropping systems commonly used for staple crops. Dedicated plots allow farmers to closely manage their growth, ensuring optimal water, nutrient levels, and spacing.

Figure 2. Seasonal Calendar



Agricultural labor is paid either in cash or in kind, depending on the activity. Preparing land, sowing, and weeding is typically paid in cash. Payment for work during the harvest season might include food, like cassava and groundnuts, in addition to cash. Non-agricultural labor is highest from June to August (corresponding to most of the Dry Season). The demand for charcoal is consistent, driven by its widespread use as a cooking fuel in both rural and urban areas. While charcoal is sold year-round, peak months for sales are May to August. Firewood collection is another important income-generating activity, typically carried out by women and children. Households from all wealth groups collect firewood from nearby forests and scrublands, which is then either used domestically or sold in local markets year-round. Petty trade involves men, women, and children from all wealth groups

throughout the year. Hunting and wild foods (mushrooms and insects) collected from the forest provide both food and income for households in all wealth groups in the zone. The peak season for hunting is in July and August. Though it occurs year-round, the peak months to gather and sell other wild foods are October through November. Women and children often collect these wild foods while conducting other activities in the forest, like gathering firewood. The sale of livestock, though not one of the main sources of income for households in the zone, is a source of extra cash. Peak sales are driven by the start of the school year in September and holidays in December.

Periods of increased stress and higher expenditure are clustered around September and December. School fees as well and agricultural inputs (e.g., fertilizers and seeds) are larger ticket expenditures in September. Higher prices for staple foods (e.g., cassava and beans) correspond to peak market demand in December. Festivals require greater expenditure on clothing and food. Human diseases, just like livestock diseases, can occur at any time of the year. However, human diseases peak a few times a year in December/January, May/June, and September. Livestock disease tends to occur most frequently in October. The Lean Season for poorer households occurs in August and December. This is due to a lack of agricultural labor opportunities in August. December is difficult for households due to higher staple food prices and increased expenditures.

Table 2 shows the typical division of labor between men and women in the zone. Most of the agricultural tasks are shared, from land preparation on through crop sales. The only agricultural task that is not shared between men and women is weeding; this is an activity that is only done by women. Men, women, and children all participate in petty trade. Women are involved in wild foods foraging, preparing foods for sale, as well as most domestic work (i.e., cooking, taking care of children, laundering clothes, collecting firewood, and collecting water). Men and boys are largely responsible for livestock production activities, producing and selling charcoal, hunting, and brickmaking.

Table 2. Typical Division of Labor

Shared Tasks	Women's Tasks	Men's Tasks
• Agricultural labor – land preparation, sowing, irrigation, and harvesting • Crop sales • Petty trade	• Agricultural labor – weeding • Wild foods collection and sale • Poultry care and sales • Firewood collection and sale • Prepared food sales • Household water collection • Household firewood collection • Meal preparation • Laundry • Care and feeding of young children	• Charcoal production and sale • Goat care and sales • Hunting • Brickmaking

Wealth Breakdown and Productive Assets

Table 3 summarizes the types and numbers of productive assets that typical households within each wealth group own and/or manage. Asset holdings are shown in a range that reflects the diversity of households' situations within a wealth group. Figure 3 shows the percentage of households within the zone that falls in each wealth group. The socioeconomic categorization of households in the zone was carried out by the communities themselves.

Table 3. Wealth Breakdown

Household Size and Productive Assets	Very Poor	Poor	Middle	Better-Off	Poor Female-Headed
Household size	5-7	6-8	7-9	7-9	5-7
Land owned (hectares [ha])	1-2	1-2	2-3	2-5	0.5-1.5
Land cultivated (ha)	1-2	1-2	2-3	2-5	0.5-1.5
Land cultivated – irrigated crops (ha)	0.25-0.75	0-1	0.5-1.5	1-2	0.25-0.5
Land cultivated – food crops (ha)	0.75-1.25	0.5-1.5	1-2	1-3	0.25-1
Goats	0	0	0-6	0-6	0
Guinea pigs	0	0	0	0-6	0
Poultry	5-10	5-15	10-25	10-40	5-15
Motorcycles	0	0	0	0-1	0
Motor pumps	0	0	1	1	0
Sprayers	0	0-1	1	1-2	0
Watering cans	1	1-2	1-3	1-3	0

Ownership of land is the most important determinant of wealth in the zone. Cultivation is common in CD30 and is practiced by all wealth groups. There is a progressive increase in the area of land cultivated with increasing wealth. Overall, the better-off cultivate two to three times the area cultivated by the very poor and poor (these are the groups cultivating the largest and smallest areas, respectively). Having more land also means that middle and better-off household have more flexibility in crop rotation and letting fields lay fallow, which ultimately leads to improved agricultural yields.

Irrigation is common in the livelihood zone and is practiced by all wealth groups. There is a progressive increase in the area irrigated with increasing wealth. Overall, the better-off irrigate three times the area irrigated by very poor and poor households.

The middle and better-off wealth groups produce a surplus of crops for sale. The very poor and poor wealth groups produce fewer staple foods than they need and must purchase food in the pre-

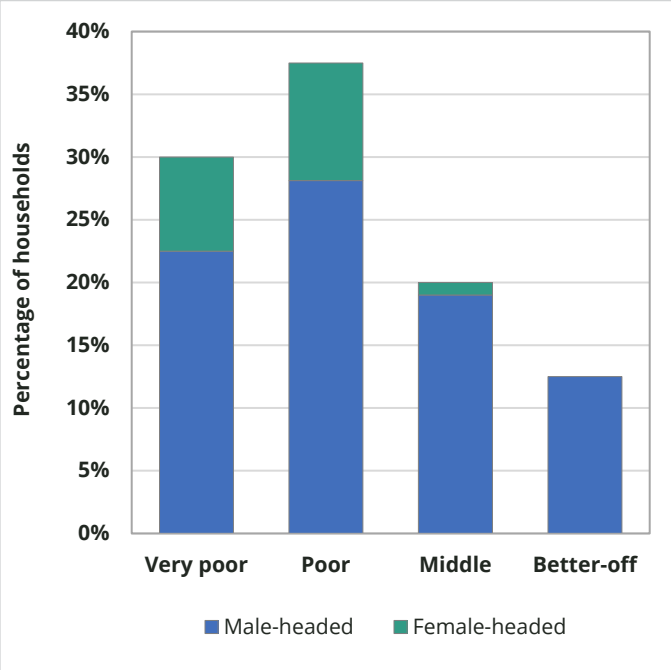
harvest Lean Season. All wealth groups also cultivate cash crops, of which the most significant are sweet peppers, tomatoes, onions, and cabbage.

Availability of household labor is another important determinant of wealth in the zone (measured by the amount of income the average household generates from labor-based activities outside their own farms). The middle and better-off have larger household sizes than the very poor and poor and therefore have more labor for agricultural production and to care for livestock. The middle and better-off hire additional laborers, hired from the very poor and poor wealth groups, for both cultivation labor and harvesting labor. This limits the amount of labor that poorer households can devote to their own crop and livestock production.

Ownership of livestock is another important determinant of wealth in the zone. The most important type of animals are goats followed by poultry. Goats are owned by the middle and better-off wealth groups. Both groups own roughly the same number of goats. The number of poultry owned increases with household wealth. The better-off also own guinea pigs that are kept for household consumption.

Figure 3. Wealth Breakdown

Note: All results are the mid-point of a range



Other productive assets owned in larger numbers by the middle and better-off include motor pumps, sprayers, and watering cans. Middle and better-off households use motor pumps to irrigate their crops. These households can afford to invest in such equipment, allowing them to maximize cash crop productivity. The use of motor pumps enables these households to grow crops like tomatoes and cabbages more intensively and with better yields. On the other hand, very poor and poor households rely on watering cans for irrigation. This method is more labor-intensive and less efficient than using motor pumps, which can limit the scale of their agricultural activities and reduce their overall productivity.

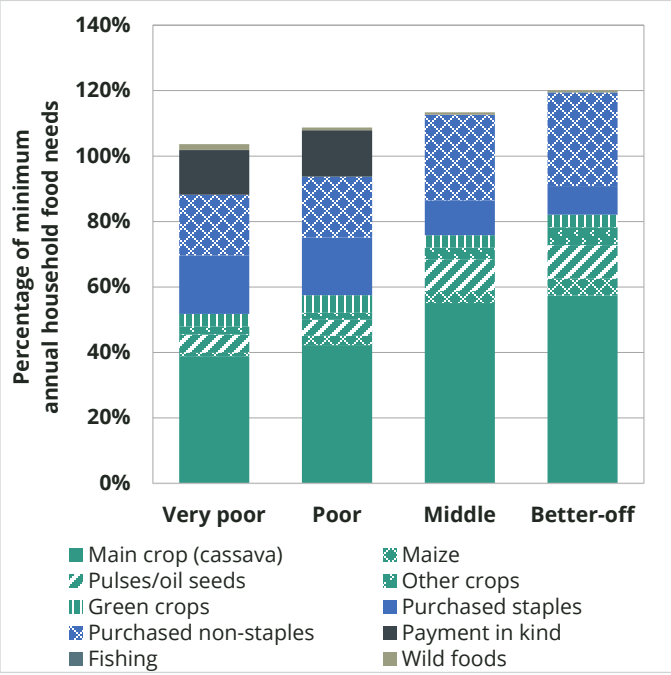
Female-headed households make up a portion of all wealth groups except the better-off, with the highest percentage found among the very poor and poor (see Figure 3). In terms of land, poor female-headed households have an asset profile that is below the very poor, cultivating 0.5-1.5 ha compared to 1-2 ha for the very poor. These households lack basic assets, such as watering cans, that are needed for efficient cash crop cultivation.

Members of very poor and poor households typically achieve only primary education due to financial constraints, while members of middle and better-off households generally reach secondary education, benefiting from greater financial resources. This disparity reflects broader inequalities in access to opportunities across wealth groups.

Sources of Food

Figure 4 presents the sources of food for households in different wealth groups in CD30 for the period from January to December 2023. January represents the start of the consumption year because it is when the main harvest begins. Food is presented as a percentage of 2,100 kilocalories (kcal) per person per day for the 12-month period.

Figure 4. Sources of Food



Beginning with total food consumption, there was a progressive increase in the amount of food consumed as wealth increases. Overall, the very poor consumed just over 100% of minimum annual food needs and the better-off roughly 120%. There were two main sources of food in this zone and two minor sources. The main sources were households' own crops and market purchases. The two minor sources were payments in-kind and consumption of wild foods.

Crop production (particularly cassava) was the most important source of food for households in all wealth groups. The middle and better-off wealth groups grew enough crops to cover their minimum consumption needs, 80-85% for better-off households; very poor households consumed 50-55% of their minimum annual food. The most important crops households grew for their own consumption were cassava flour, fresh cassava, groundnuts, and green maize.

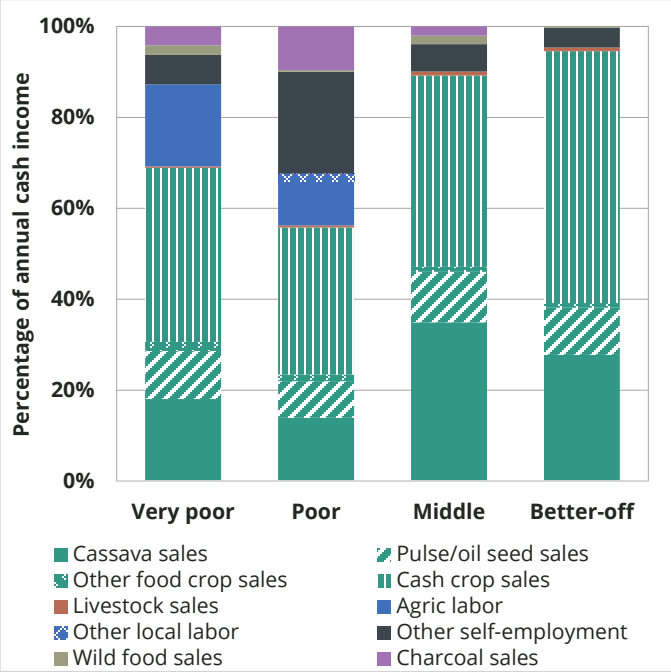
Purchased foods, both staples and non-staples, were the second most important food source. The most important purchased staple foods were cassava flour, fresh cassava, and *chikwanga* (fermented cassava dough wrapped in a dry banana leaf), rice, and maize flour. Of these foods, poorer households purchased 15-20% of minimum annual food needs and middle and better-off households roughly 10%. All wealth groups purchased non-staple foods; the most important were vegetable and palm oil, sugar, and beans. Purchased non-staples contributed 15-20% of very poor households' minimum annual food needs and 25-30% for better-off.

Payment in-kind received for agricultural work during harvest was a minor source of food in CD30 for the poorer wealth groups, contributing roughly 15% of minimum annual food needs for very poor and poor households. Wild foods were another minor source of food in CD30. The very poor wealth group consumed wild foods as less than 2% of their minimum annual food needs.

Sources of Cash Income

The very poor and poor wealth groups had a similar income profiles, with crop sales, wage labor, and self-employment the top three sources of cash. The middle and better-off also had a similar income profile, dominated by crop sales.

Figure 5. Sources of Cash Income as a Percentage of Annual Cash Income



Crop sales were the most important sources of cash for households in all wealth groups. The main food crops sold were fresh cassava, cassava flour, and groundnuts. The main cash crops sold were sweet peppers, tomatoes, onions, and cabbages.

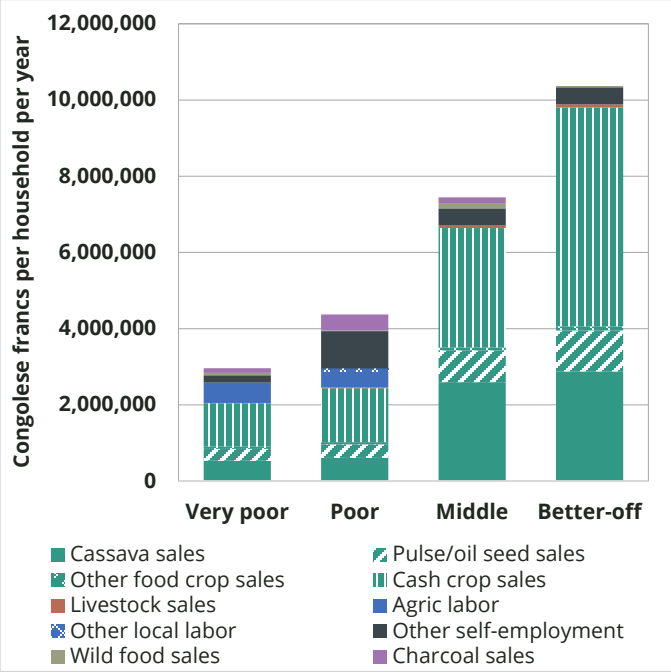
Wage labor — mainly pre-harvest cultivation labor and harvesting labor — was an income source for poorer wealth groups, generating 15-20% of total cash income for very poor households and roughly 10% for poor households.

Petty trade was the third biggest contributor to cash income for very poor households and the second biggest for better-off households —generating roughly 5% of total income for very poor and better-off households.

Livestock sales provided income for households in all wealth groups but generated less than 5% of total cash income. The main livestock sold were goats for middle and better-off households and poultry for poorer households.

Charcoal sales generated less than 10% of income for very poor, poor, and middle households.

Figure 6. Total Annual Cash Income



Differences between wealth groups in the absolute amount of cash income generated during the reference year were large, as shown in Figure 6 and Table 4. Overall, better-off households earned three to four times the cash income of very poor households. Differences between wealth groups in per capita cash income were moderate, smaller than for total income. Overall, the better-off earned two to three times the annual per capita cash income of the very poor. There was a progressive increase in annual per capita cash income with increasing wealth.

Table 4. Income Summary Table (Congolese Francs or CDF)

Wealth Group	Very Poor	Poor	Middle	Better-Off
Annual income per household[4]	2,500,000–3,500,000	4,000,000–5,000,000	7,000,000–8,000,000	9,000,000–12,000,000

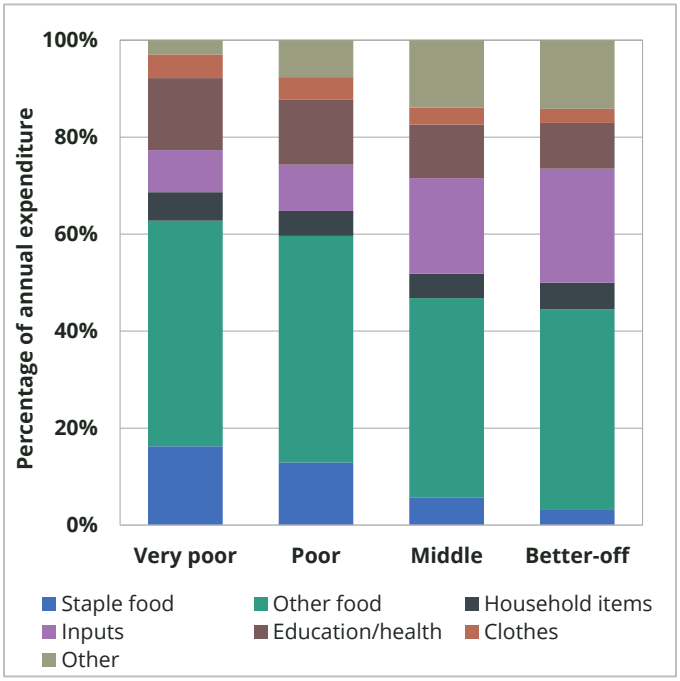
Expenditure Patterns

Figure 7 presents expenditure patterns for the reference year. While absolute expenditure increases with wealth in line with total cash income, this graph's expenditure breakdown by percentage shows the *relative* amount of income spent on different categories. Households in the zone need to cover a range of essential expenditures over the year. These include staple foods, non-staple foods, household items/services (like salt, soap, tea, lighting, milling, etc.), productive inputs, social services (which include health and education), clothing, as well as other essential and non-essential items.

Non-staple foods accounted for the largest share of total expenditure for households in all wealth groups. The main non-staple foods purchased were vegetable and palm oil, sugar, and beans. Staple food was an expenditure item for all wealth groups. There was a progressive decrease in the share of expenditure with as wealth increased. Staple foods accounted for roughly 15% of total expenditure by very poor households and less than 5% by the better-off. The main staple foods purchased were cassava flour, fresh cassava, *chikwanga*, rice, and maize flour.

[4] The average exchange rate from January to December 2023 was 1 USD = 2,311 CDF.

Figure 7. Total Annual Cash Expenditure by Category



Households in all wealth groups spent on social services, with a progressive decrease in share of expenditure with increasing wealth. Health and education accounted for roughly 15% of total expenditure by very poor households and roughly 10% by the better-off. Put another way, expenditure by the very poor wealth group was one to two times that of the better-off as a percentage of their total annual budget. In terms of cash per capita, on the other hand, the trend was reversed, and expenditure by the better-off was one to two times that of the very poor.

Productive inputs were also expenditure items for all wealth groups, with wealthier households spending progressively more than poorer households. Inputs accounted for roughly 10% of total expenditure by the very poor and roughly 25% by the better-off. The main productive inputs, in order of amount spent, were labor, fertilizer, seeds, and pesticides.

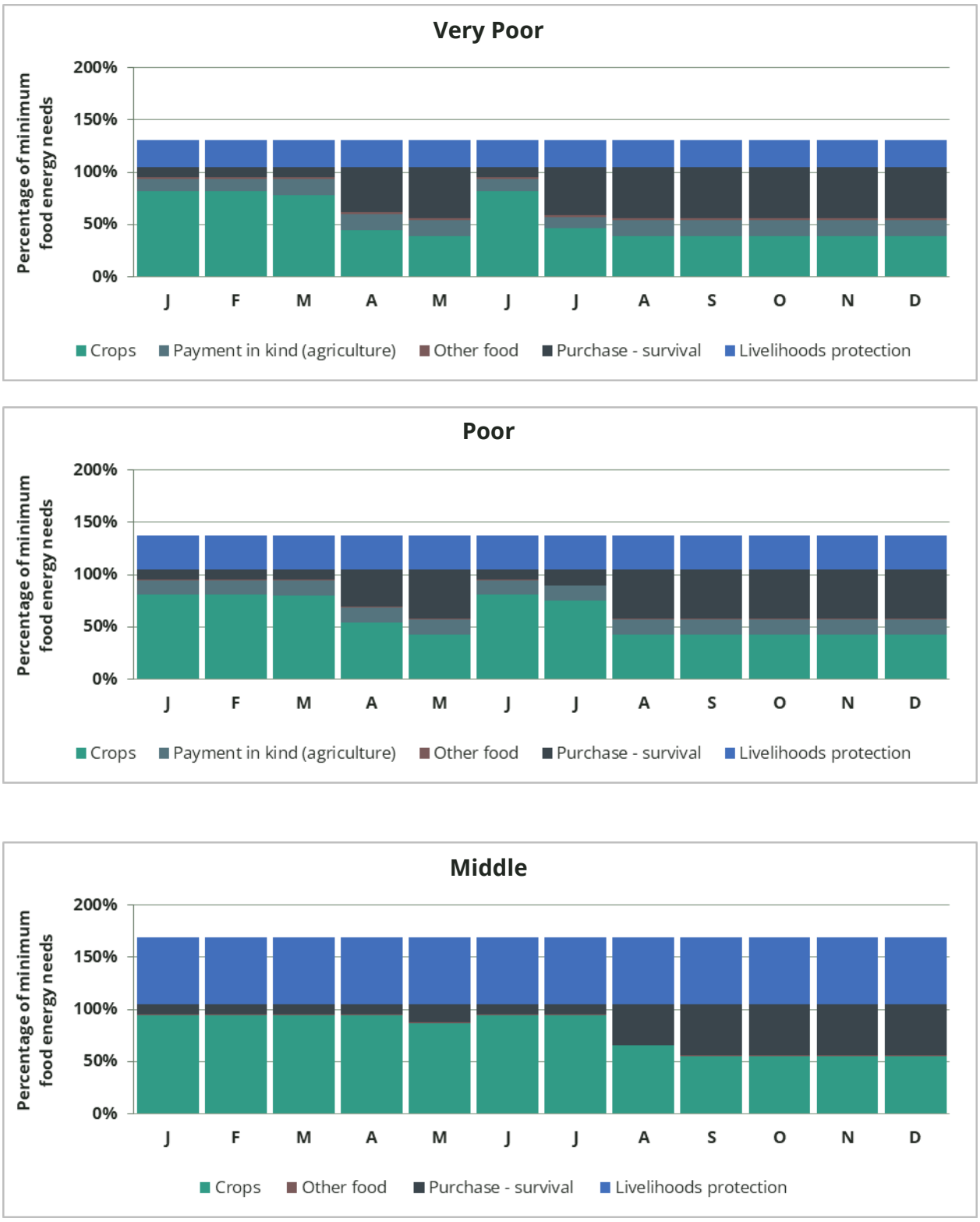
Other non-essential items were another expenditure category for households from all wealth groups. There was a progressive increase in share of expenditure with increasing wealth. Other non-essential items accounted for less than 5% of total expenditure by the very poor and roughly 15% by the better-off.

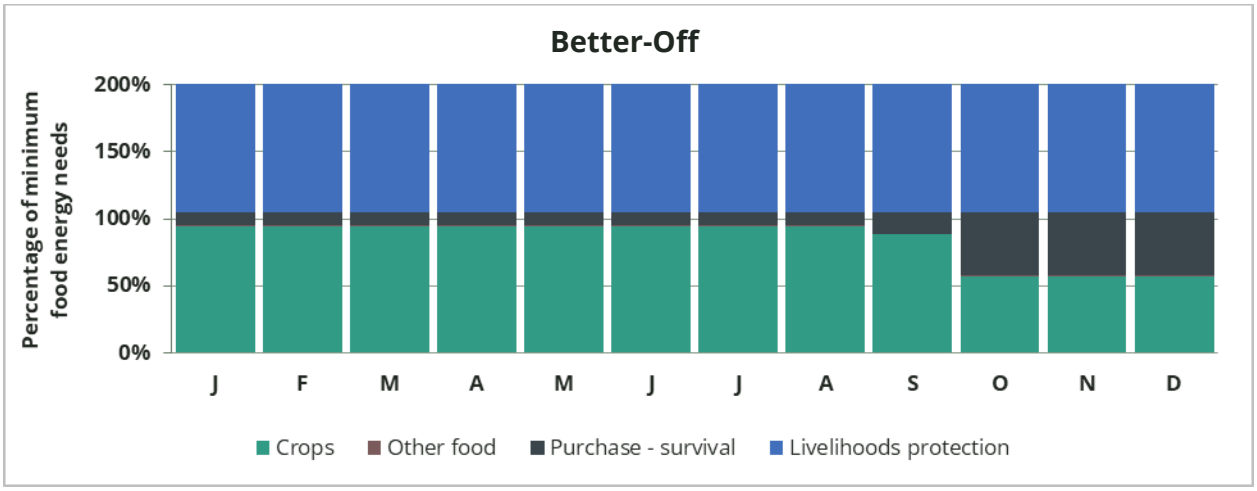
Food Access Calendars

The graphs in Figure 8 present monthly food and cash access calendars for the four wealth groups.

Households in all wealth groups were able to meet their survival and livelihoods protection thresholds year-round in the reference year. The main harvest period in this livelihood zone started in January and the second harvest period started in June. Very poor and poor households obtained some food from payment in-kind for casual agricultural labor (in teal). Very poor and poor households relied on market purchases (in yellow) to meet their needs for several months of the year, while middle and better-off households were more self-sufficient. Middle and better off households spent a large proportion of their total income on productive inputs, health, and education (“livelihoods protection” in the graphs).

Figure 8. Seasonal Food and Cash Access Calendars per Wealth Group





Poor Female-Headed Households

Figure 9 shows that poor female-headed households and poor male-headed households share a similar pattern of food access. Looking at total food consumption, poor male- and female-headed households consumed similar amounts, just over 100% of minimum annual food needs.

Figure 9. Sources of Food: Poor Households vs Poor Female-Headed Households

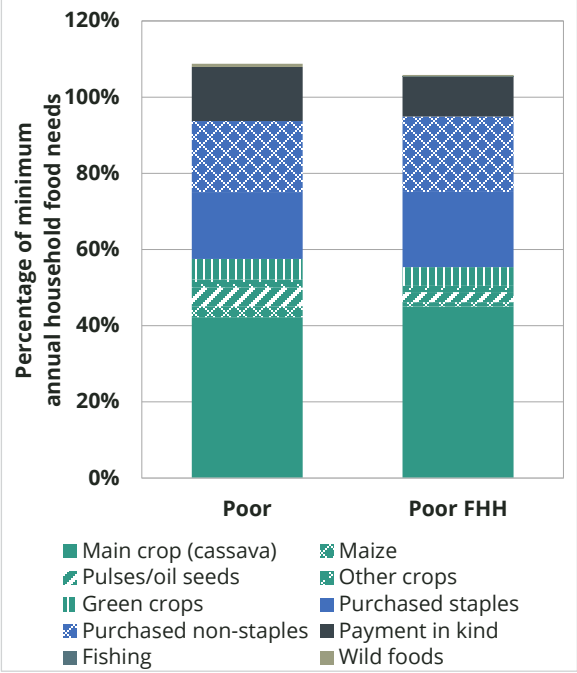
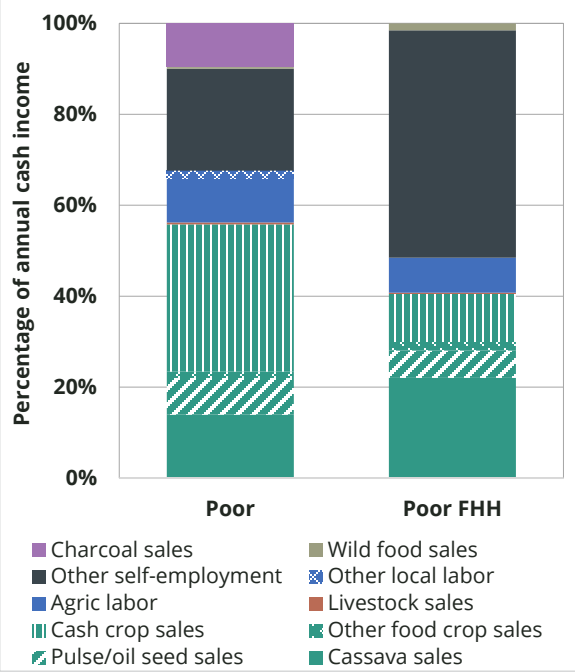


Figure 10. Sources of Cash: Poor Households vs Poor Female-Headed Households



The four main food sources for poor female-headed households were, in order of importance: crops, non-staple purchases, staple purchases, and payments in-kind. The most notable difference was payments in-kind, making up about 15% for poor male-headed households and about 10% for

poor female-headed households. Poor female-headed households' own crops provided slightly less food than for poor-male headed households, about a 2-3% difference.

Turning to cash income, poor female-headed households earned much less cash income than poor male-headed households — roughly 30% less. However, poor female-headed households were smaller than male-headed households, and per capita cash income was roughly 20% less. The five main types of cash income for poor female-headed households were, in order of importance: crop sales, petty trade, self-employment, wage labor, and livestock (i.e., poultry) sales. Overall, crop sales made up a smaller percentage of annual cash income for poor female-headed households than for poor male-headed households.

Two of the five income sources generated more cash for poor-female headed households than poor male-headed households: petty trade and self-employment. Self-employment activities for poor female-headed households included the collection and sale of firewood, the sale of prepared foods, and the sale of wild foods.

Response Strategies

In response to hazards and years with bad production, households attempt to meet their minimum food needs and cash requirements through several strategies. Some responses implemented were different across wealth groups, while others were similar. Below are some common strategies employed by households.

Households in all wealth groups try to reduce expenditure on non-essential or more expensive items first, such as cutting down on festival costs or not buying clothes or utensils that year. Households consume less rice in favor of cassava, which is the least expensive staple.

Very Poor and Poor Households

Very poor and poor households try to increase cash income through the intensification of casual labor activities in the livelihood zone. However, in bad years, as increasing numbers of people flood the labor market, this option quickly loses its value because wage rates drop and jobs are harder to find. In bad years, poorer households also intensify self-employment activities, like the sale of firewood and charcoal.

Middle and Better-Off Households

Middle and better-off households cope with hazards differently. Middle and better-off households will increase self-employment activities, like petty trade.

Key Parameters for Monitoring

The key parameters listed in Table 5 are food and income sources that make a substantial contribution to the household economy in the *Market Gardening and Staple Crops Livelihood Zone*. These should be monitored to track potential losses or gains to local household economies through ongoing monitoring systems or periodic assessments.

Table 5. Key Parameters for Monitoring

Item	Key Parameter – Quantity	Key Parameter – Price
Staple food crop production	• Cassava – quantity produced • Groundnuts Season A – quantity produced • Groundnuts Season B – quantity produced	• Cassava – producer price • Groundnuts Season A – producer price
Cash crop production	• Onions – quantity produced • Tomatoes – quantity produced • Cabbages – quantity produced • Eggplants – quantity produced • Sweet peppers – quantity produced • Bananas – quantity produced	• Onions – producer price • Tomatoes – producer price • Cabbages – producer price • Eggplants – producer price • Sweet peppers – producer price • Bananas – producer price
Other food and cash income	• Wild foods – quantity • Harvest labor – number of days • Cultivation labor – number of days • Charcoal sales – quantity sold • Petty trade – demand	• Cultivation labor – wage rates • Charcoal sales – producer price • Petty trade – daily earnings
Expenditure		• Cassava – consumer price • Cooking oil – consumer price

CD31 Livelihood Zone

Reference Year: January–December 2023

Kongo-Central Intensive River Fishing, Staple Crops, and Market Gardening Livelihood Zone

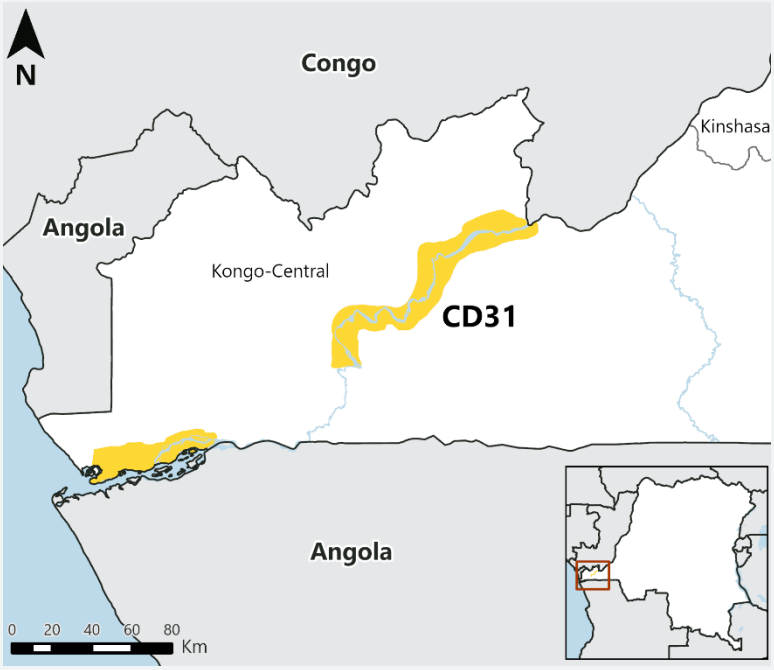


Figure 1. CD31 Livelihood Zone Map

Summary: The *Kongo-Central Intensive River Fishing, Staple Crops, and Market Gardening Livelihood Zone* (CD31) consists of two narrow strips that straddle the Congo River as it flows southwest through Kongo-Central Province to finally reach the sea. The central importance of fishing to household livelihoods is the zone's distinguishing characteristic. There is also a substantial farming economy with diverse crops and livestock. This is carried out beyond the riverbanks within a landscape of mixed forest and savannah, with annual rainfall ranging between 1,000 and 1,500 millimeters (mm). Despite problems such as floods, reduced rainfall, and endemic plant and animal diseases, even very poor households are generally able to meet their minimum food needs.

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Zone Description

The *Kongo-Central Intensive River Fishing, Staple Crops, and Market Gardening Livelihood Zone*[1] (CD31) covers two stretches of the Congo River in Kongo-Central Province, in the territories of Luozi, Mbanza-Ngungu, Muanda, and Songololo. Livelihoods are based on river fishing and on agriculture beyond the river itself within a landscape of mixed forest and savannah. The overall ecology has a humid tropical climate, with some variation between the territories: humid and sub-humid conditions in Luozi, Mbanza-Ngungu, and Songololo, and a mix of tropical and temperate climates in Muanda. The topography is diverse, with mountains, hills, valleys and undulating plains, creating a rich ecological mosaic that supports a variety of livelihood activities. Annual rainfall ranges between 1,000 and 1,500 mm in most areas, with Muanda experiencing lower precipitation at 800 to 1,000 mm. Temperatures fluctuate across the region, with averages ranging from 18°C to 26°C, depending on the territory. The population density varies across the territories, but the average for the whole zone is 68 people per square kilometer; the total population for the zone is 179,762.[2] In terms of infrastructure, the zone is crossed by several key roads, notably the main road, R111, in a north-south direction, connecting with the National Route 1 (RN1) highway to the south of the zone that runs from Kinshasa to the coast. The major, northern part of the zone has several towns along the river, of which Luozi is the biggest. The large town of Boma lies at the far end of the southern part of the zone, beyond the port of Matadi. It was the original capital of the country, but it is much smaller than the modern capital Kinshasa. Mangrove Park is a notable natural reserve bordering the zone. Other natural resources, such as diamonds, gold, and manganese, exist but are not extensively exploited.

The zone's economy is based on fishing, agriculture, small-scale livestock farming, and petty trading. Fishing is carried out along the two stretches of the Congo River that serve the zone, although these contain a series of non-navigable rapids and small waterfalls that limit larger-scale exploitation. A small amount of additional fishing is done in the tributary small rivers and streams. The activity continues year-round by men and boys from all wealth groups. They use wooden dugout canoes, and wield fishing nets, hooks, beach seines, gillnets, and longlines. Fish are a crucial source of cash income, sold fresh locally but also may be dried or smoked to preserve it and allow transport to farther markets, especially Kinshasa.

The main crops grown are cassava, groundnuts, pigeon peas, beans, and tomatoes. These crops are generally grown in rainfed conditions, with some irrigated cultivation, particularly for vegetables. Maize is not typically grown. Agricultural practices are solely manual across all wealth groups, starting with hand digging for land preparation. Wealthier farmers commonly employ poorer neighbors as laborers on their land, enabling them to make ends meet and maximizing production

[1] Fieldwork for the current profile was undertaken from June 26 to July 31, 2024. The information presented in this profile refers to the reference year, which was the consumption year that covered the period January to December 2023. Provided there are no fundamental and rapid shifts in the economy, the information in this profile is expected to remain valid for approximately five to 10 years (i.e., until 2029-2034). All prices referred to in the document are for the reference year.
[2] FEWS NET Data Explorer, population data (2023), accessed 2025, https://fdw.fews.net/data-explorer/.

of their own crops. Payment for labor is both in cash and in kind (i.e., directly in food), notably for women who engage in harvest labor.

Livestock raising primarily involves free-range grazing or foraging of goats, pigs, sheep, and poultry on grass and crop residues, with the occasional addition of supplementary concentrates. Apart from the Congo River itself, rivers, seasonal streams, and ponds provide water for livestock during the Rainy Season, while secondary permanent rivers are the main water source during the Dry Season.

In addition to agriculture, fishing, and livestock raising, trading activities support the livelihoods of households within the CD31 zone. Small-scale retail trade involves men and women, as well as children, and it operates year-round, with stalls or itinerant vendors. Charcoal production, typically conducted by men and boys, also plays a significant role in the local economy through sales, mainly to townspeople, via local markets which traders visit. This activity involves carbonizing wood and then selling the charcoal in local markets. Charcoal production occurs throughout the year and provides an important source of income, especially in more remote and forested areas where wood is plentiful but where road access allows transportation of the product. In addition, there is beer brewing, adobe brickmaking, artisanal lime production, handling of goods, motorcycle taxi service, and river transport by canoe.

Households in this zone generally do not borrow money, and there is no significant system of credit or loans in place. Additionally, there is no significant flow of remittances or gifts from outside the zone to support households.

The *Kongo-Central Intensive River Fishing, Staple Crops, and Market Gardening Livelihood Zone* experiences several hazards that affect its economy and livelihoods. These hazards occur with varying frequency and pose challenges to both agricultural and livestock production. The main hazards include occasional flooding, rainfall deficits and irregularities, river water movement variations, crop diseases, and livestock diseases. Flooding is one of the most frequent hazards in the zone, occurring approximately every two years. The region is prone to irregular flooding due to overflow from the Congo River as well as lesser flooding in other places that disrupt agricultural activities, damage crops, and can lead to soil erosion. Rainfall deficits and irregularities are other hazards that affect the zone one out of every two years. Rainfall deficits and irregularities lead to water shortages, which directly impact crop yields and reduce the availability of water for livestock. Significant variation in water flow on the river occurs about twice a year. These variations can disrupt fishing activities and can also affect irrigated market gardening.

Crop diseases are a persistent threat in the zone, with occurrences also estimated at twice a year. The most frequent disease affecting crops is root rot in cassava, which is the main staple in CD31. Livestock diseases are another recurrent hazard, the most common being Newcastle disease, swine fever, and black plague. These diseases pose serious risks to livestock populations, with significant economic losses for households. However, despite these challenges from floods, scant rainfall, and plant and animal diseases, households have generally maintained stable food security.

In CD31, access to basic services such as water, sanitation, healthcare, and education varies between the wealth groups, particularly between poorer (i.e., very poor and poor) households and wealthier (i.e., middle and better-off) households. Households in all wealth groups primarily rely on rivers for their drinking water. For other uses, such as washing and cooking, households utilize spring water, rivers, and rainwater. There is no payment required for water, and access remains consistent across all wealth groups. Sanitation facilities vary slightly between the wealth groups. Poorer households use simple latrines made from wood with straw and thatch wall and roof cover or they resort to open-air defecation. In contrast, wealthier households have latrines constructed from adobe bricks or cement with tin roofs, providing slightly better sanitation conditions.

Healthcare services are relatively basic, with dispensaries and health centers as the primary sources of medical care across all wealth groups. There are no hospitals or advanced healthcare facilities within the zone, but wealthier households may be able to afford to travel outside the zone to access these. Lighting is primarily provided by battery-operated flashlights across all wealth groups, with some wealthier households also using solar panels. Firewood is the dominant fuel source for cooking, used by households in all wealth groups. Mobile phone service and use is common and widespread across the zone and includes access to the internet, although internet access is more prevalent among wealthier households. Educational attainment differs significantly, with the highest level of education typically being secondary for members of poorer households, while those from wealthier households are more likely to attain a university education. There are no formal credit sources, such as banks or microfinance institutions, accessible to households in CD31. Likewise, there are no formal savings plans reported, indicating a lack of financial infrastructure.

Markets

Market access in this zone is challenging due to the poor condition of roads and infrastructure, which significantly hampers the movement of goods, especially during the Rainy Season. The local feeder roads link to the main road, R111, which in turn links to RN1. Local roads as well as R111 are commonly in a severe state of disrepair in the territories of Luozi, Mbanza-Ngungu, and Songololo during the Rainy Season. This makes transportation difficult and limits market access for these areas. In the Muanda Territory, RN1 is in good condition, but the agricultural feeder roads suffer from similar issues during the Rainy Season. During the Dry Season, road conditions improve slightly, but not uniformly across the region. Some road stretches become passable, but many remain problematic. The area is primarily served by dirt roads and informal tracks, all of which are generally in poor condition, contributing to difficulties in accessing markets.

There is also river transport with motorized boats for passengers and goods. Fixed bridges in the region are generally in good condition, but the moveable bridge — the car/truck ferry — is frequently out of service, further inhibiting the transport of agricultural produce. Market access is notably poor for some villages due not only to the deteriorating road infrastructure but also their remote location from urban centers. This isolation hinders the ability of households to consistently reach markets, limiting their economic opportunities.

The primary crops sold for export from CD31 are cassava, beans, and groundnuts. These crops are typically transported to local markets and then traded further along routes such as Luozi-River-R111-RN1 to Kimpese and Kinshasa or from local agricultural feeder roads to Boma and Matadi. The peak sales months for these crops vary; cassava sees peak sales in September, beans from July to September, and groundnuts in February.

Regarding livestock, poultry are primarily sold locally in December, while more goats and pigs are sold in January, July, September, and December. These sales are crucial for household income, especially during periods of high expenses, such as holiday seasons. Other significant products include charcoal, fermented cassava (*chikwangue*), and citrus fruits. Charcoal is mainly sold locally and along routes leading to Muanda, Boma, and Kinshasa, with peak sales occurring in July and August. Fermented cassava and citrus fruits are also sold along similar routes, with sales varying by season.

Foods such as rice and beans are imported to the zone and are primarily purchased along routes from Kinshasa to Luozi and from Angola via RN1-R111 to Luozi. The peak purchasing period for these foods is in December, aligning with the season when households typically prepare for end-of-year festivities and need to stock up on essential food items.

CD31 does not have significant labor migration, either out of or into the zone; the two big centers of Kinshasa and Matadi are too distant for CD31 households to travel for work. Therefore, casual labor is essentially within the rural area itself, with some employment in nearby, small towns that can be visited and returned from in the same day.

Timeline and Reference Year

The baseline assessment refers to a specific period called the “reference year.” In the *Kongo-Central Intensive River Fishing, Staple Crops, and Market Gardening Livelihood Zone,* the reference year covers the consumption period from January to December 2023. During community leader interviews, data collectors asked informants to score the last five years in terms of seasonal performance with “1” indicating a poor season and “5” indicating an excellent season. Table 1 summarizes the response of the community leaders.

Throughout the years between 2019 and 2023, communities reported common hazards that reduced agricultural production, such as flooding, excessive or insufficient rainfall, and crop and livestock disease outbreaks. Poor seed quality or inappropriate seeds were also reported as a chronic condition in the zone reducing agricultural potential. Most households were able to cope with these shocks, and most years were classified as presenting average food security, except for 2020, which was below average due to extreme weather conditions and the COVID-19 pandemic. No conflicts were reported in the zone during these five years, including the reference year, indicating a relatively stable sociopolitical environment.

Table 1. Timeline

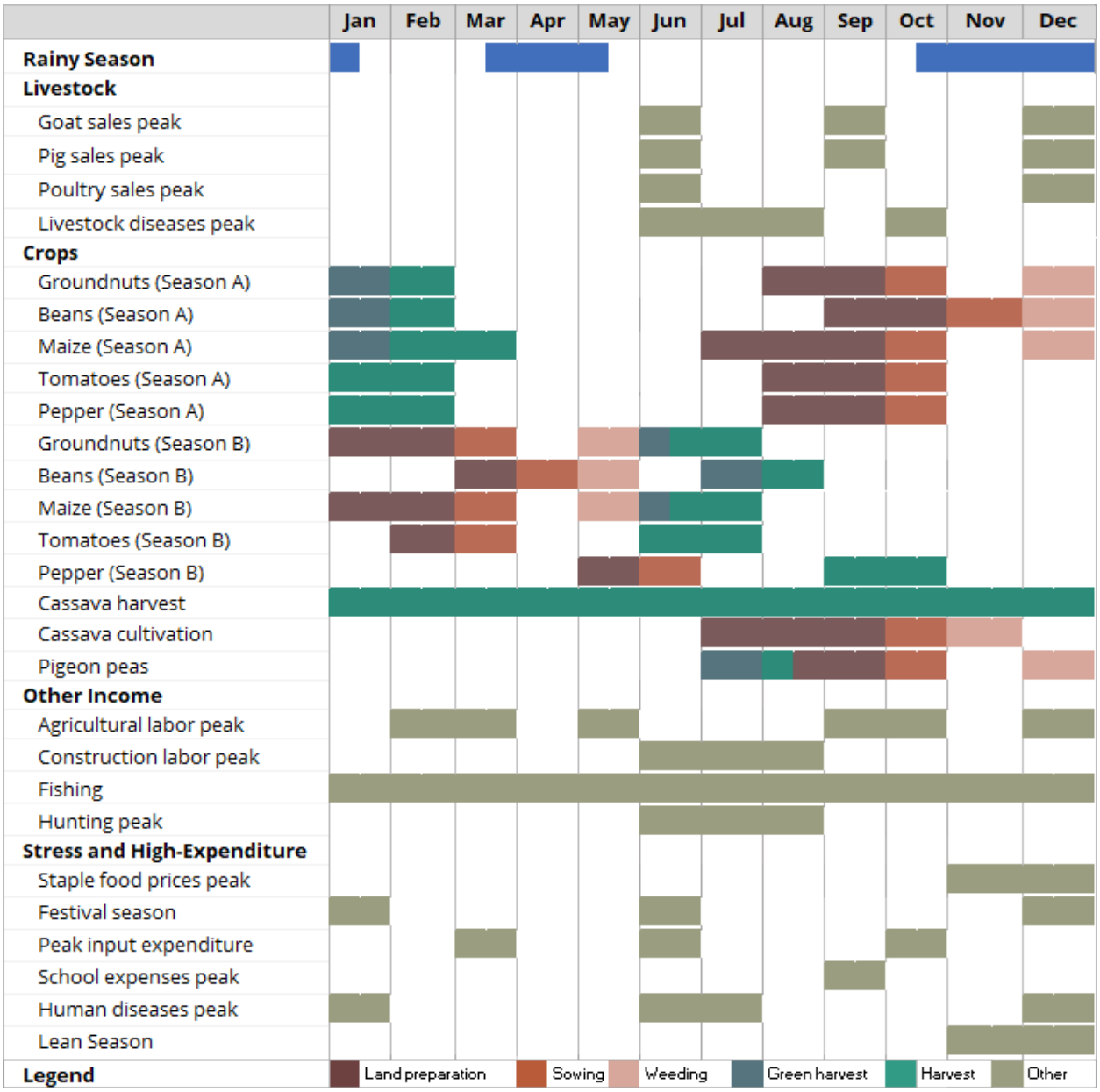
Production Year/ Season	Score	Critical Events
2023/Season B	3	Crop diseases. Households coped through intensified fishing activities (both for food and cash income) to offset the losses in crop production.
2022-2023/ Season A	3	Livestock diseases. Households coped through use of wild leaves to supplement feed or for medicinal purposes.
2022/Season B	3	A significant rainfall deficit reduced water availability, reducing agricultural yields. Households coped through intensified fishing activities (both for food and cash income) to offset the losses in crop production.
2021-2022/Season A	4	The season was clear, with no significant adverse events reported.
2021/Season B	3	Crop diseases. Households coped through sale of charcoal and firewood.
2020-2021/Season A	3	Livestock diseases. Households coped through small business activities.
2020/Season B	2	The COVID-19 pandemic led to restrictions that strained the economy, preventing normal market operations and crop sales.
2019-2020/Season A	2	The zone was struck by both damaging breaks in rainfall and heavy rains, which disrupted normal agricultural cycles. Households coped by selling additional livestock.
2019/Season B	3	The zone experienced floods and crop diseases, both of which negatively impacted agricultural production. Households coped through intensified fishing activities (both for food and cash income) and small business activities to offset the losses in crop production.
2018-2019/Season A	3	Crop diseases and low rainfall. Households coped through increased reliance on palm oil sales and local labor opportunities.

5 = Excellent season for household food security (e.g., due to good rains, good prices, good crop yields)
4 = Good season or above average season for household food security
3 = Average season for household food security
2 = Below-average season for household food security
1 = Poor season for household food security (e.g., due to drought, flooding, livestock disease, pest attack)

Seasonal Calendar for Reference Year

The seasonal calendar (see Figure 2) illustrates the main economic activities and events of the reference year. It provides a comprehensive overview of the cyclical nature of economic and agricultural activities in CD31, highlighting the critical periods for production, labor, expenditure, etc.

Figure 2. Seasonal Calendar



The *Kongo-Central Intensive River Fishing, Staple Crops, and Market Gardening Livelihood Zone* experiences distinct Rainy and Dry Seasons, which dictate agricultural, livestock, and economic activities throughout the year. The rains come at different times of the year. These include the first half of January, second half of March to the first half of May, and second half of October to

December. The Dry Season comes in the second half of January to the first half of March, and again in the second half of May to the first half of October.

The rains experienced in the zone allow two cropping seasons for agricultural production, Season A and Season B, with Season A dominating. Crops cultivated include cassava, groundnuts, beans, maize, pigeon peas, tomatoes, and peppers. Cassava, groundnuts, beans, maize, and pigeon peas are often cultivated together (i.e., intercropped). Land preparation for cassava occurs July to September, with planting in October.

Weeding is done in November. Mature cassava can be kept in the ground for several months, and with the staggered planting times, harvesting is ongoing throughout the year. For groundnuts, Season A land preparation is in August/September, planting in October, weeding in December, “green” harvest in January, and dry harvest in February. The “green” harvest is where crops are harvested before they are fully mature, for consumption in a “fresh” state. This can be for pleasure, like roasting maize cobs, but also, for poorer households, it can ease the food stress of the Lean Season before the proper harvest begins. In this zone, green groundnuts, beans, and pigeon peas are taken for household consumption while green maize is mostly sold. Season B (groundnuts) land preparation is in January/February, planting in March, weeding in May, green harvest in June, and dry harvest from June to July.

For beans, Season A land preparation is in September/October, planting in November, weeding in December, green harvest in January, and dry harvest in February. Season B (beans) land preparation is in March, planting in April, weeding in May, green harvest in July, and dry harvest in August. For maize, Season A land preparation is from July to September, planting in October, weeding in December, green harvest in January, and dry harvest from February to March. Season B (maize) land preparation is in January/February, planting in March, weeding in May, green harvest in June, and dry harvest from June to July. For pigeon peas, land preparation occurs in August/September, planting in October, weeding in December, green harvest in July, and dry harvest in August. For tomatoes and peppers, Season A land preparation occurs between August/September, planting in October, and harvest in January/February. Season B planting is in February for tomatoes and May for peppers, with harvest in June/July for tomatoes and September/October for peppers.

Agricultural labor peaks in February/March, May, September/October, and December, reflecting periods of intense farming activity. Fishing takes place year-round, with the peak fishing period from June to August and a low period from October to December. Livestock are sold throughout the year, with peak periods for selling live goats, pigs, and poultry in June, September, and December. These sales align with the need for income during holiday periods and other high-expenditure times. Construction labor peaks from June to August. In the Dry Season, hunting for forest game primarily takes place from June to August.

Livestock diseases peak from June to August and again in October, negatively affecting livestock health and market activity. Human diseases peak in January, June/July, and December, requiring additional health expenditures.

High staple prices are in November and December, coinciding with the Lean Season, a period of food scarcity leading up to the main harvest. Peak agricultural inputs expenditure is in March, June, and October. Wealthier households spend six to 11 times more on hiring labor than on fertilizers, pesticides, seeds, and tools combined.

Table 2 shows the typical division of labor, listing those activities shared and not shared by men and women. Nearly all agricultural production activities, including agricultural labor, are shared by men and women; it should be noted that women are mostly engaged in weeding, harvesting, threshing, and winnowing, while also undertaking all the sowing/planting work. Women are also responsible for vegetable sales. Men and boys are largely responsible for livestock production activities, except for rearing and sale of poultry, which women generally lead. Fishing, meat sales, and firewood and charcoal sales are shared activities. Women predominantly handle domestic tasks, such as cooking, laundry, and childcare.

Table 2. Typical Division of Labor

Shared Tasks	Women's Tasks	Men's Tasks
• Land preparation, weeding, harvesting, threshing/winnowing • Crop sales • Petty trade • Paid agricultural labor • Fishing and fish sales • Meat sales • Charcoal and firewood sales • Self-employment	• Sowing/planting • Wild foods collection • Vegetable sales • Livestock sales (poultry) • Collection of firewood • Household chores	• Goat and pig rearing and sales • Livestock slaughter • Charcoal production • Collection and sale of timber wood • Brewing • Construction labor • House construction

Wealth Breakdown and Productive Assets

Table 3 summarizes the types and numbers of productive assets that typical households within each wealth group own and/or manage. Asset holdings are shown in a range that reflects the diversity of households' situations within a wealth group. Figure 3 shows the percentage of households within the zone that falls in each wealth group. The socioeconomic categorization of households in the zone was carried out by the communities themselves.

In CD31, wealth distribution is influenced by several key determinants, including land ownership, fishing equipment, livestock holdings, access to agricultural inputs, and the ability to hire labor.

The amount of land owned and cultivated is a significant factor affecting wealth. Better-off households often have surplus land, some of which is left fallow, while very poor and poor households, including female-headed ones, have limited land to cultivate. Women in the zone can inherit land, and the practice is consistent across all wealth groups. Married women typically own land through their husbands, while widowed or unmarried women can also own land. There is no

formal system of land leasing, and land ownership is mainly familial. There are no significant differences in the types of crops produced by different wealth groups. However, wealthier households can hire labor, which increases their capacity for production, while poorer households rely on family labor.

Table 3. Wealth Breakdown

Household Size and Productive Assets	Very Poor	Poor Male-Headed	Middle	Better-Off	Poor Female-Headed
Household size	4-6	5-7	5-7	7-9	4-6
Land (hectares [ha])	0.25-1	0.5-1.5	1-2	2-3	0.5-1
Land cultivated (ha)	0.25-1	0.5-1.5	1-2	2-3	0.5-1
Land cultivated – food crops (ha)	0.25-0.5	0.5-1	1-1.5	1-2	0.25-0.5
Pigs	0	0-3	1-5	3-7	0
Goats	0	0-3	2-6	3-7	0
Sheep	0	0	0	0-4	0
Poultry	0-10	5-15	10-25	10-30	5-10
Motorcycles	0	0	0	0-2	0
Motor pumps	0	0	0	0-1	0
Nets	2-5	3-7	5-15	5-20	0-3
Wood canoes	0-1	0-1	1-2	1-2	0
Mobile phones	1	1	1	1	0-1

Wealthier households have access to more and better fishing equipment, such as fishing nets and canoes, while poorer households rely on fewer and less advanced tools. The sale of fish is by far the single biggest source of income for all wealth groups. Wealthier households employ people from poorer households for fishing work, either paying with cash or with an agreed portion of the catch.

Livestock is another critical indicator of wealth that differs significantly by wealth group, with better-off households owning more goats, pigs, and poultry compared to very poor households, who own few to no livestock. Very poor households may have arrangements like "*gardiennage*," where someone who cares for another person's animals and receives one birth out of three for goats and sheep, or a female piglet, as compensation. *Gardiennage* arrangements help share livestock between wealth groups, offering poorer households a way to accumulate livestock over time. Common livestock diseases, lack of improved breeds, and limited access to pasture and labor are significant constraints for all wealth groups.

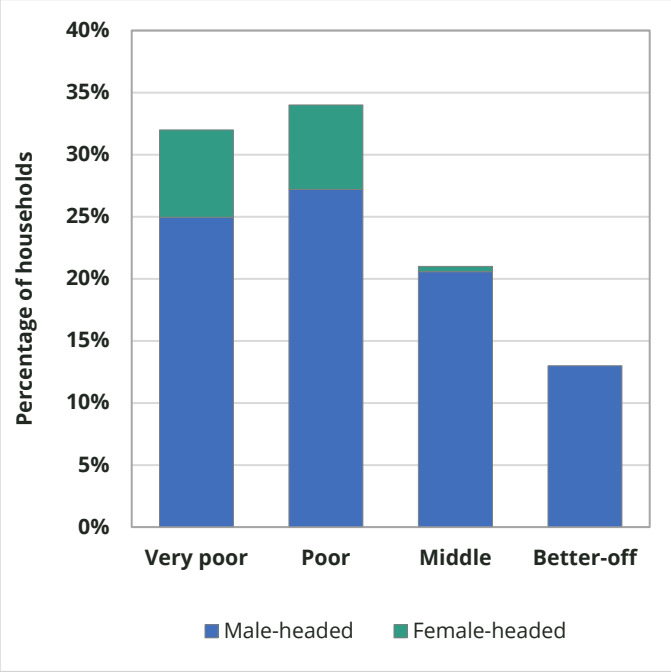
Wealthier households can afford to hire labor and purchase inputs, notably improved seeds and labor, giving them an advantage in agricultural productivity. Poorer households rely on family labor

and often lack the financial means to invest in inputs. Middle and better-off households can also diversify their income through trading activities, while poorer households engage in labor-intensive work, such as firewood collection and charcoal production.

In terms of overall productive asset ownership across the wealth groups, very poor households typically own 0.25-1 ha of land and no livestock. They may have a few fishing nets but no motorcycles or motor pumps. Poor households own 0.5-1.5 ha of land and may have up to three pigs or goats and 5-15 poultry. They often have a few fishing nets and possibly a wood canoe. Middle households own 1-2 ha of land, 1-5 pigs, and 2-6 goats, with better access to fishing equipment and sometimes a motorcycle or motor pump. Better-off households own 2-3 ha of land and up to seven pigs and goats. They are more likely to own motorcycles, motor pumps, and more or larger fishing equipment.

Figure 3. Wealth Breakdown

Note: All results are the mid-point of a range



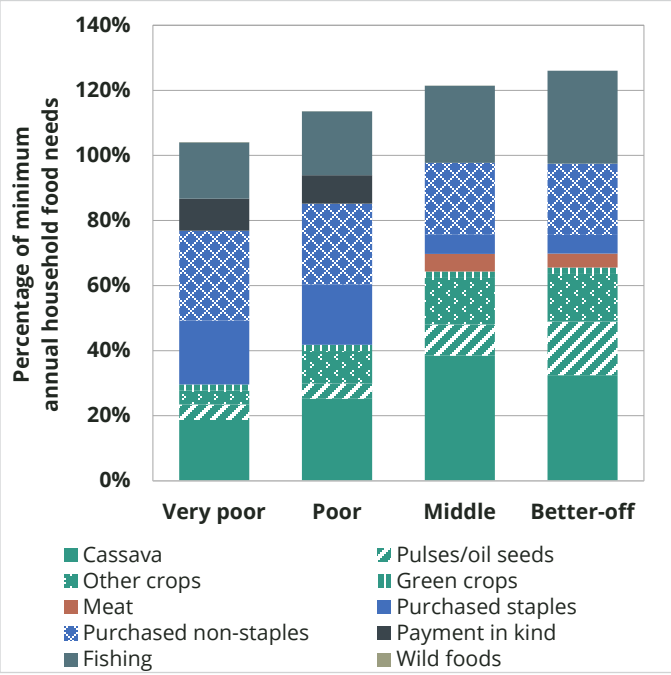
Household size increases with wealth. The very poor have a household size of approximately 4-6, poor and middle 5-7, and better-off 7-9. The wealthier the household, the larger it is, with more livestock and productive assets.

The proportion of households in the community is as follows: very poor households range 20-40%, poor households 25-45%, middle households 15-25%, and better-off households 10-15%. The percentage of female-headed households in each wealth group is as follows: approximately 22% of very poor households, 20% of poor households, 2% of middle households, and 0% of better-off households. Female-headed households refer to women who are either widows or divorced/ abandoned by their husbands, and thus single women living alone with their children.

Sources of Food

Figure 4 presents the sources of food for households in different wealth groups in CD31 for the period January to December 2023. January represents the start of the consumption year as all Season A crops are ready for consumption and harvest. Food is presented as a percentage of the annual kilocalorie (kcal) needs of the household, based on the internationally accepted standard of 2,100 kcal per person per day.

Figure 4. Sources of Food



In CD31, households across all wealth groups relied on a combination of their own crops, fishing, purchased foods, and, to a lesser extent, payments in-kind for their food sources in the reference year. Very poor and poor households relied heavily on market purchases and fishing to meet their food needs, while middle and better-off households got most of their food from their own crop production and consuming their own meat. Payments in-kind (i.e., in food) were a siginificant food source for very poor and poor households, especially during the harvest seasons.

For very poor households, a significant proportion of their food in the reference year came from purchased staples, as these households had limited land for cultivation; 15-25% of the annual food came from staple food purchases. But the receipt of in-kind payment in staples will have substituted for further purchase, as is also true of the poor. Purchased non-staples accounted for 25-35% of annual food needs. A more moderate portion of the annual food came from crops, including cassava (15-10%) and pulses/oil seeds (about 5%). The reliance on green crops was minimal at less than 5%. Fishing provided a critical source of food in the reference year, accounting for 15-20% of their diet. Very poor households often worked for better-off households and were compensated in food, particularly during harvest seasons, receiving cassava, groundnuts, and beans. This food source (payments in kind), contributed 5-15% of annual food needs. Though not a major food source, wild foods also contributed minimally to their diet, accounting for less than 1% of annual food. Very poor households had very limited access to meat, but considerable access to animal protein and calories from fish.

Poor households fared slightly better than very poor households, with a greater reliance on own crop production in the reference year, but still with significant consumption of purchased non-staples and fish. Own crops contributed 35-45% of the annual food with cassava making up a large portion of their food (20-30%), along with pulses (about 5%), and other crops (5-15%). Purchased staples accounted for 15-20% of the annual food needs. Non-staple food purchases remained important for poor households, although less so than for very poor households, and accounted for 20-30% of annual food needs. Fish continued to play a critical role, contributing almost one-fifth of poor households' food intake, accounting for 15-25% of annual food needs. Like very poor households, poor households also received food in exchange for labor, particularly during the harvest season. This food source accounted for 5-10% of their diet in the reference year. As with very poor households, wild foods contributed minimally to their diet, accounting for less than 1% of

annual food. Poor households did not obtain meat from their own livestock, but they purchased small amounts, similar to the very poor group, accounting for about 2% of the annual food needs. Fish was their essential source of animal protein.

Middle households had a more balanced food intake, with a heavier reliance on own crops and fish, and reduced dependency on purchased staples and non-staples. A substantial portion of their food, 60-65%, in the reference year came from own crops, with cassava (35-45%) and pulses (5-15%) making up the bulk of their diet. Other crops contributed 10-20%. Purchased staples accounted for 5-10% of the annual food needs. Their dependence on purchased staples significantly reduced compared to poorer households, as they produced much of their own food. Purchased non-staples contributed 20-25% of annual food needs. Middle households purchased non-staple foods less frequently than poorer groups but still relied on the market for some variety. Fishing remained an important food source for this group accounting for 20-30% of food needs, although they relied more on crop production. Middle households were more likely to consume meat, a sign of their relative wealth compared to poorer groups. Own meat accounted for roughly 5% of annual food needs.

Better-off households had the most diversified and secure food sources in the reference year, relying primarily on their own crops and fishing, with minimal dependence on market purchases. They got most of their calories from their own crops contributing 65-70% of annual needs, with cassava (30-40%) and pulses (15-20%) being the major contributors. Other crops made up 10-20% of their diet. Reliance on purchased staples was minimal, accounting for 5-10% of annual food needs, as they grow most of their food. Similar to middle households, better-off households purchased non-staples but in lower quantities due to their self-sufficiency. This source accounted for 20-25% of food needs. Fishing was a significant source of food for better-off households, contributing the highest proportion compared to other wealth groups, 25-35% of annual food needs. Better-off households consumed own meat more regularly than poorer households but less than middle households, accounting for less than 5% of annual food needs.

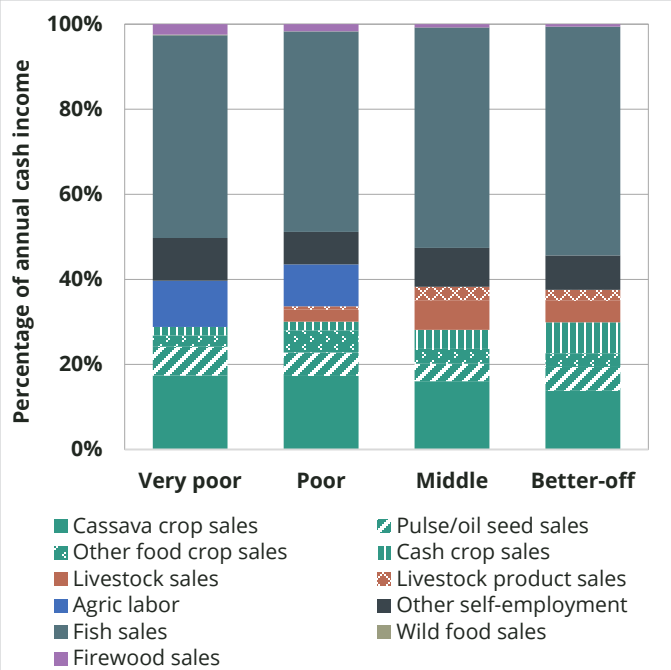
Sources of Cash Income

Cash income sources in the zone vary significantly across wealth groups, with distinct patterns in how households generate their income. The primary income sources in the reference year included fishing, crop sales, agricultural labor, self-employment, and livestock sales, with wealthier households generally earning more from diverse activities (see Figure 5). Fishing was the critical income source for households in all wealth groups, with better-off households generating the most income from this activity — 50-60% of their total income.

Crop sales remained an essential part of household income, especially for poor and better-off households, who derived about 30% of their income from crop-related activities. Cassava was the primary crop sold. Agricultural paid labor was an important income source for very poor and poor households, who relied heavily on working for wealthier households during peak agricultural

periods. Livestock sales became more significant as wealth increased, with middle and better-off households earning a notable share of their income from the sale of livestock and livestock products. Self-employment played a consistent role in income generation across all wealth groups, though the specific activities (e.g., charcoal production, trading, small businesses) varied by wealth group.

Figure 5. Sources of Cash Income as a Percentage of Annual Cash Income



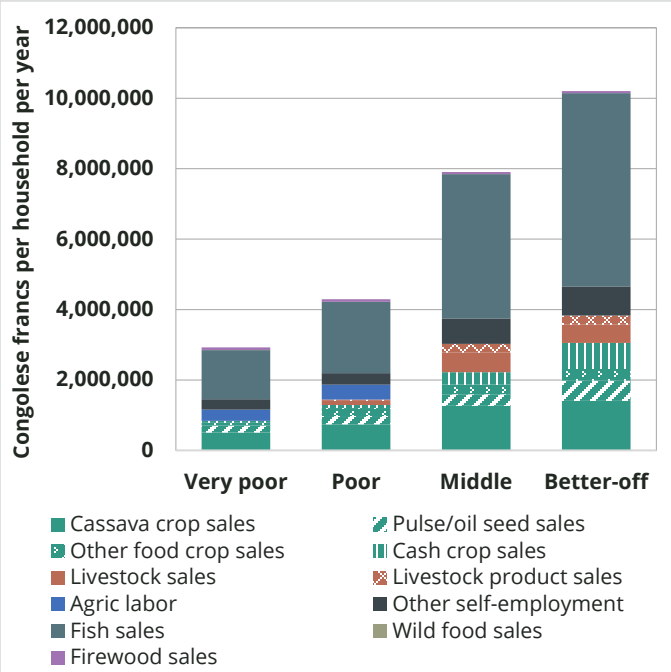
Like the other wealth groups, fishing was the largest single income source for very poor households, providing nearly half of their cash income, 45-50%, in the reference year. Crop sales generated 25-35% of total income for very poor households in the reference year. A substantial proportion of their income, 10-15%, came from paid manual labor in agriculture for wealthier households. Smaller self-employment activities, such as charcoal production or petty trade, contributed a moderate share of income, accounting for 5-15% of total annual cash income. The sale of firewood was a minor but still notable source of income for these households, accounting for less than 5% of total annual cash income.

Fishing generated 45-50% of total annual cash income for poor households. They relied on crop sales for a similar percentage of their income compared to very poor households, 25-35% of total annual cash income. Agricultural labor income was also significant for poor households, though slightly less than for the very poor, and accounted for approximately 10% of total income. Small self-employment activities, such as charcoal production or petty trade, contributed 5-10% of total annual cash income. Poor households derived some income from livestock sales, albeit a modest amount compared to middle and better-off households, accounting for less than 5% of total annual cash income in the reference year.

Middle households generated more than half of their cash income, 50-55%, in the reference year from fish sales alone. These households still depended heavily on crop sales, though they generated a lower percentage of their income, 25-30%, from crops compared to poorer households. Small self-employment activities, such as petty trade and other entrepreneurial activities, contributed a moderate share of income, accounting for 5-10% of total annual cash income. Livestock sales were a more prominent source of income for middle-income households, reflecting their ability to raise and sell goats, pigs, and poultry. This source accounted for 5-10% of annual cash income. The sale of

livestock products, such as meat, added to middle households' income streams, though it remained a relatively small portion, accounting for less than 5% of total annual cash income.

Figure 6. Total Annual Cash Income



Better-off households earned 50-60% of their total annual cash income from fish sales, the highest percentage of income compared to the other wealth group. Better-off households also relied significantly on crop sales, which contributed 20-30% of total annual cash income. Self-employment activities, such as petty trade and trading, contributed a moderate share of income, accounting for 5-10% of total annual cash income. Better-off households generated approximately 5% of their income from livestock sales, reflecting their larger herd sizes and greater access to livestock markets. Sale of livestock products, such as meat, accounted for less than 5% of better-off households' income streams.

There is a large difference in wealth between the poorer and wealthier households. In the January to December 2023 reference year, better-off households earned almost four times more than the very poor and almost three times more than poor households. This gap is illustrated in Figure 6 and Table 4.

Table 4. Income Summary Table (Congolese Francs or CDF)

Wealth Group	Very Poor	Poor	Middle	Better-Off
Annual income per household[3]	2,800,000–3,200,000	4,000,000–4,600,000	7,500,000–8,500,000	9,000,000–12,000,000

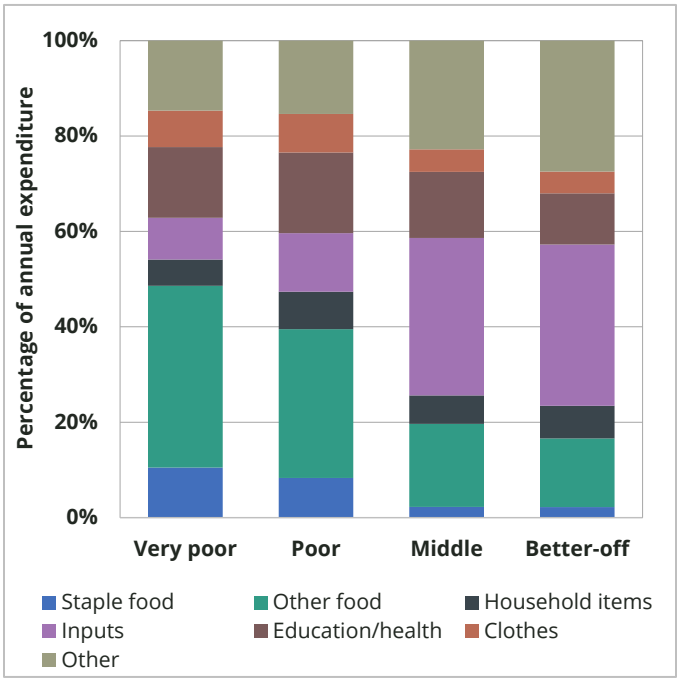
Expenditure Patterns

Figure 7 presents expenditure patterns for the reference year January to December 2023. While absolute expenditure increases with wealth in line with total cash income, this graph's expenditure breakdown by percentage shows the *relative* amount of income spent on different categories. Households in the zone need to cover a range of essential expenditures over the year. These include

[3] The average exchange rate from January to December 2023 was 1 USD = 2,312 CDF.

staple foods, non-staple foods, household items/services (like salt, soap, tea, lighting, milling, etc.), productive inputs, social services (which include health and education), clothing, as well as other essential and non-essential items.

Figure 7. Total Annual Cash Expenditure by Category



Expenditure patterns varied across the wealth groups, with notable differences in the proportion of incomes allocated to food, agricultural inputs, education, and other household needs. Very poor and poor households spend the largest share of their income on food, particularly other food items, while middle and better-off households allocated much smaller portions due to higher self-sufficiency. Investment in agricultural inputs increased with wealth, with better-off households dedicating the most resources to improving the volume of their agricultural production. Expenditure on inputs by wealthier households was overwhelmingly the payment of hired labor. All wealth groups prioritized education and health. As wealth increased, households spent more on "other" items, including transportation, phone credit, festivals, etc. Households in all wealth groups did not need to pay for water.

Very poor households allocated a significant portion of their income to purchasing staple foods, 10-15% of annual expenditure, reflecting their reliance on market purchases for basic needs. A large portion of their annual expenditure, 35-45%, went toward non-staple food purchases. Purchases of household items accounted for about 5% of annual expenditure. Expenditure on productive inputs and on clothing/shoes each accounted for 5-10% of annual expenditure. Expenditure on social services (education and health) and "other" items each accounted for 10-20% of annual expenditure for very poor households in the reference year.

Poor households' expenditure on staple foods accounted for roughly 5-10% of their annual expenditure. Non-staple foods accounted for 30-35% of their annual expenditure. Purchases of household items and of clothing/shoes each accounted for about 5-10% of annual expenditure. Expenditure on productive inputs accounted for 10-15% of annual expenditure, social services 15-20%, and "other" items 10-20%.

Middle households spent a much smaller proportion of their income on staple foods compared to poorer households, only about 2%, reflecting their ability to produce more of their own food. Expenditure on non-staple foods was also lower and accounted for 15-20% of annual expenditure. Spending on household items remained consistent with poor households, accounting for 5-10% of

annual expenditure, reflecting a stable capacity to meet basic domestic needs. Middle households invested significantly in productive inputs, 30-35% of annual expenditure, reflecting their capacity to expand and improve agricultural production. Expenditure on education and health accounted for 10-15% of annual expenditure, clothing/shoes roughly 5%, and “other” items 20-25%.

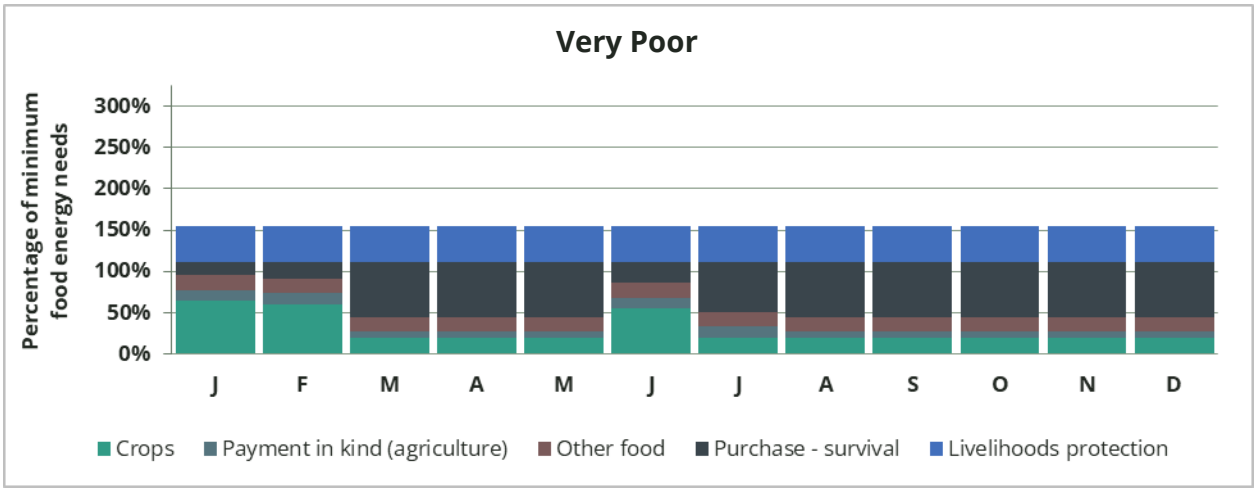
Better-off households spent the least on staple foods, only about 2%, as they as they consumed more from their own production. Expenditure on non-staple foods was also lower and accounted for 10-15% of annual expenditure. Purchases of household items accounted for about 5-10% of their annual expenditure. Better-off households spent the highest proportion of their income on agricultural inputs, 30-40%, as they invested heavily in expanding production. Expenditure on social education and health in the reference year accounted for 10-15% of annual expenditure, clothing/shoes roughly 5%, and “other” items 25-30%.

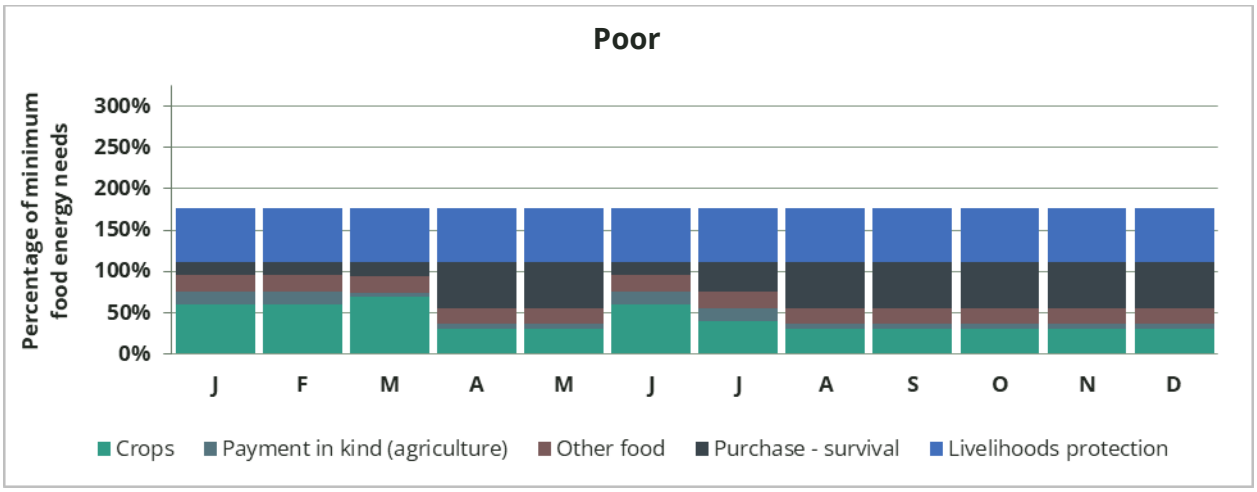
Food Access Calendars

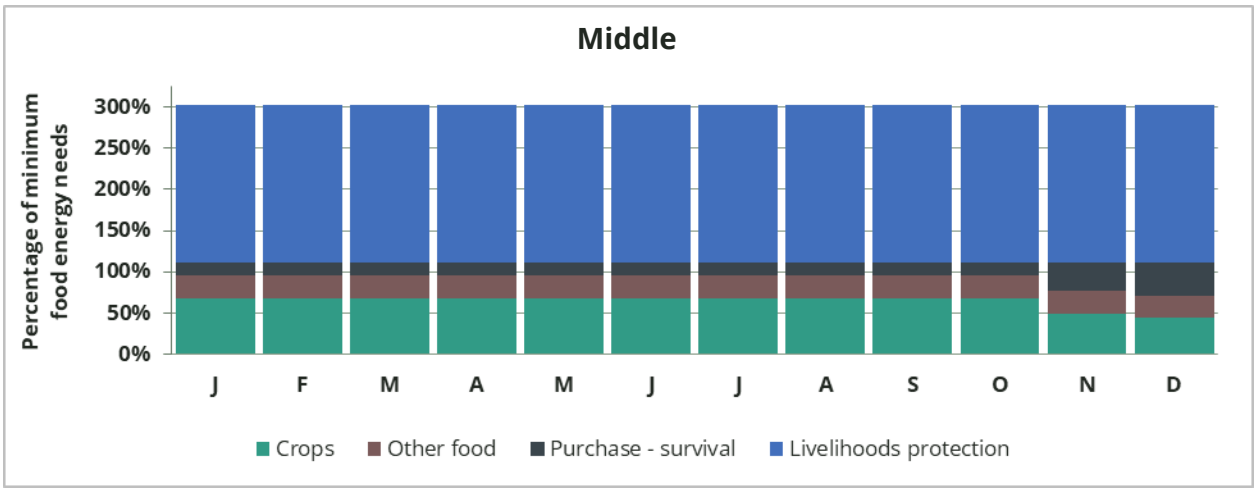
The graphs in Figure 8 present monthly food and cash access calendars for the four wealth groups.

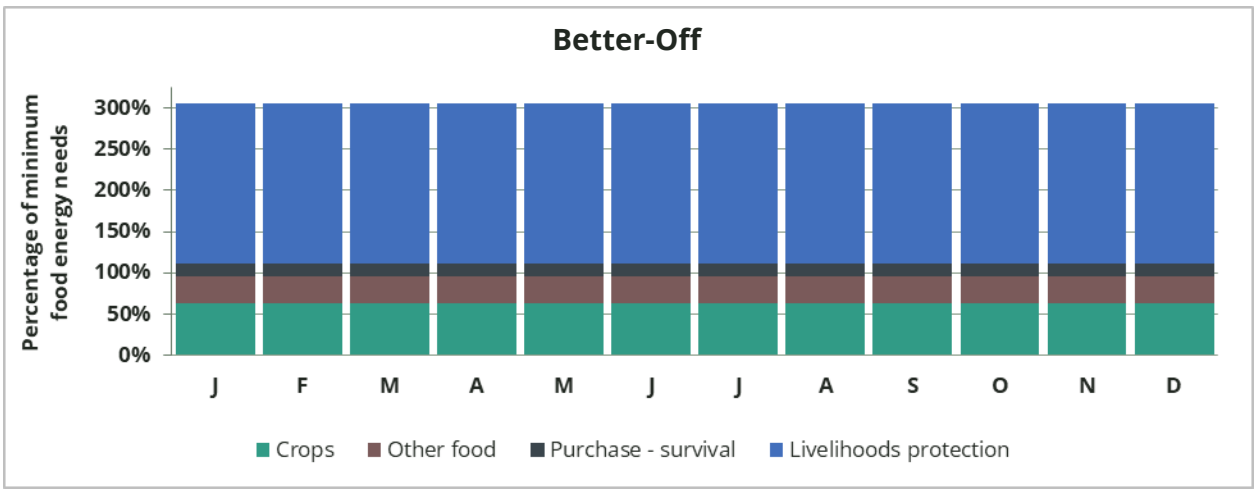
Households in all wealth groups were able to meet their survival and livelihoods protection thresholds year-round in the reference year. The main harvest period in this livelihood zone started in January and the second harvest period started in June. Very poor and poor households obtained some food from payment in kind for casual agricultural labor (in teal). Very poor and poor households rely on market purchases to meet their needs in April/May and August to December, while middle and better-off households are more self-sufficient from their own production. Fishing (in orange) is an important source of food in this zone for households from all wealth groups.

Figure 8. Seasonal Food and Cash Access Calendars per Wealth Group




Poor
Percentage of minimum food energy needs
300%
250%
200%
150%
100%
50%
0%
J F M A M J J A S O N D
Crops
Payment in kind (agriculture)
Other food
Purchase - survival
Livelihoods protection


Middle
Percentage of minimum food energy needs
300%
250%
200%
150%
100%
50%
0%
J F M A M J J A S O N D
Crops
Other food
Purchase - survival
Livelihoods protection


Better-Off
Percentage of minimum food energy needs
300%
250%
200%
150%
100%
50%
0%
J F M A M J J A S O N D
Crops
Other food
Purchase - survival
Livelihoods protection

Poor Female-Headed Households

Female-headed households are found in the very poor, poor, and middle wealth groups, as shown in the wealth breakdown (Figure 3). During fieldwork, data collectors conducted in-depth interviews with poor female-headed households, who make up 15-25% of the poor wealth group. This is a group that faces similar constraints and characteristics as poor male-headed households, but they are further disadvantaged by a lack of enough adult male labor, which potentially leads to additional constraints on certain types of asset ownership, productive work, or income-generating activities.

Figure 9. Sources of Food: Poor Households vs Poor Female-Headed Households

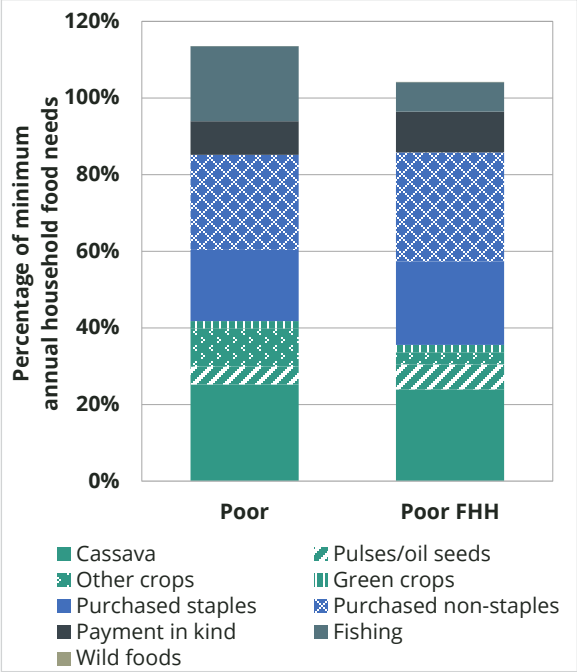


Figure 10. Sources of Cash: Poor Households vs Poor Female-Headed Households

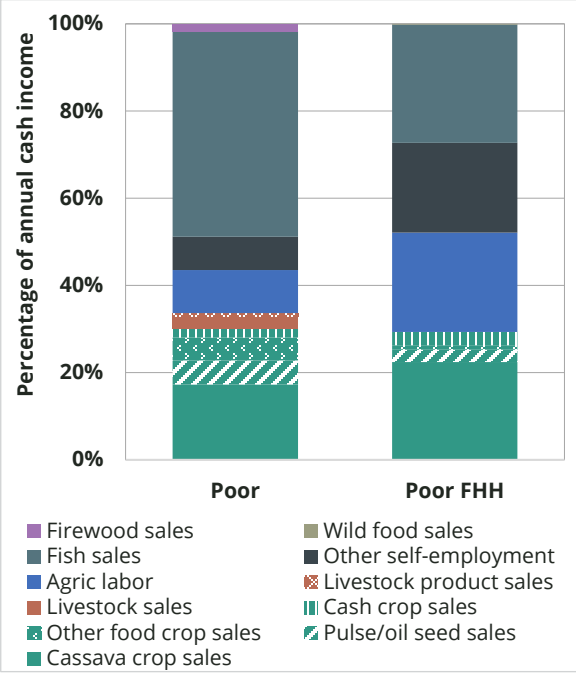


Figure 9 shows that poor female-headed households and poor male-headed households share a similar pattern of food access. Poor female-headed households relied on their own crops for a substantial portion of their food in the reference year, accounting for 30-40% of food needs, though this was lower than poor male-headed households (35-45%). The limited size of their cultivated land, with their lower labor availability, restricted crop production for poor female-headed households. The biggest portion of poor female-headed households' food was purchased, highlighting their dependence on the market for sustenance. They spent more on purchased staples and non-staples compared to poor male-headed households. Fishing contributed less to the food supply of poor female-headed households, 5-10% of annual food needs, than for poor male-headed ones, 15-25% of annual food needs, due to lack of labor and fishing equipment. Payment in-kind was a more significant source of food for poor female-headed households than for poor male-headed ones.

As shown in Figure 10, Fish sales were the primary income source for poor female-headed households, accounting for 25-30% of their total income, compared to 45-50% for poor male-headed

households. Despite smaller landholdings, crop sales remained an important income source for poor female-headed households, accounting for 25-30% of total annual income, slightly less than for male-headed households at 30-35% of their total annual income.

Agricultural paid labor, where women often worked for other households, accounted for 20-25% of their total income, which was significantly higher than that of poor male-headed households at approximately 10% of total income. Petty trade and self-employment were crucial for generating income. Poor female-headed households were more engaged in these activities than poor male-headed households, showcasing their entrepreneurial efforts to sustain themselves. Poor female-headed households generated 20-25% of their total annual income from petty trade and self-employment, compared to roughly 8% of total income for poor male-headed households.

Response Strategies

In response to hazards and years with bad production, households attempt to meet their minimum food needs and cash requirements through several strategies. Responses implemented tend to vary across wealth groups though most of them tend to be similar. Below are some common strategies employed by households.

Households in all wealth groups try to reduce expenditure on non-essential or more expensive items first, such as cutting down on holiday costs or not buying clothes or utensils that year. Households consume mainly cassava, which is the cheapest staple, so there is a limit to switching to cheaper foods.

Very Poor and Poor Households

Very poor and poor households try to increase cash income through the intensification of casual labor activities to earn more cash. However, in bad years, as increasing numbers of people flood the labor market, this option quickly loses its value because wage rates drop, and jobs are harder to find. Fishing serves as a vital coping strategy for these households, particularly when agricultural production is compromised by rain failure or floods. Fishing not only provides food but also offers an additional source of income. Charcoal production and palm oil extraction are other key strategies employed by these households. These activities are less dependent on seasonal agricultural cycles and provide a relatively stable income. Charcoal production can be ramped up during difficult times to generate extra income, though it can also lead to environmental degradation if not managed sustainably.

Middle and Better-Off Households

Like very poor and poor households, middle and better-off households also rely on extra fishing activity as a primary response mechanism. However, these households may have better access to fishing equipment and resources, allowing them to engage in fishing more effectively and on a larger scale. Increasing trading activity is another important response mechanism for middle and better-off households. These households often engage in small-scale trade, buying and selling goods

within local markets or trading agricultural and fish products. This strategy helps to diversify their income sources and provides a buffer against the losses incurred from agricultural failures or livestock diseases. Although livestock herds are small in this zone, middle and better-off households can still sell additional livestock to cover basic food and non-food expenses in bad years. Like very poor and poor households, wealthier households also participate in charcoal and palm oil production. However, they may have more resources to invest in these activities, such as access to better tools or transportation means, which can increase their production capacity and profitability.

Key Parameters for Monitoring

The key parameters listed in Table 5 are food and income sources that make a substantial contribution to the household economy in CD31. These should be monitored to track potential losses or gains to local household economies through ongoing monitoring systems or periodic assessments.

Table 5. Key Parameters for Monitoring

Item	Key Parameter – Quantity	Key Parameter – Price
Crop production	• Cassava – quantity produced • Beans Season B – quantity produced • Groundnuts Season A – quantity produced • Groundnuts Season B – quantity produced • Maize Season A – quantity produced • Pigeon peas Season A – quantity produced • Palm oil – quantity produced • Citrus fruits – quantity produced • Assorted vegetables – quantity produced	• Cassava – producer price • Beans Season B – quantity produced • Groundnuts Season A – producer price • Groundnuts Season B – producer price • Palm oil – producer price • Citrus fruits – producer price • Assorted vegetables – producer price
Livestock production	• Pigs – herd size • Goats – herd size	• Pigs – producer price • Goats – producer price
Other food and cash income	• Fishing – quantity caught • Harvest labor (in kind) – number of days • Cultivation labor – number of days • Firewood/charcoal sales – quantity sold • Self-employment (mixed category) – demand • Petty trade – demand	• Fishing – producer price • Cultivation labor – wage rates • Firewood/charcoal sales – producer price • Self-employment (mixed category) – producer price • Petty trade – daily earnings
Expenditure		• Maize – consumer price • Cassava – consumer price • Rice – consumer price

CD32 Livelihood Zone

Reference Year: January–December 2023

Coastal Fishing with Staples Production and Market Gardening Livelihood Zone

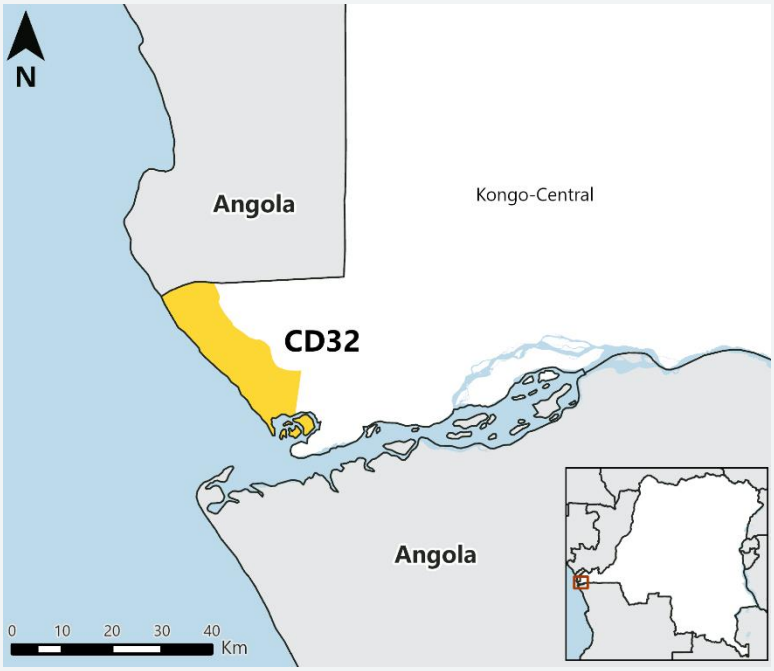


Figure 1. CD32 Livelihood Zone Map

Summary: The *Coastal Fishing with Staples Production and Market Gardening Livelihood Zone* (CD32) covers the 30-kilometer coastal stretch in Moanda Territory, from the small port-town of Banana in the south of the zone to Kumbi beach bordering Cabinda Province of Angola to the north. It is characterized by coastal fishing and market gardening. Fishing provides income to households for food and non-food purchases. Households also practice agriculture and grow root crops, cereals, groundnuts, and market garden crops (i.e., vegetables). The latter is an important source of cash income. Proximity to Angolan markets means that cash income levels are very high in this zone. The zone has high production potential due to good soil fertility and rainfall. However, there are difficulties in combating the effects of gases emitted by oil extraction and salty ocean winds on agricultural production.

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Zone Description

The *Coastal Fishing with Staples Production and Market Gardening Livelihood Zone* (CD32)[1] is the smallest livelihood zone in the country, covering the 30-kilometer coastal stretch in Moanda Territory, Congo Province. The zone has borders with Angola both to the north and south. It runs from the small port town of Banana in the south of the zone to Kumbi beach bordering Cabinda Province of Angola to the north. Livelihoods in the zone are characterized by coastal fishing and market gardening of vegetables. The population of the zone is 147,044, with an average population density of approximately 447 people per square kilometer.[2]

The zone has a tropical humid and cool climate. Apart from the Atlantic Ocean and the Congo River, the main ecological features in this zone include mangrove forests; the Lukunga, Mbola, and Mayanda Rivers; and valleys and lowlands, grassy plateaus, and the hills of Mao. The zone's Rainy Season is from October to mid-January and again from mid-February to May, with annual rainfall of about 800 millimeters per year. Sandy-clay soils are dominant in the zone, both along the Atlantic Ocean and the Congo River. Natural resources found in this zone include oil, gas, fish, wood, game, and mushrooms. Fish, wood, game, and mushrooms are exploited by majority of the population living in the zone.

Fishing provides income to households for food and non-food purchases. Households also practice agriculture (i.e., growing root crops, cereals, groundnuts, and market garden crops), and crop sales constitute an important source of food and cash income. Keeping livestock, casual labor, and trade (local and cross-border trade) are income-generating activities also carried out in the zone. Income levels are very high in CD32 compared to other zones in the country due to high productivity and high prices (because of proximity to Angola). Fishing is carried out in the Atlantic Ocean and the Congo River by households from all wealth groups. This activity is done by men year-round, with a peak period in the Dry Season from June to September. Wealthier (i.e., middle and better-off) households own speedboats and motorized canoes that enable them to go further into the ocean and also use hired labor, while poorer (i.e., very poor and poor) households only own fishing nets and hooks or work for better-off households. Deep-sea fishermen have cooperatives. Angola and Kinshasa are the main markets for fish.

Market gardening of vegetables is mainly irrigated and is done along the Congo River, in oases and low-lying areas. Women from all wealth groups mainly participate in this activity, with support from men. Market gardening is carried out during the Dry Season, also called Season C, from June to September. Farmers in all wealth groups use inputs in vegetable growing, including nitrogen fertilizers, like NPK and urea, as well as fungicides and pesticides. Harvested vegetables are mostly

[1] Fieldwork for the current profile was undertaken from May 27 to June 17, 2024. The information presented in this profile refers to the reference year, which was the consumption year that covered the period January to December 2023. Provided there are no fundamental and rapid shifts in the economy, the information in this profile is expected to remain valid for approximately five to 10 years (i.e., until 2028-2033). All prices referred to in the document are for the reference year.
[2] FEWS NET Data Explorer, population data (2023), accessed 2025, https://fdw.fews.net/data-explorer/.

sold in cross-border markets, mainly in Angola, to take advantage of competitive prices and exchange rates.

Agricultural production of cassava, maize, and groundnuts is predominantly rainfed. These crops are grown in two seasons, Season A from around July to February/March and Season B from around February/March to around June, with Season A dominating. The soil preparation methods used in the zone remain rudimentary, with farmers preparing the land by digging by hand. Cultivation is mainly mixed farming, with farmers cultivating maize with cassava, cassava with groundnuts, or maize with groundnuts. Land areas cultivated are small and range from 0.8-2 hectares (ha) for poorer households to 2-6 ha for wealthier households. Land preparing, planting, weeding. and harvesting are the most labor-intensive farming activities, with wealthier households sourcing labor from poorer households to carry out these activities. Men's tasks in agriculture include land preparing, planting, and harvesting, with women engaging in planting, weeding, and harvesting. There are few appropriate storage facilities, thus households from all wealth groups resort to traditional storage methods including open-air drying on the roofs of houses and hanging in the kitchen. There are no farmer's cooperatives.

The main livestock reared in the zone include goats, pigs, and poultry. Livestock free graze on open pastures including grass and crop residues. Water for livestock is obtained for free from streams, natural ponds, and oases, both in the Wet and Dry Seasons. September, December, and January see the highest livestock sales because of the resumption of schools (September) and the end-of-year festivities (December/January). Households in all wealth groups regularly purchase livestock to replace sold ones. Goats, pigs, and poultry are slaughtered mostly during the festive season. In livestock keeping, women are responsible for poultry.

Casual labor mainly involves fishing, agricultural and construction labor, and masonry. Fishing, construction, and masonry are mainly done by men from poorer households, while agricultural labor is done by both men and women, again mainly from poorer households.

Men and women from all wealth groups participate in local trade in the town of Muanda and cross-border trade with Angola year-round. Trading involves small trade in local products, sale of manufactured products, sale of gasoline from Angola, and the sale of market garden produce to Angola. Cross-border trade between the zone and Angola is a key driver of the local economy in CD32 and a major factor in the high-income levels in the zone. A rise or fall in the value of the Angolan currency can have a positive or negative effect on the zone.

CD32 experiences several hazards that affect its economy and livelihoods. The main hazards include crop pests and diseases, livestock diseases, flooding, and high heat/dryness. The most common crop pests are armyworms. Crop diseases include crop rot. Crop pests and diseases are a chronic problem, affecting production every year. Livestock diseases also occur every year. These include *peste des petits ruminants*, an acute disease affecting goats; avian plague, which affects poultry; pork mullet, a bacterial pig disease; and snot/glanders disease, which affects pigs. Flooding is a problem every year, while hot and dry conditions occur every two years.

In terms of service provision, households from all wealth groups obtain water for drinking and other uses for free from boreholes, open wells, rivers, and surface water. In terms of sanitation, households from all wealth groups use toilets and hand-dug traditional latrines, while only a few use open defecation. Households from all wealth groups access primary healthcare through community health centers and dispensaries. For lighting, households from all wealth groups use electricity and battery-operated flashlights, with wealthier households also using solar panels. Households from all wealth groups use firewood and coal for cooking. Mobile phone service and use is widespread and includes access to the internet, although some poorer households do not own phones. For education, poorer households usually send their children through primary school with only a few getting to secondary level; wealthier households send their children mostly through secondary level and some through college/university. Financial services for access to credit and saving schemes are rare, and banks are virtually non-existent in this zone, with households in all wealth groups keeping their money at home.

Markets

Market access is good in the *Coastal Fishing with Staples Production and Market Gardening Livelihood Zone*, equally in the Dry and Wet Seasons. The high-quality dirt roads were built and maintained by oil companies operating in the zone. Also, given that the zone is small, the distance to the markets in the town of Muanda from the villages is relatively short, thus making market access easy. Households in all wealth groups living in CD32 also have strong commercial ties with Angola, with most of the market garden produce sold to Angola and, in turn, gasoline from Angola sold in the local markets in the zone.

The main market in this zone is the town of Muanda. The main products sold by rural households in the market include fish, vegetables, other crops, and livestock. Fish are sold throughout the year. The flow of fish sold is from Muanda to Boma, Matandi, and all the way to Kinshasa. Vegetables are mainly sold across the border to Angola from May to October. The flow of market garden products is from the villages to Muanda or Boma and on to Cabinda and Soyo in Angola. The main crops sold in the market include cassava, maize, groundnuts, cowpeas, and Bambara nuts. They are sold year-round, with peak periods from January to April for all crops, except for cassava which peaks from May to October. The trade flow of these crops is usually from the villages to the markets of Muanda and Boma then to Matandi and on to Kinshasa. Goats, pigs, and poultry are the main livestock types sold year-round by households in the zone, with peak periods in September, when school starts, and December to January during the end-of-year festivals.

The most important staple foods purchased from the local markets are cassava and rice. Cassava is produced locally. For rice, the supply routes are the same as for crops but in the opposite direction and most sales are in local markets. Cassava is purchased year-round by some households, while rice is purchased mainly between May and October. Recruitment for labor is mainly carried out within the livelihood zone. Approximately 85% of the casual labor takes place within the local rural area and 10% in the towns of the zone, including Muanda. Only about 5% of labor takes place

outside the zone. However, there is some labor migration into the zone by men from other localities for work in fishing and agriculture.

Timeline and Reference Year

The baseline assessment refers to a specific period called the "reference year." In the *Coastal Fishing with Staples Production and Market Gardening Livelihood Zone,* the reference year covers the consumption period from January to December 2023. During community leader interviews, data collectors asked informants to score the last five years in terms of seasonal performance with "1" indicating a poor season and "5" indicating an excellent season. Table 1 summarizes the response of the community leaders.

Table 1. Timeline

Production Year/Season	Score	Critical Events
2023/Season B	4	Good rainfall distribution in space and time, low pest attacks, good agricultural production, good fish capture, no disruptions to trade flows.
2022-23/Season A	4	Good rainfall distribution in space and time, low pest attacks, good agricultural production, good fish capture, no disruptions to trade flows.
2022/Season B	4	Good rains, low pest attacks, very good agricultural production, good fish catch.
2021-2022/Season A	4	Good rains, low pest attacks, very good agricultural production, good fish catch.
2021/Season B	3	Good rains, low pest attacks, good agricultural production.
2020-2021/Season A	2	No rains. Households coped through irrigated market gardening.
2020/Season B	3	Good rains, low pest attacks, very good agricultural production.
2019-2020/Season A	3	Good rains, low pest attacks, very good agricultural production.
2019/Season B	3	Good rains, low pest attacks, very good agricultural production, average fish catch.
2018-19/Season A	3	Good rains, low pest attacks, very good agricultural production, average fish catch.

5 = Excellent season for household food security (e.g., due to good rains, good prices, good crop yields)
4 = Good season or above average season for household food security
3 = Average season for household food security
2 = Below-average season for household food security
1 = Poor season for household food security (e.g., due to drought, flooding, livestock disease, pest attack)

Overall, in the zone, most of the seasons in the last five years between 2019 and 2023 ranked as "3" (average) to "4" (above average) in terms of household food security, except for Season A in 2021, which was ranked as "2" (below average) in terms of household food security due to lack of rains affecting rainfed agricultural production. In that season, households relied on market gardening of vegetables. The reference year was considered above average due to good rainfall, low pest attacks, good agricultural production, as well as good fish catch.

Seasonal Calendar for Reference Year

The seasonal calendar (see Figure 2) illustrates the main economic activities and events of the reference year. It traces the rainy months, agricultural activities, non-agricultural activities, and food purchasing periods.

The *Coastal Fishing with Staples Production and Market Gardening Livelihood Zone* has two Rainy Seasons between October to mid-January and again from mid-February to May. The Dry Season is from June to September. Fishing and crop production activities in this zone are largely determined by the rains. The coastal waters are highly affected by the outflow from the great Congo estuary. Although some fish are caught year-round, most fishing occurs when the outflow from the estuary is at its least and the coastal waters are at their lowest, particularly during the Dry Season from May to September.

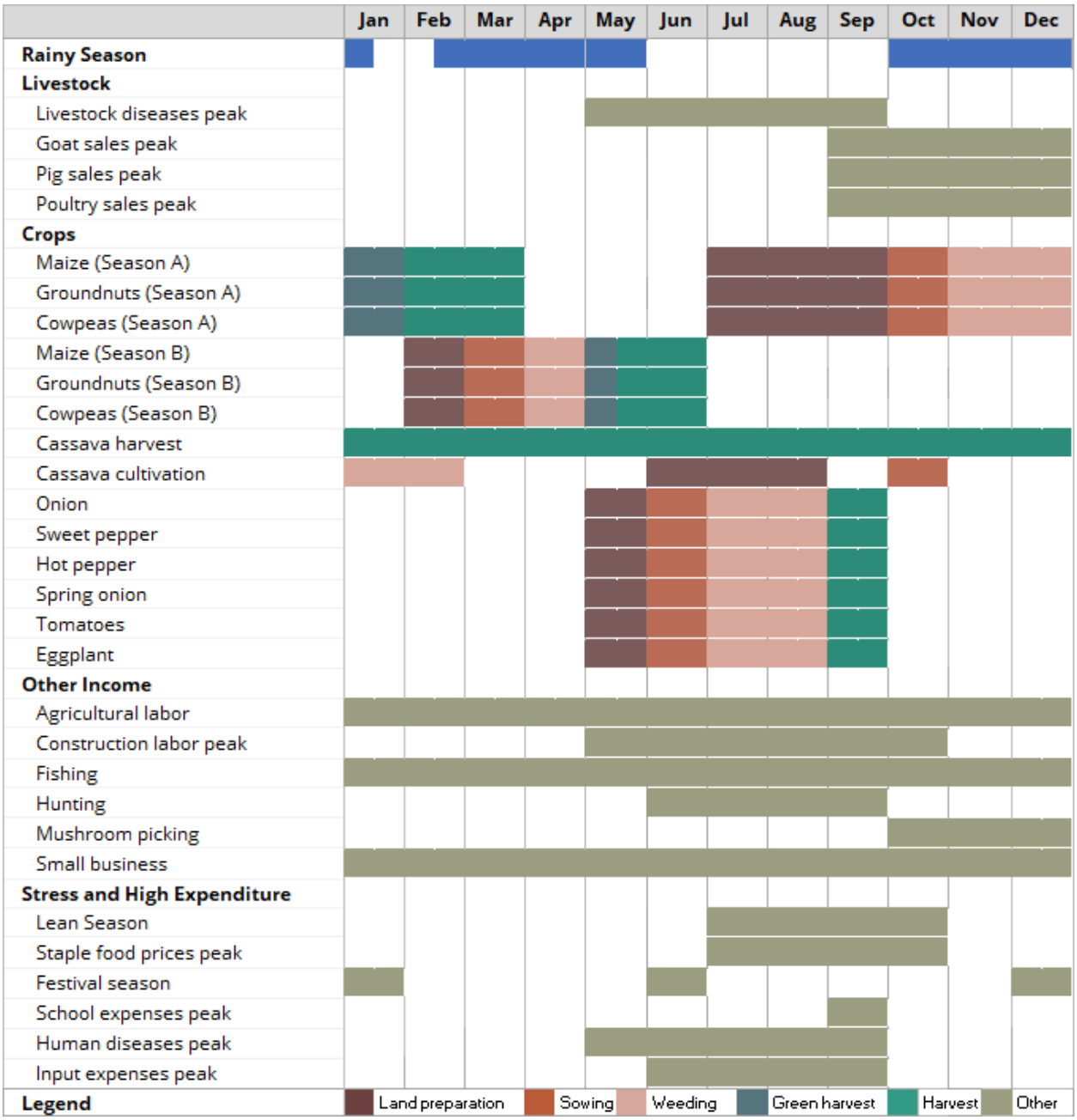
Market gardening, which is mainly irrigated, occurs during the Dry Season, from May to September (also referred to as Season C). Land preparation is done in May, followed by planting in June, weeding in July and August, and harvest in September. Market gardening produce includes onions, spring onions, sweet peppers, hot peppers, tomatoes, and eggplants.

For rainfed crop production, there are two separate agricultural seasons in the zone, Season A and Season B, with Season A dominating. Crops cultivated during these seasons include cassava, maize, groundnuts, and cowpeas. Maize, groundnuts, and cowpeas are cultivated in Seasons A and B. Cassava is available and harvested throughout the year in stages. In Season A, land preparation is between July and September, with planting in October. Weeding is done in November and December, followed by a green harvest in January, and the main dry harvest in February and March. Season B starts with land preparation in February, followed by planting in March. Weeding is done in April with the green harvest in the first half of May, followed by the dry harvest in the second half of May into June.

Livestock diseases can occur at any time of the year. However, the peak period is during the hot Dry Season between May and September. During this period, households have increased expenditures on livestock drugs.

Human diseases can also occur at any time of the year. However, just like livestock diseases, human diseases peak during the dry season from May to September.

Figure 2. Seasonal Calendar



Fishing and agricultural labor opportunities are available throughout the year and are important sources of cash income for poorer households. Construction labor is also available throughout the year, but peaks in the Dry Season between June and October.

Livestock are sold throughout the year, with peak periods in September for school fees and related expenses and December to January for end of year festivities.

The Lean Season — the most difficult period in terms of access to food due to depletion of food stocks, especially for poorer households — mainly occurs from July to October. The Lean Season

also aligns with the period before the new cassava harvest. It is characterized by high staple food prices, which has the highest impact on the purchasing power of poorer households.

Table 2 shows the typical division of labor in the livelihood zone, listing the activities done by either men or women separately or together. Men and boys are largely responsible for fishing and related activities, all livestock related activities, charcoal production and sale, and construction. Women and girls are mostly involved in domestic work, including cooking, taking care of children, laundry, and firewood and water collection for domestic use. Agricultural labor for cash income is done by both men and women, along with irrigating crops and crop sales.

Table 2. Typical Division of Labor

Shared Tasks	Women's Tasks	Men's Tasks
• Agricultural labor – pre-harvest • Agricultural labor – harvest • Crop sales • Water application to crops	• Poultry rearing and sales • Egg sales • Wild food sales • Water collection for domestic use • Firewood collection for domestic use • Household chores	• Fishing, fishing labor, fish sales • Pig and goat rearing and sales • Livestock slaughter • Fencing • Building livestock shelter • Charcoal production/firewood sale • Construction labor • Commerce/petty trade

Wealth Breakdown and Productive Assets

Table 3 summarizes the types and numbers of productive assets that typical households within each wealth group either own or manage. Asset holdings are shown in a range that reflects the diversity of households' situations within each wealth group. Figure 3 shows the approximate percentage of households within the zone that falls in each wealth group. The socioeconomic categorization of households in the zone was carried out by the communities themselves.

The main determinants of wealth in this zone are the number and types of fishing equipment owned, the ability to hire and pay for labor, the amount of land owned and cultivated, and the number of livestock owned. Other wealth determinants include ownership of productive assets, like motor pumps for irrigation and motorcycles.

Fishing equipment common in this zone includes fishing boats, fishing nets, threaded frames, and fishhooks. Households in all wealth groups own the above-mentioned equipment, except poor female-headed households who only own threaded frames and fishhooks. The amount of equipment owned varies from poorer to wealthier households, with very poor and poor households owning up to two fishing boats, up to three fishing nets, up to 10 threaded frames and 100-150

fishhooks. Middle and better-off households use 1-3 fishing boats, outboard motors (owned or rented if not owned), 1-20 fishing nets, 5-40 threaded frames, and up to 150 fishhooks.

Table 3. Wealth Breakdown

Household Size and Productive Assets	Very Poor	Poor	Middle	Better-Off	Poor Female-Headed
Household size	5	5-7	9-11	11-13	5-7
Land (ha)	0.1-0.5	0.25-0.75	0.5-1.5	1-3	0.2-0.6
Land cultivated (ha)	0.1-0.5	0.25-0.75	0.5-1.5	1-3	0.2-0.6
Land cultivated – food crops (ha)	0.1-0.2	0.2-0.5	0.5-1	1-1.5	0.1-0.4
Land cultivated – cash crops (ha)	0.1-0.2	0.1-0.3	0.1-0.5	0.5-1	0.1-0.2
Pigs	0-5	0-6	3-15	5-15	0-3
Goats	1-4	2-6	5-15	10-20	1-4
Poultry	5-15	5-15	15-25	0-40	0-15
Fishing boats	1	1	1-2	1-3	0
Motorized fishing boats	0	0	1	1	0
Outboard motors	0	0	1	1	0
Fishing nets	0-1	0-3	1-5	2-20	0
Threaded frames	0-2	0-10	5-25	10-40	0-3
Fishhooks	100-120	100-150	0-150	0	0-100
Motor pumps for irrigation	0	0	0-2	1-2	0
Motorcycles	0	0	1-2	1-2	0

Middle and better-off households can hire and pay for labor for fishing, agricultural, and construction activities. Men from very poor and poor households are hired as fishing hands on the boats of middle and better-off households for cash payment and/or a share of the catch.

Regarding land ownership and cultivation, households from all wealth groups own and cultivate small plots of land. Very poor households own and cultivate approximately 0.8-1.2 ha, with about 0.5-1 ha for food crops and 0.15-0.35 ha for cash crops. Poor male-headed households own and cultivate approximately 1-2 ha, with about 0.75-1.25 ha for food crops and 0.4-0.6 ha for cash crops.

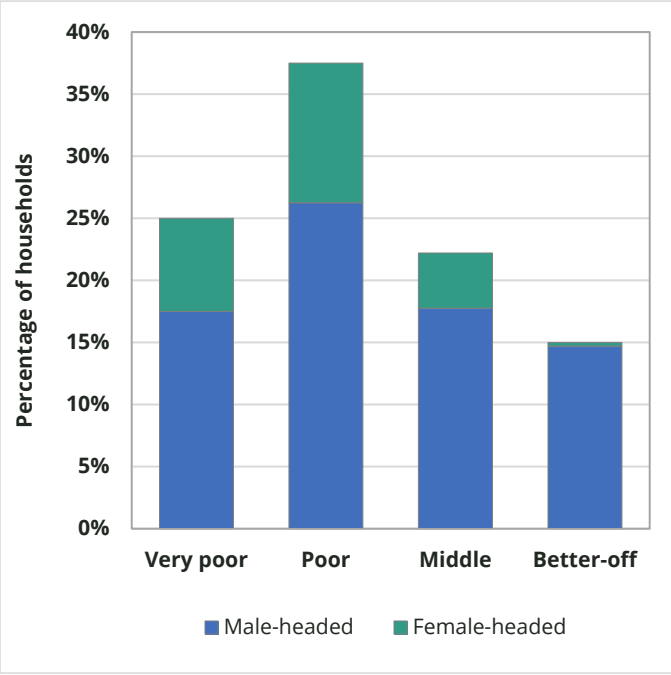
Middle households own and cultivate approximately 2-3 ha, with about 1.5-2 ha for food crops and 0.5-1 ha for cash crops. Better-off households own and cultivate approximately 4-6 ha, with about 2.5-3.5 ha for food crops and 1.5-2.5 ha for cash crops. Finally, poor female-headed households own and cultivate approximately 1-1.6 ha, with about 0.75-1.25 ha for food crops and 0.2-0.4 ha for cash crops.

Households in all wealth groups cultivate cassava, maize, groundnuts, cowpeas, palm oil, and market garden crops (including onions, tomatoes, eggplants, chili peppers, and peppers), with differing production quantities based on the amount of land cultivated. Very poor and poor households also cultivate chives, celery, plantains, and *voandzou* (a Bambara nut variety). Middle and the better-off households plant in rows and can afford to purchase enough vegetable seeds, while very poor and poor households plant in a less organized way and generally cannot afford large quantities of seeds.

Livestock ownership is another determinant of wealth and cash income in this zone. The main types of livestock kept by households in all wealth groups are goats, pigs, and poultry. The number of livestock owned increases with wealth.

Figure 3. Wealth Breakdown

Note: All results are the mid-point of a range



Wealthier households own up to two motor pumps for crop irrigation and 1-2 motorcycles. Poorer households, on the other hand, generally do not have any other productive assets, except for aforementioned assets and their own labor.

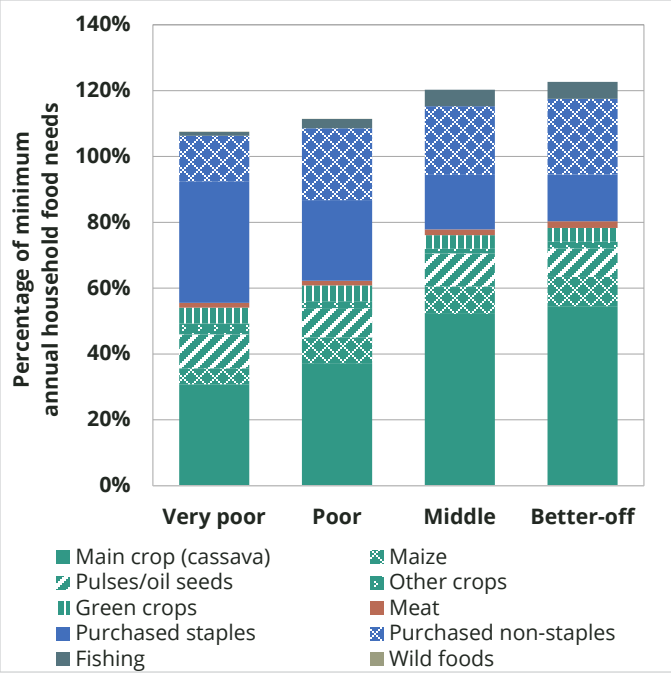
Household size increases with wealth. The very poor have a household size of approximately five, poor and poor female-headed households 5-7, middle 9-11, and better-off 11-13. The wealthier the household, the larger it is, with more livestock and productive assets to support them.

The proportion of households, by wealth group in the community is as follows: very poor households 20-30%, poor households 30-45%, middle households 20-25%, and better-off households 10-20%.

Sources of Food

Figure 4 presents the sources of food for households in different wealth groups in the livelihood zone for the period from January to December 2023. January represents the start of the consumption year as most foods, including maize, groundnuts, and cowpeas, are ready for green consumption then. Cassava, which is available all year, is also harvested and consumed in January. Food is presented below as a percentage of the annual kilocalorie (kcal) needs of the household, based on the internationally accepted 2,100 kcal per person per day.

Figure 4. Sources of Food



There are two main sources of food in this zone and two minor sources for households in all wealth groups. The main sources are crops and market purchases, while the minor sources are fish/wild foods and own meat.

Households' own crop production was the most important source of food in CD32 in the reference year. All wealth groups consumed some of their own crops. Very poor households consumed roughly 55% of their minimum annual food needs and the better-off 75-80%. The most important crops grown for households' own consumption were cassava (cassava flour and fresh cassava), groundnuts, and maize.

Purchased food was the second most important source of food in the livelihood zone, contributing 35-55% of annual food needs in the reference year for households in all wealth groups. The most important purchased staples were cassava flour, rice, and maize, which contributed 25-45% of minimum annual foods needs for poorer households and 10-20% for wealthier households in the reference year. The most important purchased non-staple foods were beans, cowpeas, sugar, meat, oil, milk, dried fish, fresh fish, and vegetables, which accounted for 10-25% of minimum annual foods needs for poorer households and 20-25% for wealthier households.

Fish/wild foods were a minor source of food in the livelihood zone and were consumed by all wealth groups. Overall, poorer households consumed less than 5% of minimum annual food needs and wealthier households roughly 5%. Own meat consumption accounted for less than 3% of minimum annual food needs for households in all wealth groups.

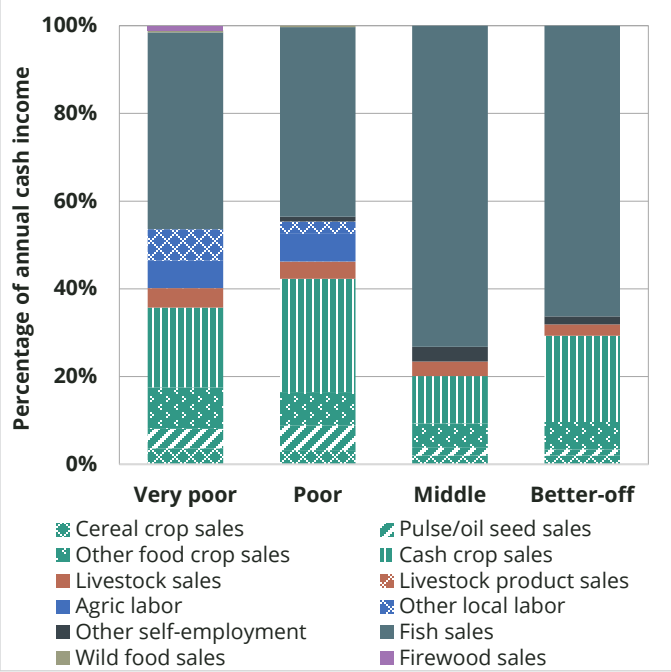
There was no food aid provided in the livelihood zone in the reference year.

Overall, the reference year was average in terms of food security, with households in all wealth groups meeting their minimum annual food energy needs (2,100 kcals per person per day).

Sources of Cash Income

Fishing and agricultural production are the main livelihood activities for households in all wealth groups in the *Coastal Fishing with Staples Production and Market Gardening Livelihood Zone* (see Figure 5). Livestock sales (mainly pigs and goats), casual labor (fishing, agricultural, and construction), and commerce (local petty trade and cross-border trade) are secondary livelihood activities. Other activities in the zone include firewood sales and wild foods collection and sales, mainly done by households in the very poor and poor wealth groups.

Figure 5. Sources of Cash Income as a Percentage of Annual Cash Income



Households in all wealth groups obtained much of their cash income in the reference year from fish sales and crop sales. The main crops sold were cassava, cassava flour, maize, groundnuts, cowpeas, palm oil, Bambara nuts, and market garden crops including onions, tomatoes, eggplants, chili peppers, okra, and peppers. The remaining cash income came from the secondary and other income sources.

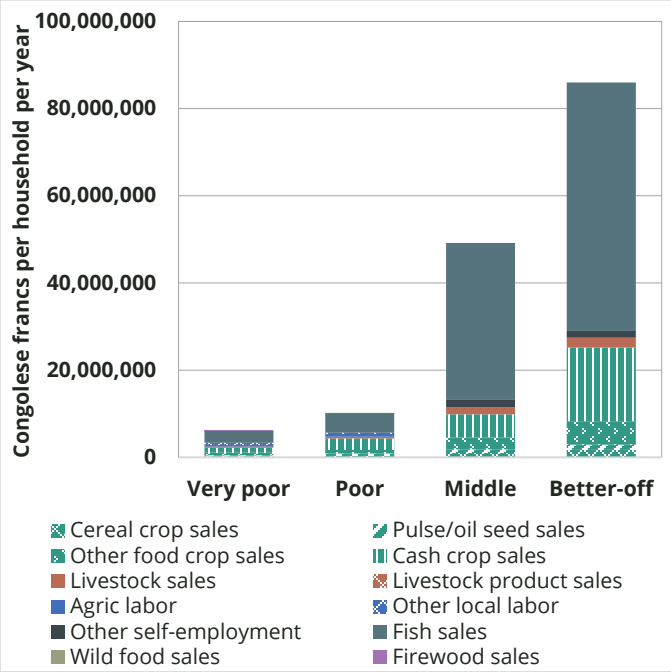
Very poor households generated 40-50% of their cash income in the reference year from fish sales. Crop sales, including market gardening, accounted for 30-40% of total annual cash income in the reference year for this wealth group. Casual labor (including agricultural, fishing, and construction) accounted for approximately 10-15% of total annual cash income. Live animal sales accounted for less than 5% of total annual cash income. Firewood and wild food sales were minor sources of cash.

Poor households also earned roughly 40-50% of the total cash income in the reference year from fish sales. Crop sales, including market gardening, accounted for about 40-45% of the total annual income. Casual labor (including agricultural, fishing, and construction) accounted for approximately 5-15% of total annual cash income. Live animal sales accounted for less than 5% of total annual cash income. Petty trade accounted for less than 1% of the total cash income in the reference year.

Middle households earned roughly 70-75% of their total annual cash income from fish sales in the reference year. They earned about 15-25% from crop sales, including market gardening. Their

remaining income came from live animal sales and trade, each accounting for less than 5% of total cash income.

Figure 6. Total Annual Cash Income



Better-off households earned roughly 60-70% of their total annual cash income from fish sales in the reference year. They earned about 25-35% from crop sales, including market gardening. Their remaining income came from live animal sales and trade, each accounting for less than 5% of total income.

There are large differences in wealth between poorer and wealthier households. In the January to December 2023 reference year, better-off households earned almost 14 times more than the very poor and over eight times more than poor households. This gap is illustrated in Figure 6 and Table 4. Income levels are very high in this livelihood zone compared to other zones in the country due to high productivity and high prices (because of proximity to Angola).

Table 4. Income Summary Table (Congolese Francs or CDF)

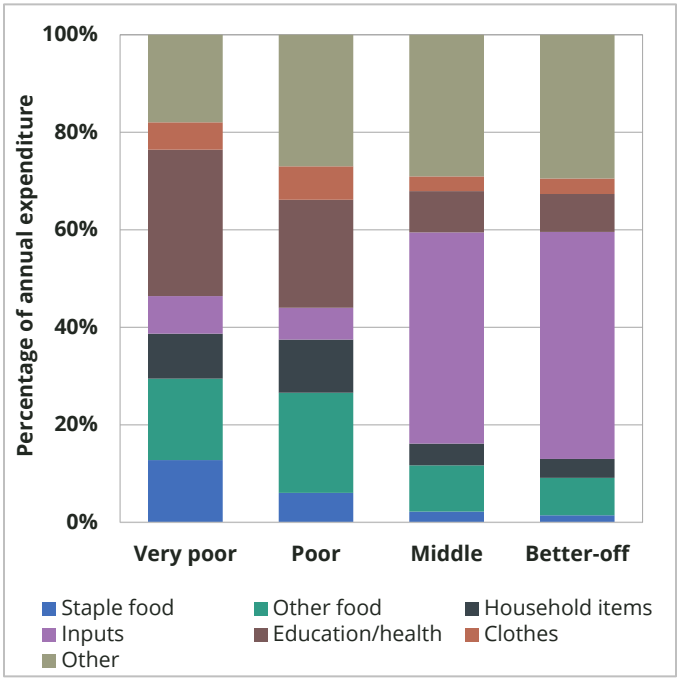
Wealth Group	Very Poor	Poor	Middle	Better-Off
Annual income per household[3]	4,000,000–9,000,000	9,000,000–12,000,000	30,000,000–70,000,000	70,000,000–100,000,000

Expenditure Patterns

Figure 7 presents expenditure patterns for the reference year from January to December 2023. While absolute expenditure increases with wealth, in line with total cash income, this graph's expenditure breakdown by percentage shows the *relative* amount of income spent on different categories. Households in all wealth groups in CD32 need to cover a range of essential expenditures over the year. These include staple foods, non-staple foods, household items/services (like salt, soap, tea, lighting, etc.), productive inputs, social services (e.g., health and education), clothing, as well as other essential and non-essential items.

[3] The average exchange rate from January to December 2023 was 1 USD = 2,312 CDF.

Figure 7. Total Annual Cash Expenditure by Category



Households in all wealth groups in the zone secured 50-80% of their annual food needs from their own crop production in the reference year, thus they did not need to spend very large percentages of their income on food. Expenditure on food declined from about 30% of total expenditure for very poor households to only about 10% for better-off households.

Very poor and poor households spent a larger percentage of total expenditure on social services (education and health) than middle and better-off households, while the reverse was true for expenditure on productive inputs.

Very poor household expenditure on education and health accounted for 25-35% of annual expenditure, a similar percentage as food. Expenditure on "other" items (including transportation, phone credits, and festivals) accounted for 15-20%. Household items, productive inputs, and clothing each accounted for less than 10% of total expenditure for the very poor wealth group.

Poor household expenditure on food accounted for 25-30% of total expenditure. A similar percentage was used for "other" items. Expenditure on education and health accounted for 20-25% of total expenditure, and household items another 5-15%. Expenditure on productive inputs and clothing were each 5-10%.

Middle household expenditure on productive inputs (including animal/plough rental, seeds, fertilizer, pesticides, hiring agricultural workers, and payment for fishing labor) accounted for 40-45% of annual expenditure, while expenditure on food was only 10-15%. Expenditure on "other" items (including transportation, phone credits, and festivals) was 25-35% of total expenditure, and education/health was 5-10%. Household items and clothing each accounted for less than 5% of total expenditure for the middle wealth group.

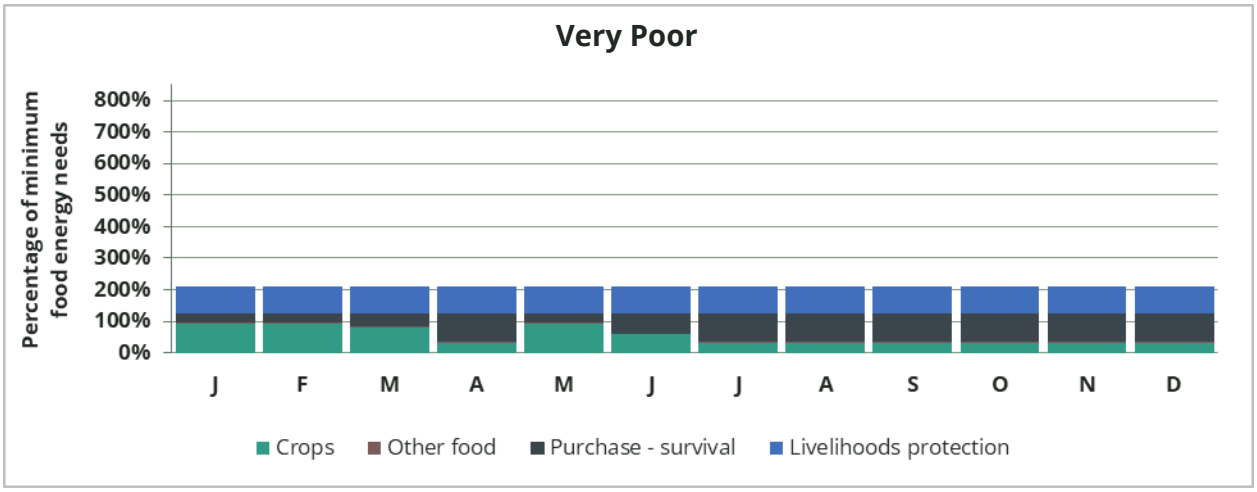
Better-off household expenditure on productive inputs was 45-50% of their annual expenditure in the reference year. Expenditure on "other" items was 25-30% of total expenditure, while food was only about 10%. Expenditure on education and health accounted for 5-10% of total expenditure. Household items and clothing each accounted for less than 5% of total expenditure for the better-off wealth group.

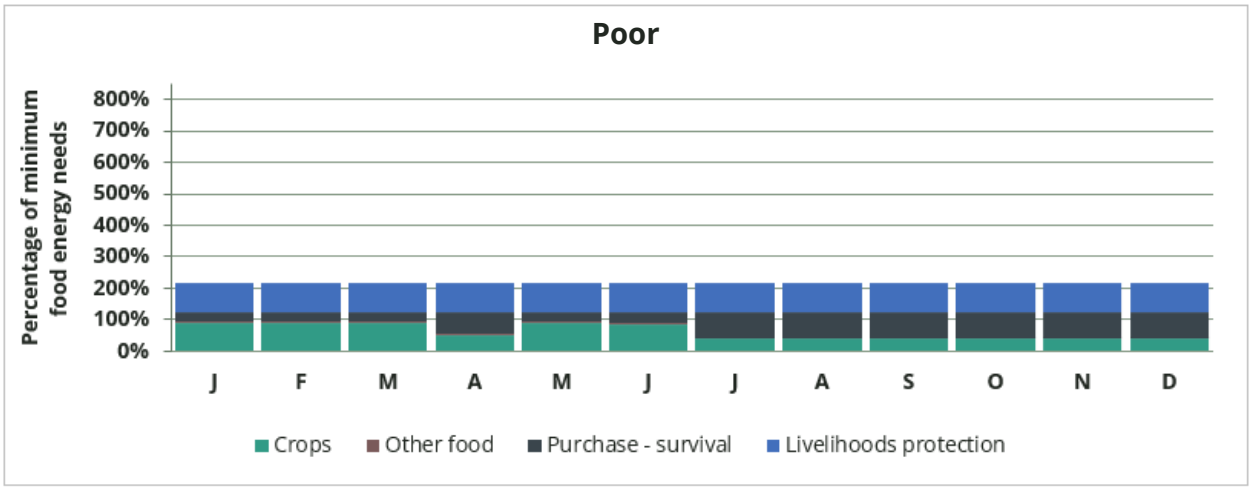
Food Access Calendars

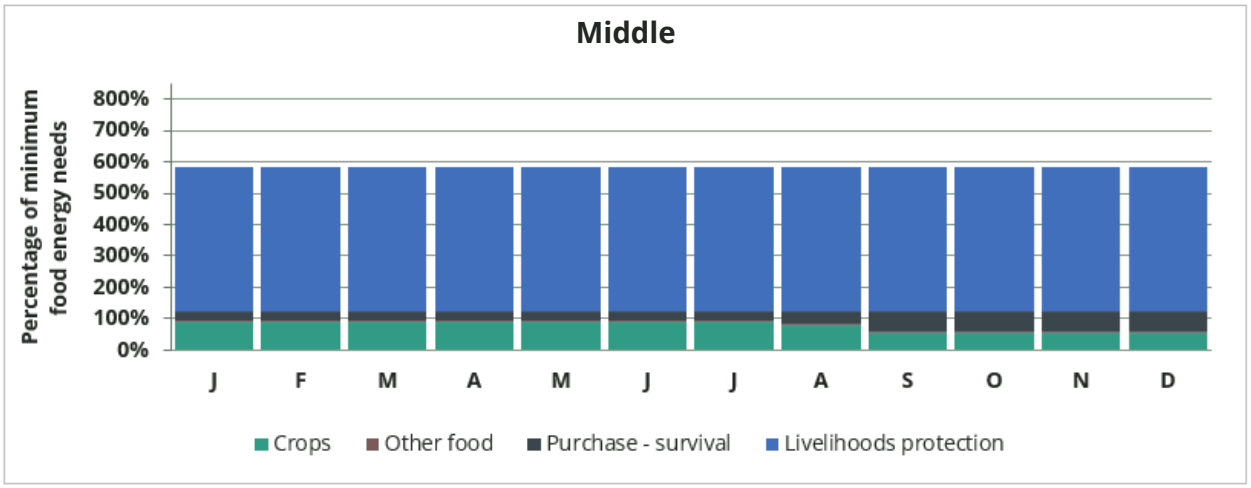
The graphs in Figure 8 present monthly food and cash access calendars for the four wealth groups.

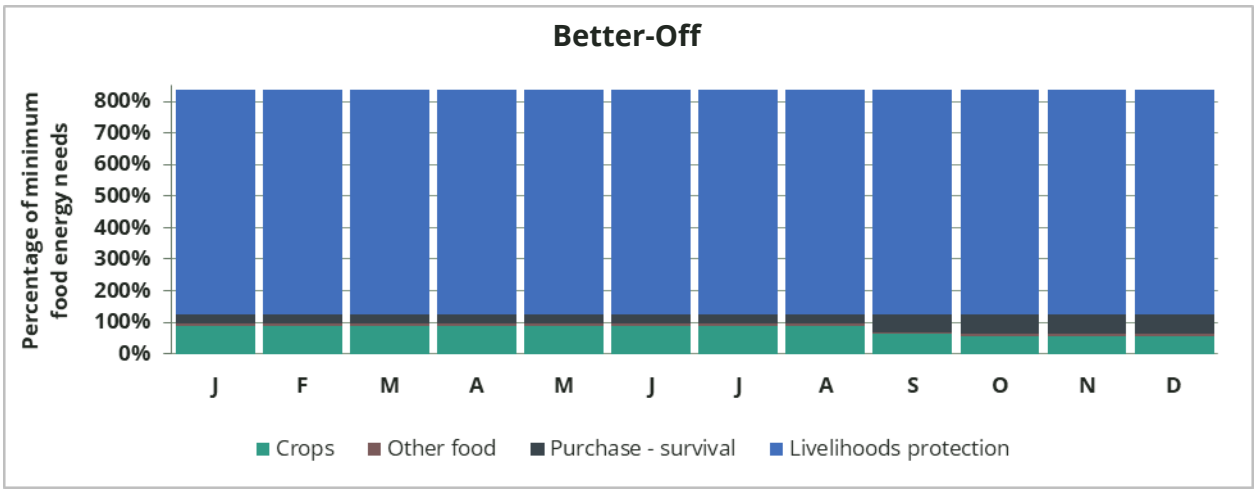
Households in all wealth groups were able to meet their survival and livelihoods protection thresholds year-round in the reference year. The main harvest period in this livelihood zone started in January and the second harvest period started in May. Very poor and poor households obtained some food from payment in-kind for casual agricultural labor (in teal). Very poor and poor households rely on market purchases to meet their needs in April and in July to December, while poor, middle and better-off households are more self-sufficient from their own production. The dark blue "livelihoods protection" sections of the bars are large across all wealth groups in this livelihood zone.

Figure 8. Seasonal Food and Cash Access Calendars per Wealth Group









Poor Female-Headed Households

Female-headed households are found in each of the wealth groups, as shown in the wealth breakdown (see Figure 3). During fieldwork, data collectors conducted in-depth interviews with poor female-headed households. This is a group that faces similar constraints and characteristics as male-headed households in the same wealth group, but they are further disadvantaged by having less adult male labor, which potentially leads to additional constraints on certain types of asset ownership, productive work, or income-generating activities.

Figure 9 shows that poor female-headed households and poor male-headed households share a similar pattern of food access. In the reference year, they both met their annual minimum food energy needs from similar food sources, mainly their own crop production and market purchases. The food sources for poor female-headed households were their own crops, staple purchases, non-staple purchases, fish/wild foods, and payments in-kind, in that order. Own crop production contributed a little less food for poor female-headed households, 50-55% compared to 55-65% for poor male-headed households. This is because poor male-headed households cultivated slightly more land thus

harvested slightly more than poor female-headed households. Poor female-headed households purchased slightly less non-staple foods, 15-20% of their minimum calorie needs compared to 20-25% for poor male-headed households. Poor female-headed households purchased more staple foods, 30-35% of minimum calorie needs compared to 20-30% for poor male-headed households.

Figure 9. Sources of Food: Poor Households vs Poor Female-Headed Households

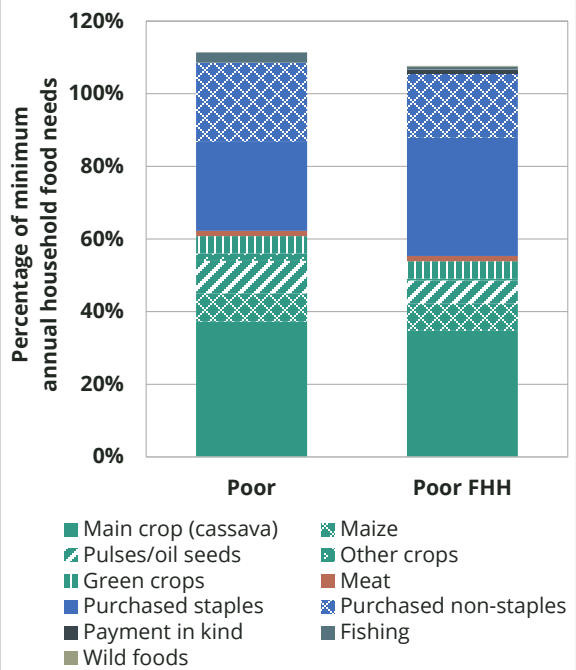
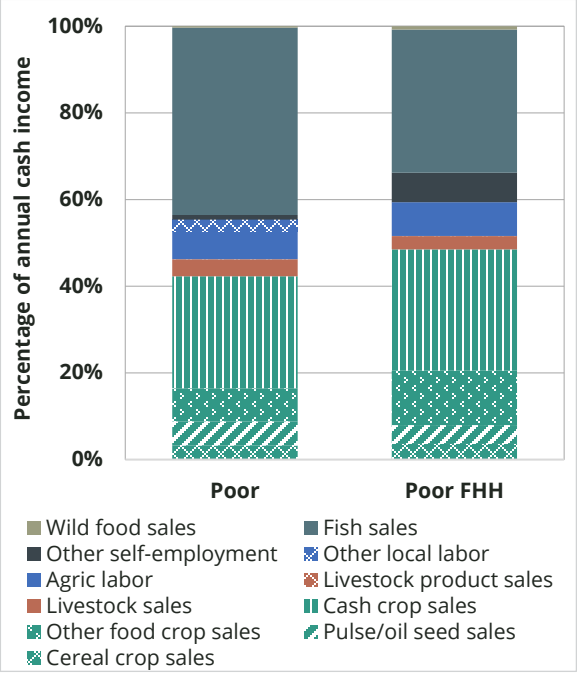


Figure 10. Sources of Cash: Poor Households vs Poor Female-Headed Households



The income picture in Figure 10 shows that poor male-headed households and poor female-headed households had similar sources of cash income in the reference year. Despite having similar sources of cash income, poor female-headed households earned 25-30% less in total cash income than poor male-headed households. The main sources of cash income for poor female-headed households were, in order of importance crop sales, fish sales, casual labor, petty trade, and livestock sales. Crop sales and petty trade generated larger percentages of total income for poor female-headed households compared to poor male-headed households. Fish sales were more important for poor male-headed households.

Response Strategies

In response to hazards and years with poor agricultural production, households attempt to meet their minimum food needs and cash requirements through several strategies. Some responses vary by wealth group, while others are similar across wealth groups. Below are some common strategies employed by households.

Households in all wealth groups try to reduce expenditures on non-essential or more expensive items first, like either cutting down on festival costs or not buying clothes or utensils that year. Households consume mainly cassava, which is the cheapest staple.

Very Poor and Poor Households

Very poor and poor households try to increase cash income by intensifying casual labor activities (e.g., fishing, agricultural, and construction labor) to earn more cash. However, in less profitable years, as increasing numbers of people flood the labor market, this option quickly loses its value because wage rates drop, and jobs are harder to find. Poorer households also intensify market gardening activities in the lowlands in these years and increase wild food collection and fishing. They also purchase more food, especially cassava, to make up for crop production deficits.

Middle and Better-Off Households

Middle and better-off households cope with hazards differently. Middle and better-off households consume cassava stocks harvested in previous years or reserve cassava from their farms. They also increase self-employment activities, such as trade, and intensify fishing and market gardening in the lowlands in less profitable years.

Key Parameters for Monitoring

The key parameters listed in Table 5 are food and income sources that make a substantial contribution to the household economy in the *Coastal Fishing with Staples Production and Market Gardening Livelihood Zone*. These parameters should be monitored to track potential losses or gains to local household economies through ongoing monitoring systems or periodic assessments.

Table 5. Key Parameters for Monitoring

Item	Key Parameter – Quantity	Key Parameter – Price
Crop production	• Maize Season A – quantity produced • Maize Season B – quantity produced • Cassava – quantity produced • Groundnuts Season A – quantity produced • Cowpeas – quantity produced • Palm oil – quantity produced • Onions – quantity produced • Tomatoes – quantity produced • Eggplants – quantity produced • Chili peppers – quantity produced • Bell peppers – quantity produced • Okra – quantity produced • Chives – quantity produced • Celery – quantity produced	• Maize season A – producer price • Cassava – producer price • Groundnuts Season A – producer price • Onions – producer price • Tomatoes – producer price • Eggplants – producer price • Chili peppers – producer price • Bell peppers – producer price • Okra – producer price • Chives – producer price • Celery – producer price

Item	Key Parameter – Quantity	Key Parameter – Price
Livestock production	• Pigs – herd size • Goats – herd size	• Pigs – producer price • Goats – producer price
Other food and cash income	• Fishing – amount collected • Cultivation labor – number of days • Construction labor (roof building, brick mason) – number of days • Petty trade – demand	• Fishing – producer price • Cultivation labor – wage rates • Construction labor (roof building, brick mason) – wage rates • Petty trade – daily earnings
Expenditure		• Cassava – consumer price • Maize – consumer price

CD33 Livelihood Zone

Reference Year: January–December 2023

Forest Staple Crops, Cash Crops, and Market Gardening Livelihood Zone



Figure 1. CD33 Livelihood Zone Map

Summary: The *Forest Staple Crops, Cash Crops, and Market Gardening Livelihood Zone* (CD33) is an agricultural zone that covers most of Lukula, Seke-Banza, and Tshela Territories in Kongo-Central Province. Annual rainfall levels typically range from 1,100 to 1,300 millimeters (mm), characteristic of the tropical climate. Selling agricultural produce, both food and cash crops, and livestock is a key economic activity in CD33. The main sources of food were households' own crops and market purchases. Households from all wealth groups consumed livestock products. Very poor and poor households also received food from labor payments as an additional source of calories. Crop sales were the main income source for households from all wealth groups, generating 70-85% of annual cash income. The zone is known for its perennial crops, including coffee, cocoa, plantains, bananas, and palm trees.

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Zone Description

The *Forest Staple Crops, Cash Crops, and Market Gardening Livelihood Zone* (CD33)[1] is an agricultural zone that covers most of Lukula, Seke-Banza, and Tshela Territories, Kongo-Central Province. The zone has a tropical humid climate. Humidity is high due to the dense vegetation and consistent rainfall. The average temperature is 21°C to 24°C, and the zone receives 1,100 to 1,300 mm of rainfall per year. The Rainy Season is bimodal, with Season A from October to January and Season B from March to May. The consistency and regularity of rainfall during these seasons contribute to the agricultural activities in the zone.

Much of the livelihood zone landscape includes hills and rolling plains. Notable hills are Mont Nduku with an elevation of approximately 318 meters, Mont Sikila at about 169 meters in elevation, and the Inga Hills and the Inga Dams with elevations reaching up to around 80 meters. The zone is rich in various species, with primary and secondary forests and wooded savannas. The vegetal biodiversity includes species of trees and plants that are characteristic of lowland semi-deciduous forests, like *Gilbertiodendron dewevrei*, *Staudtia stipitata* (often found between major river systems), *Polyalthia suaveolens*, *Scorodophloeus zenkeri*, *Anonidium mannii* and *Parinari glaberrimum*. The Mayumbe forest is a significant natural reserve bordering the livelihood zone.

The region is home to several seasonal rivers, including the Lombe, Lukula, Mbavu, Tshilonga, and others. The main road is RN1, and key towns include Lukula, Seke-Banza, and Tshela. The population of CD33 is 1,674,794, with an average population density of 206 people per square kilometer.[2]

The zone is characterized by robust agricultural potential due to its fertile clay and sandy soils, combined with favorable rainfall. This area is known as a surplus zone for agricultural production, meaning it consistently produces more than what is consumed locally. The main crops include cassava, cocoa, coffee, oil palm, maize, groundnuts, cowpeas, and beans. CD33 is known for its perennial crops; those cultivated in this zone are plantains, bananas, cocoa, coffee, and palm trees. Most of these crops are grown under rainfed conditions. Cassava is typically harvested once a year, while households can harvest crops like maize, groundnuts, cowpeas, and beans twice a year, with the first season (Season A) being the most dominant. Households from all wealth groups in this zone are also involved in market gardening, consisting of production of peppers, tomatoes, and eggplants, mainly for trading.

Agricultural practices remain rudimentary, with manual labor being the primary method for land preparation. Tasks like land clearing, weeding, and harvesting, particularly for perennial crops like coffee, cocoa, and oil palm, require significant labor input. Wealthier households often hire local laborers to assist with tasks such as preparing land, weeding, and harvesting, typically paying them

[1] Fieldwork for the current profile was undertaken from June 16 to July 14, 2024. The information presented in this profile refers to the reference year, which was the consumption year that covered the period January to December 2023. Provided there are no fundamental and rapid shifts in the economy, the information in this profile is expected to remain valid for approximately five to 10 years (i.e., until 2028-2033). All prices referred to in the document are for the reference year.
[2] FEWS NET Data Explorer, population data (2023), accessed 2025, https://fdw.fews.net/data-explorer/.

in cash. Traditional storage methods are still commonly used, offering little protection for harvested crops. Households in the zone practice intercropping, commonly combining maize with cassava, cassava with groundnuts, maize with groundnuts, cassava with rice, and cocoa with bananas. These strategic combinations optimize land use, ensure food security, and take advantage of the different growth cycles and nutrient requirements of these crops. Farmers enhance their ability to market their products by organizing themselves into cooperatives.

The zone is home to various livestock species, primarily pigs, goats, and poultry. Livestock are mostly raised under free grazing conditions, feeding on natural grasses and shrubs. During both the Rainy and Dry Seasons, the main sources of water for livestock are rivers, seasonal ponds, streams, and natural lakes. The sale of livestock is most significant at the start of the school year in September and during the end-of-year holidays in December, with pigs and small ruminants being the most commonly sold and slaughtered animals. Livestock activities are also concentrated locally. Livestock farming is a year-round activity. Men and women are also involved in this activity.

Wage labor consists of agricultural labor — particularly in preparing land, planting, weeding, and harvesting — and maintaining perennial crops. Agricultural labor primarily takes place locally within the community and throughout the year. Other local labor activities include construction and brickmaking. Poorer households often engage in multiple activities to sustain their livelihoods.

Petty trade occurs locally as well as in larger cities. Small-scale trade involves selling various small goods and the purchase of agricultural products like cassava, palm oil, bananas, and groundnuts, which are then sold in larger urban markets. Trade is conducted by men and women and occurs throughout the year.

CD33 experiences several hazards that affect its economy and livelihoods. The main hazards are crop pests and diseases and livestock diseases. The main crop diseases are cassava mosaic and groundnut rosette, and the main pest is the fall armyworm on maize. These are significant issues every year. The main livestock diseases are swine fever in pigs, Newcastle in poultry, and *peste des petits ruminants* in goats and sheep. These diseases pose a significant risk to households from all wealth groups every year. A lack of improved breeds is another constraint to livestock. Occasional floods and drought (especially during Season B) can also impact households' livelihoods in some years. Other risks include human disease outbreaks, especially malaria, measles, HIV/AIDS, tuberculosis, diarrheal diseases, and typhoid fever, highlighting the ongoing public health challenges in the livelihood zone and necessitating continuous efforts in healthcare provision, sanitation improvements, and disease prevention initiatives.

Households face diverse challenges when it comes to access to basic services. Households from all wealth groups obtain water for drinking from boreholes, open wells, and rivers. These sources are also used for other household needs. Access to safe drinking water is generally limited and relies heavily on natural sources. Sanitation facilities used by households from all wealth groups mainly consist of basic toilets or latrines, and open defecation is still used. Waste management remains rudimentary across the zone, regardless of household wealth. Access to healthcare is primarily

through dispensaries and health centers. There are no hospitals nearby, indicating that more serious health needs may require travel to larger towns. Most poorer households rely on flashlights for lighting. In addition to flashlights, wealthier households may have access to solar-powered lighting. Households from all wealth groups use firewood and charcoal as the main sources of fuel for cooking. For poorer households, basic mobile phones are common, with limited access to internet services. Wealthier households tend to have smartphones, enabling them to access both voice communication and the internet. For individuals from very poor and poor households, the typical education level is limited to primary and some secondary schooling. Members of middle and better-off households are more likely to pursue secondary, tertiary, and professional education. Access to financial services is not typical for households from all wealth groups in this livelihood zone.

Markets

In the *Forest Staple Crops, Cash Crops, and Market Gardening Livelihood Zone*, market access is generally challenging in the Dry Season, particularly due to poor road conditions, but it worsens significantly during the Rainy Season. The roads are often informal trails, which are rocky and poorly maintained. Many bridges in these areas are also in a state of disrepair, with some being completely impassable.

The difficulty in accessing markets during the Rainy Season causes a drop in the supply of goods from outside of the zone, which in turn leads to local price hikes. Essential commodities become more expensive and less available. Isolated communities face significant challenges in selling their produce or purchasing necessary goods, exacerbating food insecurity and economic hardships.

Crops and livestock are traded in local markets and in markets in the main cities inside the livelihood zone. Traders move goods from the main markets within the zone to Boma and then to Matadi, which is the main intermediary route used in trading. Final markets for cassava, palm oil, and plantains are in Kinshasa and Muanda as well as in neighboring Angola. Palm oil also has final markets in Congo-Brazzaville. Cocoa, coffee, pigs, and goats have final markets in Kinshasa, Angola, and Congo-Brazzaville. Coffee produced in this zone is also exported to Europe via Matadi. During the Lean Season, local markets receive cassava from markets in the main cities, such as Tshela and Lukula, and rice from Boma via Tshela and Lukula.

Cassava is sold primarily from June to September, palm oil and plantains peak sales occur from October to May, cocoa is available and sold year-round, and coffee is marketed mainly from July to September.

In terms of the labor market available to CD33 households, 50% of labor is carried out either in their own communities or in neighboring communities, 30% in local towns, and 20% outside of the livelihood zone, in Matadi in Kongo-Central Province and Kinshasa, or outside the country in Angola (Cabinda and Soyo) and in Congo-Brazzaville. Migration is typically undertaken by men. The pattern

of migration remains consistent regardless of economic conditions. Migrants normally leave during the Dry Season, from June to September, returning to support the farming activities of Season A, the main agricultural season. Households from outside the livelihood zone rarely find work inside CD33.

Timeline and Reference Year

The baseline assessment refers to a specific period called the "reference year." In the *Forest Staple Crops, Cash Crops, and Market Gardening Livelihood Zone,* the reference year covers the consumption period from January to December 2023. During community leader interviews, data collectors asked informants to score the last five years in terms of seasonal performance with "1" indicating a poor season and "5" indicating an excellent season. Table 1 summarizes the response of the community leaders.

Table 1. Timeline

Production Year/Season	Score	Critical Events
2023/Season B	3	Good distribution of rainfall and low levels of crop pest attacks led to average agricultural production.
2022-2023/Season A	4	Good distribution of rainfall and low levels of crop pest attacks led to good agricultural production.
2022/Season B	2	A drought event significantly reduced agricultural production.
2021-2022/Season A	5	Excellent agricultural production due to good rainfall distribution and low pest attacks.
2021/Season B	3	Good rainfall and low pest attacks resulted in average agricultural production.
2020-2021/Season A	4	Good rainfall and low pest attacks resulted in good agricultural production.
2020/Season B	4	Good agricultural production due to favorable conditions.
2019-2020/Season A	4	Good agricultural production due to favorable conditions.
2019/Season B	3	Good distribution of rainfall and low pest attacks contributed to average agricultural production.
2018-2019/Season A	4	Good distribution of rainfall and low pest attacks contributed to good agricultural production.

5 = Excellent season for household food security (e.g., due to good rains, good prices, good crop yields)
4 = Good season or above average season for household food security
3 = Average season for household food security
2 = Below-average season for household food security
1 = Poor season for household food security (e.g., due to drought, flooding, livestock disease, pest attack)

Note: Production year refers to the outcome of the livestock reproduction cycle that peaked during that year's Rainy Season and events that impacted livelihoods until the end of the Lean Season the following year.

Key informants ranked the seasons between 2019 and 2023, including the reference period, as “4” (above average) in terms of household food security. The reference year was marked by average to good crop yields due to good and regular rainfall over the two seasons, low levels of crop pest attacks, and undisturbed trade with stable staple food prices. Season A consistently performed better in terms of household food security compared to Season B in all five years. The most significant discrepancy between two seasons was in 2022, where Season A had excellent outcomes, while Season B was adversely affected by drought, leading to below-average food security.

Seasonal Calendar for Reference Year

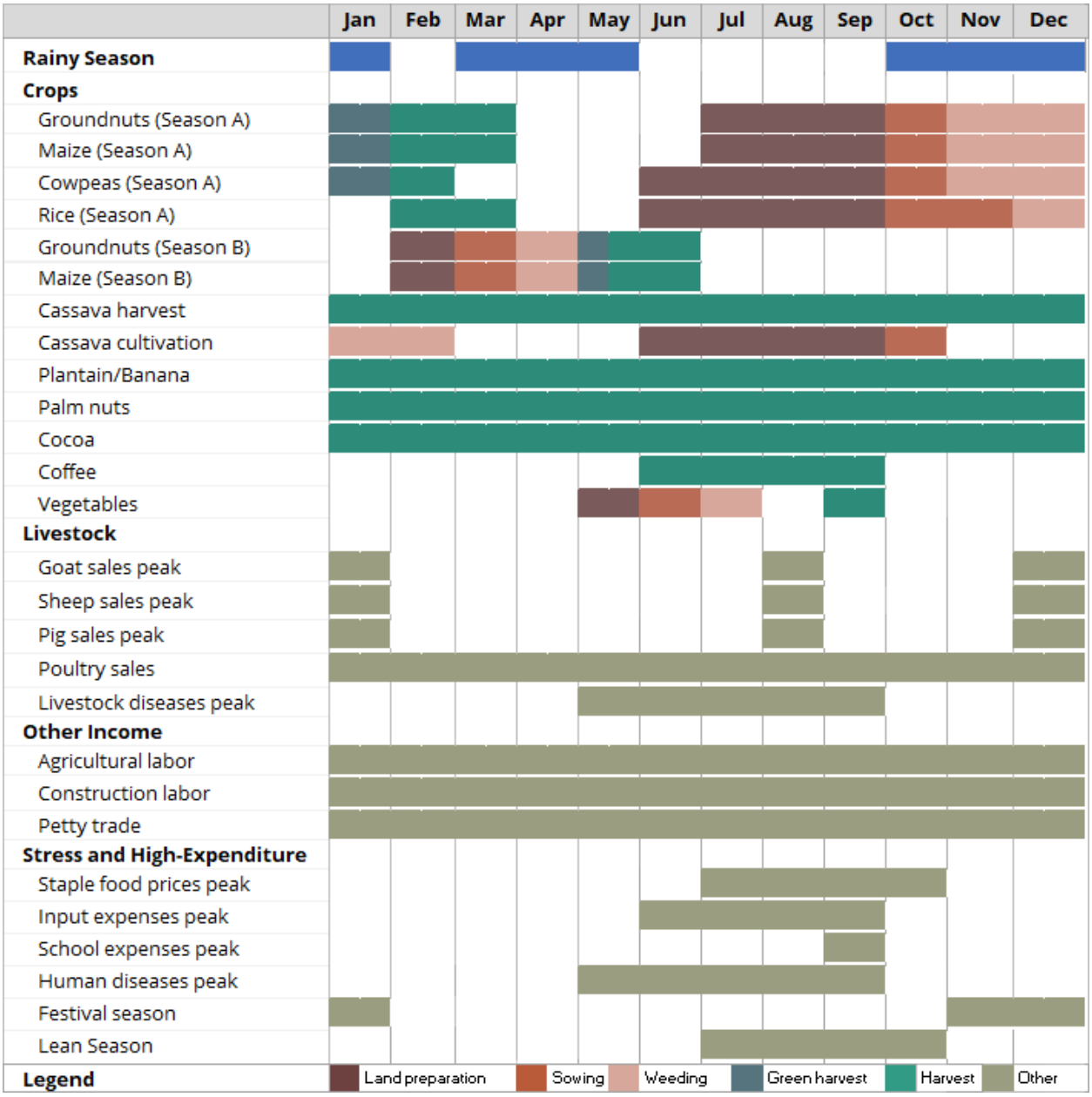
The seasonal calendar (see Figure 2) illustrates the main economic activities and events of the reference year. It traces the rainy months, livestock activities, agricultural activities, other important income-generating activities, and periods of stress or high expenditure.

In CD33 the Rainy Seasons typically follow a bimodal pattern, which is crucial for rainfed agricultural and livestock activities. The first Rainy Season starts in October and ends in January. This season marks the beginning of the agricultural calendar, providing essential moisture for the initial planting season (Season A). The rains are generally consistent and heavier than in Season B, supporting the growth of various crops. The second Rainy Season starts in March and ends in May (Season B), supporting the second planting season. This period also sees substantial rainfall, which is crucial for the development and maturation of crops planted during this time. These two Rainy Seasons are vital for maintaining the agricultural productivity of the livelihood zone, allowing for two main planting and harvesting periods each year, mainly for maize and groundnuts.

Land preparation for the main food crop, cassava, starts in June and ends in September, followed by planting seedlings in October. Cassava harvests can occur all year. Maize is cultivated in two seasons, the main one is Season A, with preparing land in July to September, sowing in October, weeding in November to December, and harvesting in February to March. For Season B maize production, preparing land occurs in February, sowing occurs in March, weeding in April, and harvesting in May to June. Groundnuts are cultivated in two seasons as well; the main one is Season A, with preparing land in July to September, sowing in October, weeding in November to December, and harvesting in February to March. For Season B groundnut production, preparing land occurs in February, sowing in March, weeding in April, and harvesting in May to June. Season A green consumption of groundnuts and maize occurs in January, and Season B green consumption of the same crops happens in May to June.

The cowpea harvest is in February, following a period of one month of green consumption in January. Rice harvests occur from February to March. Plantains, bananas, palm nuts, and cocoa can be harvested at any time of year. The coffee collection peak is from June to September. After dry harvest, all cereals are threshed, and grains are kept indoors in a protected environment for consumption and selling. Cocoa and coffee are traded immediately after collection and processing. Vegetables are produced in the Dry Season, with harvests and sales in September.

Figure 2. Seasonal Calendar



The success or failure of livestock keeping depends largely on the outcome of the Rainy Season. During the Rainy Season, surface water and pasture availability for livestock production improves, thereby increasing reproduction and productivity. Gestation periods are 5-6 months for small ruminants (i.e., goat/sheep) and almost four months for pigs. Goats, sheep, and pigs are sold throughout the year, with peak periods in the Dry Season in August, and for festivals from November to January. Livestock diseases and human diseases can occur at any time of the year, but the peak period is from May to September. The Lean Season — the most difficult period in terms of access to food due to depletion of food stocks, especially for poorer households, and due to high food prices — mainly occurs from July to October.

Table 2 shows the typical division of labor, listing activities shared and not shared by men and women. Men and boys are largely responsible for land preparation, firewood and charcoal collection and sales, and construction labor. Women and girls are mostly involved in planting, harvesting, threshing, and household chores (including collecting water, cooking meals, feeding small children, laundering clothes, and collecting firewood for domestic use).

Table 2. Typical Division of Labor

Shared Tasks	Women's Tasks	Men's Tasks
• Weeding • Crop sales • Petty trade • Handicraft production and sale	• Planting, harvesting, threshing • Household chores • Goats and poultry rearing and sales	• Land preparation • Firewood and charcoal collection and sale • Construction labor • Sheep and pigs rearing and sales

Wealth Breakdown and Productive Assets

Table 3 summarizes the types and numbers of productive assets that typical households within each wealth group own and/or manage. Asset holdings are shown in a range that reflects the diversity of households' situations within a wealth group. Figure 3 shows the percentage of households within the zone that falls in each wealth group. The socioeconomic categorization of households in the zone was carried out by the communities themselves.

Table 3. Wealth Breakdown

Household Size and Productive Assets	Very Poor	Poor	Middle	Better-Off	Poor Female-Headed
Household size	5-7	6-8	10-12	12-16	6-8
Land (hectares [ha])	0.5-1.5	1-2	2-4	3-5	0.5-1.5
Land cultivated (ha)	0.5-1.5	1-2	2-4	3-5	0.5-1.5
Land cultivated – food crops (ha)	0.25-0.75	0.25-0.75	0.75-1.25	1-2	0.25-0.75
Land cultivated – cash crops (ha)	0.25-0.75	0.5-1.5	1.5-2.5	2-3	0.25-0.75
Pigs	0-4	1-5	5-15	5-15	0-4
Goats	0-4	1-5	2-12	5-15	0-4
Sheep	0-2	1-3	3-7	3-12	0
Poultry	4-12	5-15	10-30	10-30	4-12
Bicycles	0	0	1-2	1-2	0

Agriculture is the main subsistence activity in the livelihood zone. Wealth distribution was primarily determined by the size of cultivated land, which increased with wealth. Other wealth determinants include livestock ownership and labor employment.

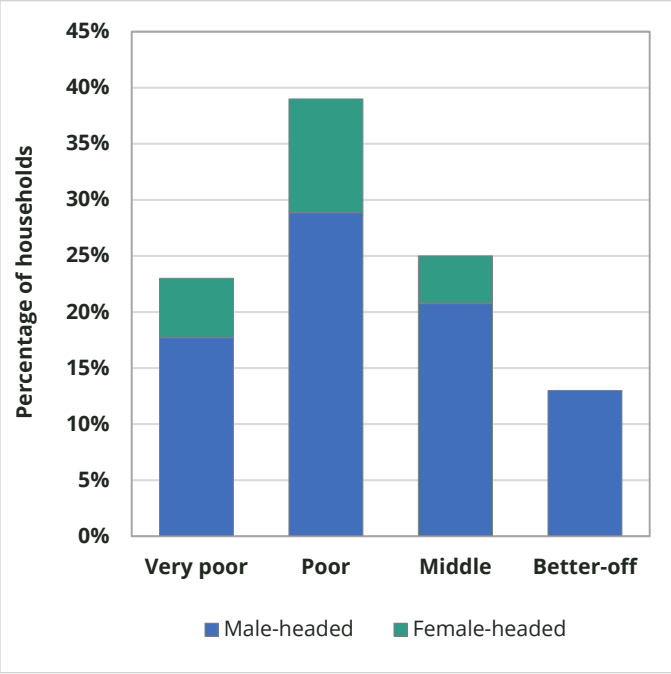
In CD33, land is freely available, and every household cultivates according to their means and available labor. During the reference year, households from all wealth groups cultivated all the land they "owned." Overall, the better-off cultivated four times the land cultivated by the very poor. Households in all wealth groups in CD33 own livestock, with wealthier households having larger herds. Livestock are a source of income and a way of investing, saving, and safeguarding against bad years. The main types of livestock kept in this zone are goats, sheep, pigs, and poultry. Livestock provide direct access to food in the form of meat and eggs and are also an important means of obtaining cash income through live animal sales and some meat sales. Wealthier (i.e., middle and better-off) households keep all types of livestock and have larger holdings than poorer (i.e., very poor and poor) households.

Some middle and better-off households own bicycles. Wealthier households also have enough resources to hire labor from poorer households, especially for preparing land, weeding, and harvesting. Poorer households, on the other hand, have few productive assets and only their own labor for farming.

Household size increases with wealth. The very poor have a household size of 5-7, poor 6-8, middle 10-12, and better-off 12-16. The wealthier the household, the larger it is, with more land, livestock, and productive assets.

Figure 3. Wealth Breakdown

Note: All results are the mid-point of a range

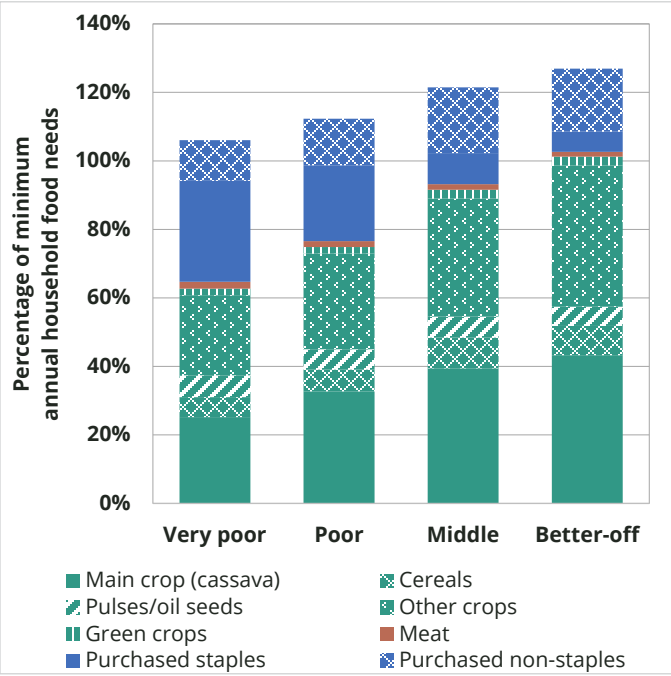


The proportion of households in each wealth group within the community is as follows: very poor households 15-30%, poor households 35-40%, middle households 20-30%, and better-off households 10-15%. The proportion of female-headed households decreases with increasing wealth. In the very poor wealth group, 15-30% are female-headed households, in the poor wealth group 20-30%, and in the middle wealth group 0-30%. In the better-off wealth group, female-headed households are not common. It is important to note that land access is not a limiting wealth determinant in this livelihood zone, and women can access land. Women can inherit and can buy livestock.

Sources of Food

Figure 4 presents the sources of food for households in different wealth groups in the livelihood zone for the period from January to December 2023. January represents the start of the consumption year because it is when the consumption of the main harvest season starts. Food is presented as a percentage of the annual kilocalorie (kcal) needs of the household, based on the internationally accepted 2,100 kcal per person per day.

Figure 4. Sources of Food



There were two main sources of food in CD33 for households from all wealth groups: their own crops and market purchases. Other minor sources of food included livestock products (i.e., meat) and payments in-kind.

Beginning with total food consumption, there was a progressive increase in the amount of food consumed with increasing wealth. Crop production was the most important source of food in the livelihood zone, and households from all wealth groups consumed crops. However, only households from the better-off wealth group cultivated enough to cover their annual consumption needs. For very poor households, consumption of their own crops represented 60-65% of their minimum annual food needs, for poor 70-80%, and for middle households 90-95%. Cassava was the main crop consumed by households in all wealth groups, both fresh and in the form of cassava flour used to prepare dishes like *fufu, chikwangue, lituma, pondu,* and cassava pancakes. Very poor households obtained 20-30% of minimum annual food needs from cassava, poor households 25-40%, middle households 35-45%, and better-off households 35-50%.

Households from all wealth groups obtained 1-3% of their minimum annual food needs from green consumption of groundnuts and maize cultivated in Seasons A and B. Poorer households obtained 5-7% of minimum annual food needs from cereals (maize and rice), while wealthier households obtained 8-10%. Pulses and oil seeds (cowpeas, beans, and groundnuts) were important sources of vegetable protein and fat. Households from all wealth groups obtained 5-8% of minimum annual food needs from these crops. Meat from households' own animals was a source of animal protein. Households from all wealth groups consumed their own meat, obtaining 1-3% of their minimum annual food needs.

Other crops consumed included palm nuts (used to prepare palm oil), bananas, and plantains collected from households' own plantations. Very poor households obtained 20-25% of minimum annual food needs from this category, poor households obtained 25-30%, middle households obtained 30-40%, and better-off households obtained 40-45%.

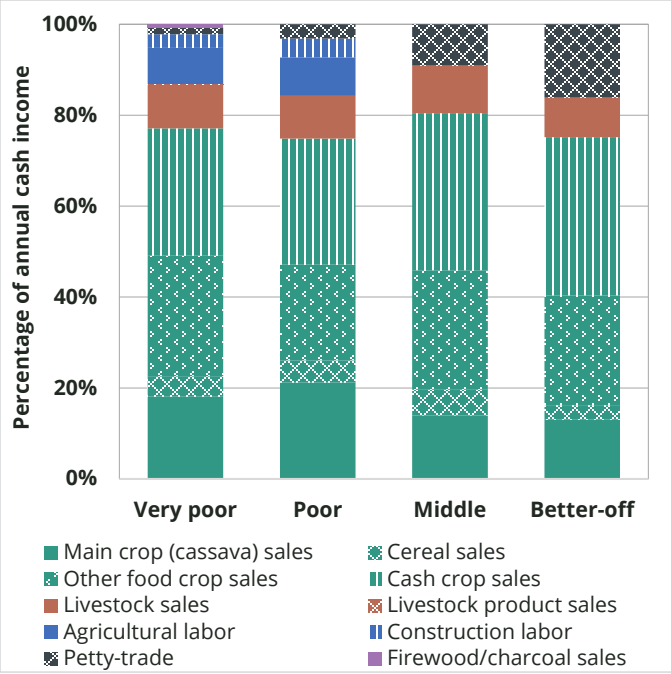
Purchased food was the second most important source of food in the livelihood zone. These foods are divided into staple and non-staple categories. All wealth groups purchased staple foods, including maize, rice, and cassava flour. Very poor households obtained 25-35% of minimum annual food needs from this category, poor households obtained 20-25%, middle households 5-15%, and better-off households 3-10%. The category of non-staple foods included beans, cowpeas, sugar, meat, dried fish, fresh fish, and milk purchases. Poorer households obtained 10-15% of their minimum annual food needs from purchased non-staples, while wealthier households obtained 15-25% of minimum annual food needs from this category.

There was no food aid in the livelihood zone in the reference year. Overall, the reference year was average in terms of food security, with households meeting their minimum annual food energy needs.

Sources of Cash Income

Crop sales, livestock sales, and trade were the main income-generating activities in the *Forest Staple Crops, Cash Crops, and Market Gardening Livelihood Zone* (see Figure 5).

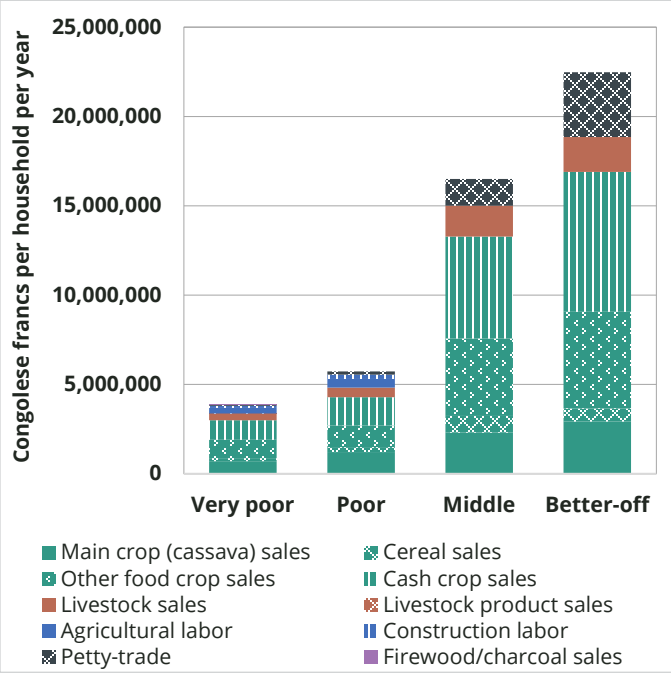
Figure 5. Sources of Cash Income as a Percentage of Annual Cash Income



Crop sales were the main income source for households from all wealth groups. This category includes main crop sales (cassava), cereal sales (maize from Seasons A and B, and rice), other food crop sales (groundnuts from Seasons A and B, cowpeas, common beans, plantains, and bananas), and cash crop sales (palm oil, palm nuts, cocoa, and coffee).

Middle and better-off households obtained additional income from livestock sales and from petty trade. Poorer households obtained additional income from agricultural labor payments, construction labor, livestock sales, and petty trade. In addition, very poor households obtained income from firewood and charcoal sales and from livestock product sales (eggs).

Figure 6. Total Annual Cash Income



Very poor households earned 70-85% of their total annual cash income from crop sales, 7-15% from labor, 5-15% from livestock sales, and 1-3% from petty trade in the reference year.

Poor households generated 70-80% of their cash income in the reference year from crop sales, 7-15% from labor, 5-15% from livestock sales, and 2-5% from petty trade.

Middle households earned 75-85% of their total annual cash income from crop sales, 5-15% from livestock sales, and 5-15% from petty trade in the reference year.

Better-off households earned 70-80% of their total annual cash income from crop sales and 5-15% from livestock sales. Their remaining income came from petty trade, contributing 10-20% to their total annual cash income in the reference year.

Differences between wealth groups in the absolute amount of cash income generated during the reference year were large. This gap is illustrated in Figure 6 and Table 4. Better-off households earned close to six times the cash income of very poor households. The differences between wealth groups in per capita cash income was smaller than for total income. Better-off households earned two to three times the annual per capita cash income of very poor households.

Table 4. Income Summary Table (Congolese Francs or CDF)

Wealth Group	Very Poor	Poor	Middle	Better-Off
Annual income per household[3]	3,500,000–4,000,000	4,500,000–7,000,000	13,000,000–20,000,000	20,000,000–25,000,000

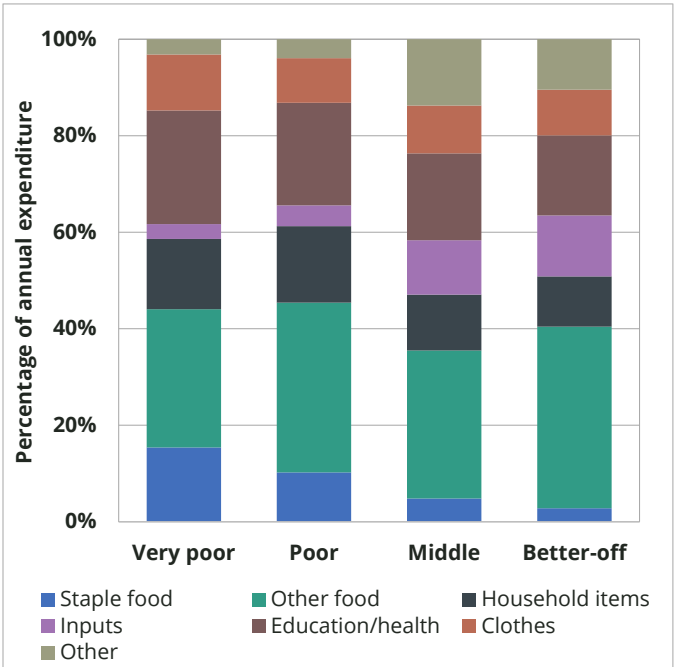
Expenditure Patterns

Figure 7 presents expenditure patterns for the reference year from January to December 2023. While absolute expenditure increased with wealth in line with total cash income, this graph's expenditure breakdown by percentage shows the *relative* amount of income spent on different categories. Households in the zone needed to cover a range of expenditures items over the year. These included staple foods, non-staple foods, household items/services (including salt, soap, tea,

[3] The average exchange rate from January to December 2023 was 1 USD = 2,382 CDF.

coffee, lighting, milling, etc.), productive inputs, social services (which include health and education), clothing, transport, as well as other essential and non-essential items.

Figure 7. Total Annual Cash Expenditure by Category



Households in all wealth groups spent significant proportions of their annual incomes on staple and non-staple foods. As noted in the Sources of Food section, households in this zone secured between 25–45% of their annual food energy needs from food purchases, with the remaining income spent on the other expenditure categories in different proportions based on wealth group. Households did not purchase water.

Very poor household expenditure on staple foods accounted for 10-20% of their annual spending in the reference year. Non-staple foods accounted for 25-35% of total expenditure, household items (including lighting and grinding costs) 10-20%, productive inputs less than 3%, health and education 20-30%, clothing/shoes 10-15%, and other items (including transportation, phone credits, festivals, etc.) less than 5%.

Poor household spending on staple foods accounted for 5-10% of total annual expenditure, non-staple foods 30-40%, household items 10-20%, productive inputs less than 5%, health and education 15-25%, clothing/shoes 10-15%, and “other” less than 5%.

Middle household expenditure on staple foods accounted for approximately 5% of annual spending, non-staple foods 25-35%, household items 10-15%, productive inputs 5-15%, health and education 15-20%, clothing/shoes about 10%, and “other” items 10-20%.

Better-off household spending on staple foods accounted for 2-5% of annual expenditure, non-staple foods 30-45%, household items 5-15%, productive inputs 10-20%, health and education 15-20%, clothing/shoes about 10%, and “other” items 5-15%.

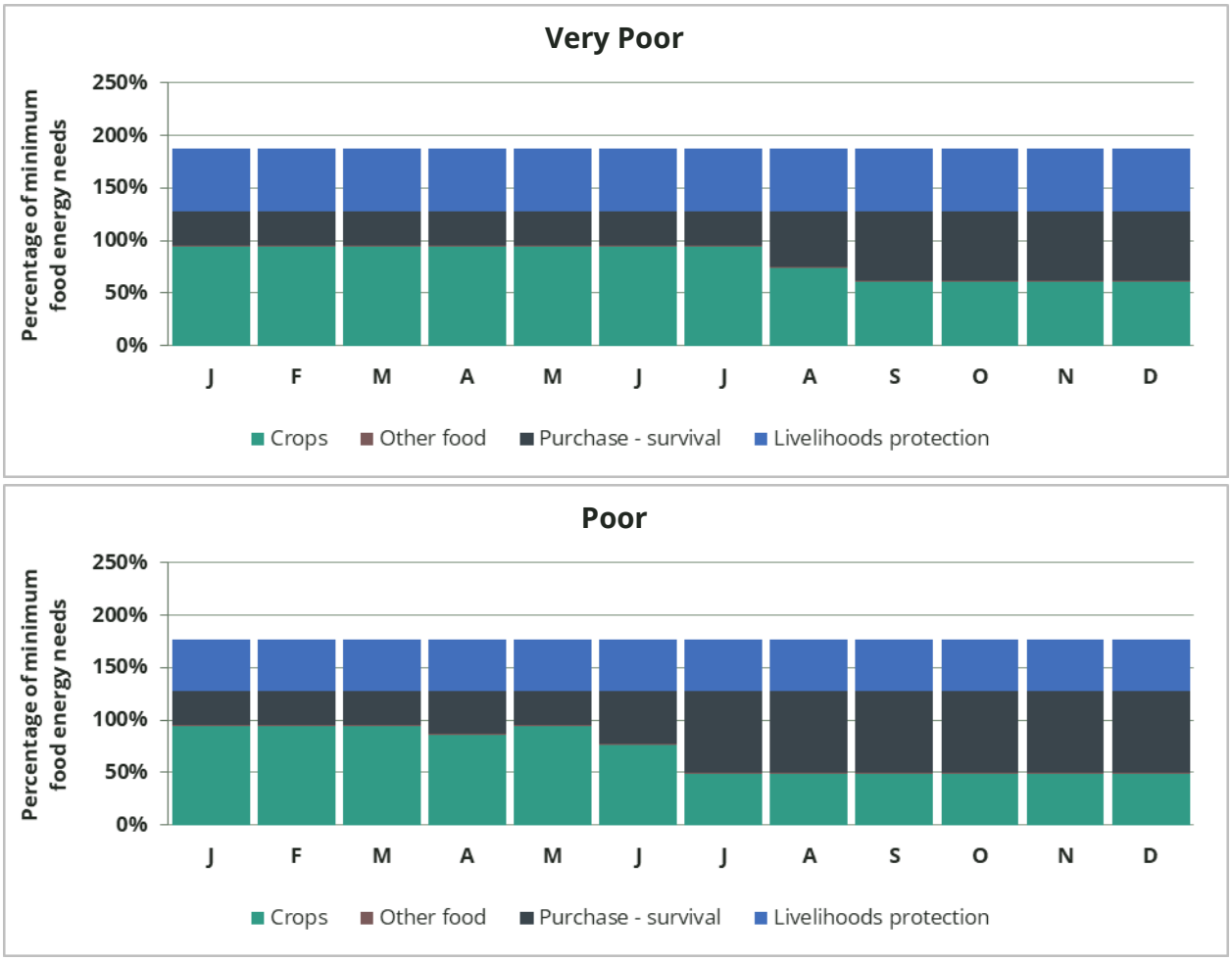
Expenditure on social services (i.e., health and education) and on non-staple foods were the largest expenditure categories for all wealth groups in the reference year.

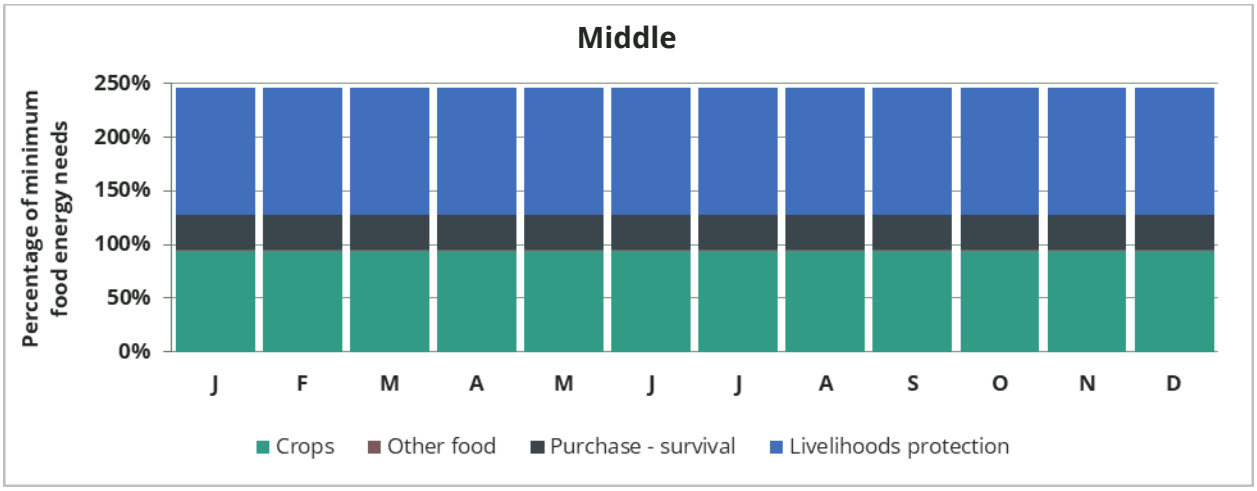
Food Access Calendars

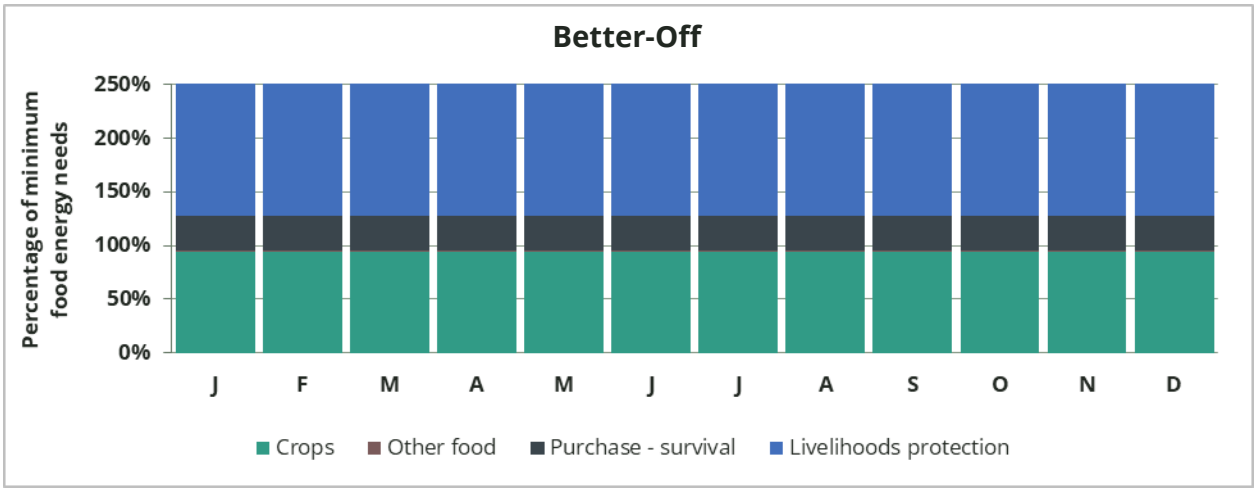
The graphs in Figure 8 present monthly food and cash access calendars for the four wealth groups.

Households in all wealth groups were able to meet their survival and livelihoods protection thresholds year-round in the reference year. The contribution from households' own crop production is spread quite evenly over the year in these graphs because of the importance of cassava, plantains, and palm oil in the zone. The dark blue "livelihoods protection" sections of the bars increase as a proportion of the total with wealth because wealthier households spend more on productive inputs, health, and education.

Figure 8. Seasonal Food and Cash Access Calendars per Wealth Group







Poor Female-Headed Households

Female-headed households are found in the very poor, poor, and middle wealth groups, as shown in the wealth breakdown (Figure 3). During fieldwork, data collectors conducted in-depth interviews with female-headed households from the poor wealth group. In the *Forest Staple Crops, Cash Crops, and Market Gardening Livelihood Zone*, female-headed households are often led by a widow or a woman abandoned by her husband. This is a group that faces similar constraints and characteristics as male-headed households in the same wealth group, but they are further disadvantaged by a lack of enough adult male labor, which potentially leads to additional constraints on certain types of asset ownership, productive work, or income-generating activities.

Figure 9 shows that poor female-headed households and poor male-headed households share a similar pattern of food access, except for payment in-kind, which was only a food source for poor female-headed households. In the reference year, both groups met their annual minimum food energy needs from similar sources, mainly their own crops and food purchases. Poor male-headed households cultivated slightly more land than the poor female-headed households and thus

harvested slightly more and had slightly more calories from their own crop production. Other constraints faced by poor female-headed households in the reference year included limited financial resources and lack of time (due to household chores) to dedicate more time to other income-generating activities.

Figure 9. Sources of Food: Poor Households vs Poor Female-Headed Households

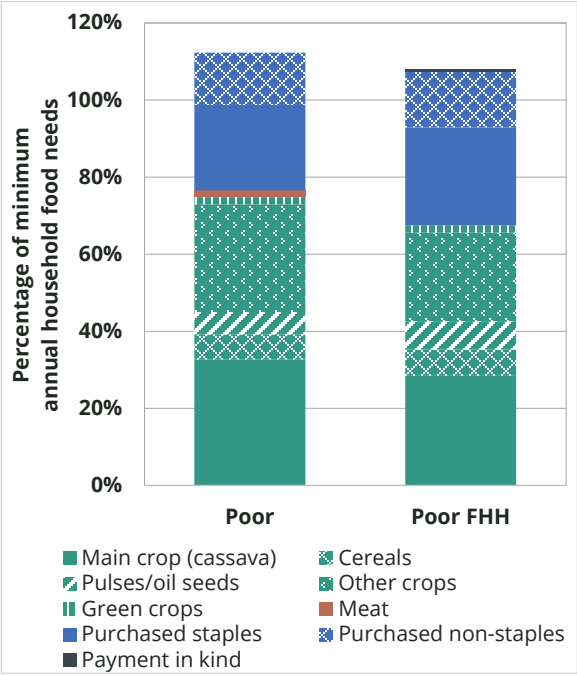
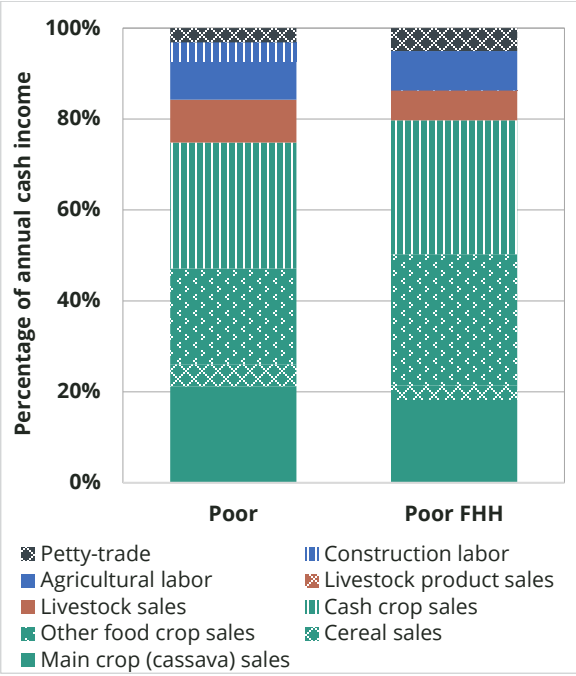


Figure 10. Sources of Cash: Poor Households vs Poor Female-Headed Households



The income picture in Figure 10 shows that both poor male-headed households and poor female-headed households had similar sources of cash income in the reference year, except for construction labor (which was an income source for only poor male-headed households) and livestock product sales (which was an income source for only female-headed households). The main sources of cash income for poor female-headed households were, in order of importance: crop sales, agricultural labor payments, petty trade, and livestock product (i.e., egg) sales.

Poor female-headed households earned 10-20% less — both in total cash income and per capita cash income than female-headed households.

Crop sales and livestock sales made up slightly smaller percentages of annual cash income for poor female-headed households compared to poor male-headed households. Petty trade made up a similar percentage of annual cash income for both poor female- and poor male-headed households, as did agricultural labor.

Response Strategies

In response to hazards and years with poor production, households attempt to meet their minimum food needs and cash requirements through a variety of strategies. Some responses implemented vary by wealth group, and others are similar. Below are some common strategies employed by households.

Households in all wealth groups try to reduce expenditure on non-essential or more expensive items first, such as cutting down on festival costs or not buying clothes or utensils that year. Households consume less rice and maize in favor of cassava flour, which is the least expensive staple, and consume reserve crops such as cassava, but also bananas and palm nuts/oil.

Very Poor and Poor Households

Very poor and poor households try to increase cash income through the intensification of casual labor activities to earn more cash. However, in bad years, as increasing numbers of people flood the labor market, this option quickly loses its value because wage rates drop, and jobs are harder to find, pushing households to collect wild foods for consumption.

Middle and Better-Off Households

Middle and better-off households cope with hazards differently. Middle and better-off households sell additional livestock to cover basic food and non-food expenses in bad years and to destock when the local environment cannot support all the livestock. They also increase self-employment activities, such as petty trade.

Key Parameters for Monitoring

The key parameters listed in Table 5 are food and income sources that make a substantial contribution to the household economy in the *Forest Staple Crops, Cash Crops, and Market Gardening Livelihood Zone*. These should be monitored to track potential losses or gains to local household economies through ongoing monitoring systems or periodic assessments.

Table 5. Key Parameters for Monitoring

Item	Key Parameter – Quantity	Key Parameter – Price
Crop production	• Maize Season A – quantity produced • Maize Season B – quantity produced • Cassava – quantity produced • Groundnuts Season A – quantity produced • Groundnuts Season B – quantity produced	• Maize Season A – producer price • Maize Season B – producer price • Cassava – producer price • Groundnuts Season A – producer price • Groundnuts Season B – producer price

Item	Key Parameter – Quantity	Key Parameter – Price
	• Cowpeas – quantity produced • Common beans – quantity produced • Plantains – quantity produced • Bananas – quantity produced • Cocoa – quantity produced • Coffee – quantity produced • Palm nuts – quantity collected • Eggplants – quantity produced • Peppers – quantity produced • Tomatoes – quantity produced • Rice – quantity produced	• Cowpeas – producer price • Common beans – producer price • Palm oil – collector price • Plantains – producer price • Bananas – producer price • Cocoa – producer price • Coffee – producer price • Palm nuts – producer price • Eggplants – producer price • Peppers – producer price • Tomatoes – producer price
Livestock production	• Pigs – herd size • Goats – herd size • Sheep – herd size	• Pigs – producer price • Goats – producer price • Sheep – producer price
Other food and cash income	• Cultivation labor – number of days • Harvest labor – number of days • Construction labor – number of days • Petty trade – demand	• Cultivation labor pre-harvest – wage rates • Harvest labor – wage rates • Construction labor – wage rates • Petty trade – daily earnings
Expenditure		• Cassava – consumer price • Rice – consumer price

CD34 Livelihood Zone

Reference Year: January 2023–December 2023

Kinshasa Peri-Urban Livelihood Zone

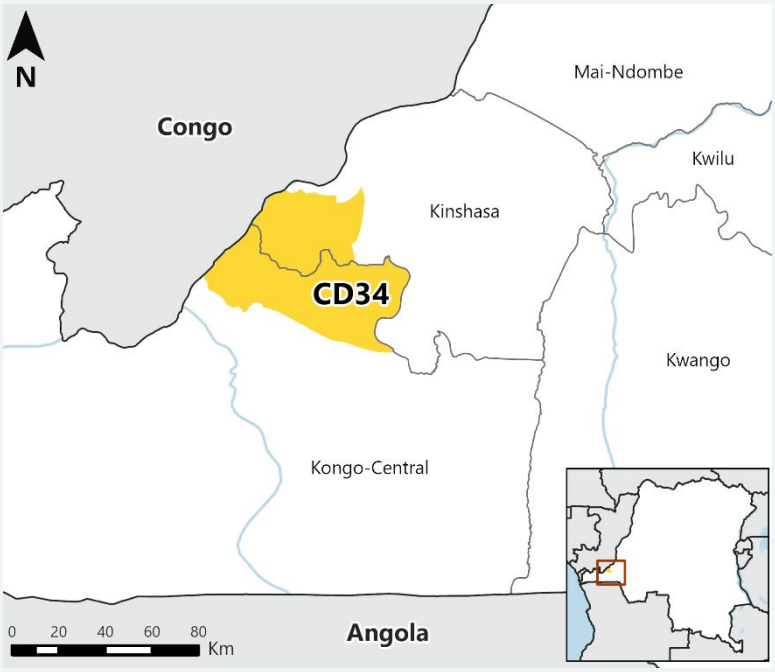


Figure 1. CD34 Livelihood Zone Map

Summary: The *Kinshasa Peri-Urban Livelihood Zone* (CD34) is a densely populated farming and labor zone that covers the peripheral areas of Kinshasa city, specifically within the commune of Mont-Ngafula in the Lukunga District of Kinshasa Province, as well as the Kasangulu Territory in Kongo-Central Province. This zone is in the western part of the Democratic Republic of the Congo (DRC), close to the Kinshasa city area. The city provides opportunities for formal and casual labor and for small businesses and self-employment. The climate in the zone is tropical sub-humid, with annual rainfall around 1,300 millimeters per year. The key economic activities are crop production, formal and casual employment, trade, and self-employment. The main sources of food for households are their own crops and market purchases. Middle and better-off households have additional food and income from livestock and livestock products, which are generally not available for poorer households.

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Zone Description

The *Kinshasa Peri-Urban Livelihood Zone* (CD34)[1] is a zone characterized by farming activities. It covers the peripheral areas of Kinshasa city, specifically within the commune of Mont-Ngafula in the Lukunga District of Kinshasa Province, as well as the Kasangulu Territory in Kongo-Central Province. This zone is in the western part of the DRC, close to the Kinshasa city area. The zone sits at an elevation of approximately 340 meters and experiences a tropical sub-humid climate with average temperatures ranging from 26°C to 35°C throughout the year. The cooler months, from May to August, typically see average temperatures around 26°C, while the hottest months are February to April and September to October, with maximum temperatures reaching 35°C. Relative humidity varies from 50-90%, and annual rainfall is around 1,300 mm. The Rainy Season stretches from October to January, followed by a short Dry Season from mid-January to mid-March. The second Rainy Season occurs between mid-March and May, while the main Dry Season extends from June to September.

The zone is characterized by diverse topography, including plains, valleys, and hills — such as Mont Ngafula Hills, Kasangulu Hills, and Ngaliema Hill — which form a significant part of the peri-urban landscape. The Mont Ngafula Hills are known for their elevated terrain, offering views over the city of Kinshasa and surrounding areas. The vegetation consists of a mix of farmland and wooded savannah. Main species include grasses such as *Hyparrhenia*, *Pennisetum purpureum* (Elephant grass), and *Andropogon gayanus*; trees such as *Acacia*, *Terminalia*, and *Combretum*; and shrubs like *Annona senegalensis* and *Lannea*. The main permanent rivers include the Luila, Lukaya, Lukekele, Lukunga, and N'djili Rivers, while the Dingi-dingi, Kiteku, Lususa, Nfuna, and Vuti are periodic rivers that rely more on seasonal rains for their flow. The zone is serviced by several key roads that connect various locations, including important roads like the RN1, Bana Road, Mfuti Road, and the Ndjili Bypass. Kasangulu and Kinshasa are the key urban centers within the zone. The population of CD34 is 233,419, with an average population density of about 104 people per square kilometer.[2]

The livelihoods for households in this zone include crop production, livestock rearing, formal and casual employment, self-employment, and trade.

CD34 is characterized by moderate agricultural productivity due to moderate fertile sandy-clay soils and the use of less efficient cultivation techniques by households. The zone is recognized as food deficit, which typically occurs once every three years. The overall production potential is also moderate, primarily due to limited access to land caused by high fees imposed by customary landowners. Key crops include cassava, maize, groundnuts, cowpeas, and sweet potatoes. Some beans and sesame are cultivated under a rainfed system of cultivation. Vegetables such as tomatoes, chili peppers, and eggplants are cultivated with irrigation. Cassava is the main staple,

[1] Fieldwork for the current profile was undertaken from August 14 to September 9, 2024. The information in this profile refers to the reference year, which was the consumption year that covered the period January to December 2023. Provided there are no fundamental and rapid shifts in the economy, the information in this profile is expected to remain valid for approximately five to 10 years (i.e., 2028-2033). All prices referred to in the profile are for the reference year.
[2] FEWS NET Data Explorer, population data (2023), accessed 2025, https://fdw.fews.net/data-explorer/.

which is cultivated in one season but can be harvested the entire year. Maize and groundnuts are grown during two Rainy Seasons, with Season A (harvested from January) being the most important. Palm trees and bananas are perennial crops cultivated in this zone. Middle and better-off households collect palm nuts from their plantations, while poorer households obtain these from dealers and process them into palm oil, which is consumed and sold.

Agricultural practices in the zone rely heavily on manual labor, with hand-digging serving as the primary method for soil preparation. This method is consistent across wealth groups, with no significant variation between poorer and wealthier households. The most labor-intensive activities in crop production include land preparation, planting, weeding, and harvesting. To manage these tasks, middle and better-off households often hire local labor, typically paying in cash or in kind (mainly in maize) for cultivation and harvest labor. Approximately 30% of households use agricultural inputs, such as fertilizers (urea and NPK, especially on market garden crops), manure, and insecticides. Households store their crops within their houses.

Livestock production centers around the rearing of goats, sheep, pigs, and poultry. Goats and sheep are typically raised on open pasture, feeding on grass and shrubs, while pigs are kept in stabling and primarily feed on crop residues. Poultry are allowed to wander freely and feed on crop residues. Households do not buy any specific feed for their livestock. Water sources for livestock remain consistent throughout the year, with rivers providing the primary water source during the Rainy and Dry Seasons. Households do not need to pay for water for their animals. Households sell live animals; selling prices are similar for all wealth groups. Meat is the primary livestock product consumed and sold in the zone as sheep and goats are not milked. Livestock in this zone functions like a financial reserve for households as they often sell animals to avoid epidemics among the animals or to cover costs for significant financial obligations, such as end-of-year festivities, secondary school leaving exams, or the start of the school year. This sales pattern is consistent across all socioeconomic groups. In terms of livestock products, households sell meat, although they do not purchase animals regularly.

In addition to crop and livestock production, trade is a significant economic activity in the livelihood zone. Households from all wealth groups engage in some form of trade, such as charcoal production and sale, firewood collection and sale, and wood sales. Charcoal sales are practiced across all wealth groups, although the better-off typically conduct the activity outside the village, often on their own farms. The process involves clearing land, followed by carbonization, and then selling the charcoal in bags at the local market. Men, women, and boys are involved in this activity, and it is carried out year-round.

Casual labor is typically either agricultural or in the construction sector. This type of work is most common among very poor and poor households. The workforce comprises men and women, and labor opportunities are available year-round. Other important income-generating activities, which are typically carried out by men, include salaried work (whether contracted or casual) and transporting water.

CD34 is well-known as a center for market gardening. The proximity to Kinshasa's strong market demand influences the local economy, making the economic activity more diverse and intense compared to neighboring zones like the *Cassava, Maize, and Groundnuts Livelihood Zone* (CD29).

The *Kinshasa Peri-Urban Livelihood Zone* (CD34) experiences several hazards that affect its economy and agricultural livelihood. The main hazard consists of crop damage caused by *chimbrik* (squirrels), which occurs every year, posing a constant threat to agricultural productivity. Crop attacks by migratory birds also occur yearly, adding to the burden on agricultural livelihoods. In addition, crop diseases such as root rot and rust are prevalent, occurring once every two years. Another hazard the community faces is reduced rainfall, which occurs once every three years. Livestock diseases present an equally pressing problem as they occur annually. Common diseases affecting animals include swine fever, erysipelas (*rouget*) affecting small ruminants, and Newcastle disease affecting poultry, all of which threaten the health and productivity of livestock populations. Other risks include human disease outbreaks, especially malaria and typhoid fever, highlighting the ongoing public health challenges in the livelihood zone. The zone is affected by disputes every year, with land-related conflicts being particularly common. These conflicts are generally localized but have a significant impact on very poor, poor, and female-headed households, often leading to loss of access to land.

Households face diverse challenges of access to basic services. Households from all wealth groups typically rely on water from natural sources like rivers for drinking and other uses. However, households often have to pay for the transportation of water from these sources to their homes. Sanitation options vary across wealth groups, with poorer (i.e., very poor and poor) households often using straw and thatch latrines or open-air facilities, while wealthier (i.e., middle and better-off) households tend to use latrines constructed with adobe bricks and straw. Regarding waste, households dispose of it by throwing it in the bush or in the lowlands.

Households from all wealth groups have access to healthcare through dispensaries or health centers. Use of lighting and cooking fuel further illustrate the gap between these groups. Poorer households mainly use traditional lamps for lighting and firewood for cooking fuel, whereas wealthier households use battery and solar lamps for lighting and charcoal and firewood for cooking. Lighting for poorer households comes primarily from flashlights, while middle and better-off households use flashlights and solar panels. Regarding cooking fuel, firewood is the primary source for households from all wealth groups, although poorer households may sometimes use charcoal.

Communication technology also reflects wealth differences. Poorer households have basic voice-only phones. Middle and better-off households, however, generally have access to voice and data services. Education levels vary with wealth, with the typical maximum education level for individuals from poorer households being secondary education, while individuals from many wealthier households can access university-level education. Regarding financial practices, borrowing money is not a typical practice in this zone, with access to credit being limited. Remittances from other households or family members, whether within or outside the zone, are also not typical in CD34.

Markets

In the *Kinshasa Peri-Urban Livelihood Zone*, market access is considered good, largely due to the zone's proximity to Kinshasa and the presence of the main RN1 national road that crosses the region. The local roads consist of a mix of informal trails made of clay, sand, and asphalt roads. The zone is crossed by a railway line that connects Kinshasa with the port city of Matadi, providing a vital transportation link for goods and contributing to the region's market access. This railway is part of the Matadi-Kinshasa Railway, operated by the National Railway Company of the Congo. Despite the poor conditions of some roads, the condition of local bridges is not a significant problem in the zone. During the Rainy Season, road access becomes difficult as the main roads and paths leading to agricultural areas are in disrepair. In the Dry Season, some stretches of road are in better condition, though many remain challenging.

In terms of markets and trade routes, several crops and animals are traded along well-established routes. For crops like cassava, maize, groundnuts, cowpeas, and tomatoes, local markets serve as the starting point, with trade routes often involving the RN1 road, connecting smaller towns such as Kimpese and Kasangulu to Kinshasa. Sales of cassava peak in December, January, and February, while maize is sold primarily in January, February, August, and September. Groundnuts and cowpeas are sold in February and March, while tomatoes sales peak in July and August. For livestock, poultry and goats are sold along similar trade routes, with markets like Sonabata and Camp PM being key trading locations. Pigs are also sold along the RN1 trade route leading to Kinshasa. Other important products such as charcoal and *chikwangue* (prepared food made from cassava) follow similar trade routes to Kinshasa using roads like Route Mfuti and Cecomaf Road. In terms of food purchases, staples like cassava flour, maize flour, and rice are imported into the zone to Kasangulu from Kinshasa and from Angola, with peak buying periods in October, November, December, and early January until the start of the first harvest.

The labor market is centered partially around local rural areas, where 60% of the total casual work is performed by local households; the remaining 40% is split between local towns and areas outside the zone. Men and women workers often commute to Kinshasa for employment, particularly to districts like Gombe and Ngaliema. This commuting pattern is consistent throughout the year, regardless of economic conditions. There is no significant labor migration into the zone.

Timeline and Reference Year

The baseline assessment refers to a specific period called the "reference year." In the *Kinshasa Peri-Urban Livelihood Zone,* the reference year covers the consumption period from January to December 2023. During community leader interviews, data collectors asked informants to score the last five years in terms of seasonal performance, with "1" indicating a poor Season And "5" indicating an excellent season. Table 1 summarizes the response of the community leaders.

In the reference, year households were generally able to meet food, and non-food needs despite certain challenges. Positive factors included good rainfall distribution, availability of agricultural inputs, and farm labor. However, localized crop damage by pests (e.g., *chimbrik*, a type of squirrel), some reductions in the quantity of rain, and localized crop diseases negatively affected production.

Table 1. Timeline

Production Year/Season	Score	Critical Events
2023/Season B	3	Despite challenges posed by crop and animal diseases, many households were able to cope by turning to charcoal production.
2022-2023/Season A	3	Poor rainfall distribution was a small challenge; households supplemented their income by engaging in labor at sand and gravel quarries.
2022/Season B	4	No major food security constraints.
2021-2022/Season A	3	Diseases affecting poultry; households coped by using vaccinations and increasing charcoal production.
2021/Season B	3	Common small-scale challenges in Seasons A and B, such as diseases affecting animals and crops; households adapted by relying on conventional treatments for livestock and using resistant crop varieties.
2020-2021/Season A	3	
2020/Season B	2	In Seasons A and B, the COVID-19 pandemic resulted in difficulties accessing markets and labor, leading to confinement and an increase in small trade as a coping strategy.
2019-2020/Season A	2	
2019/Season B	2	Crop diseases and violent clashes caused population displacement; households coped by turning to charcoal production.
2018-2019/Season A	2	

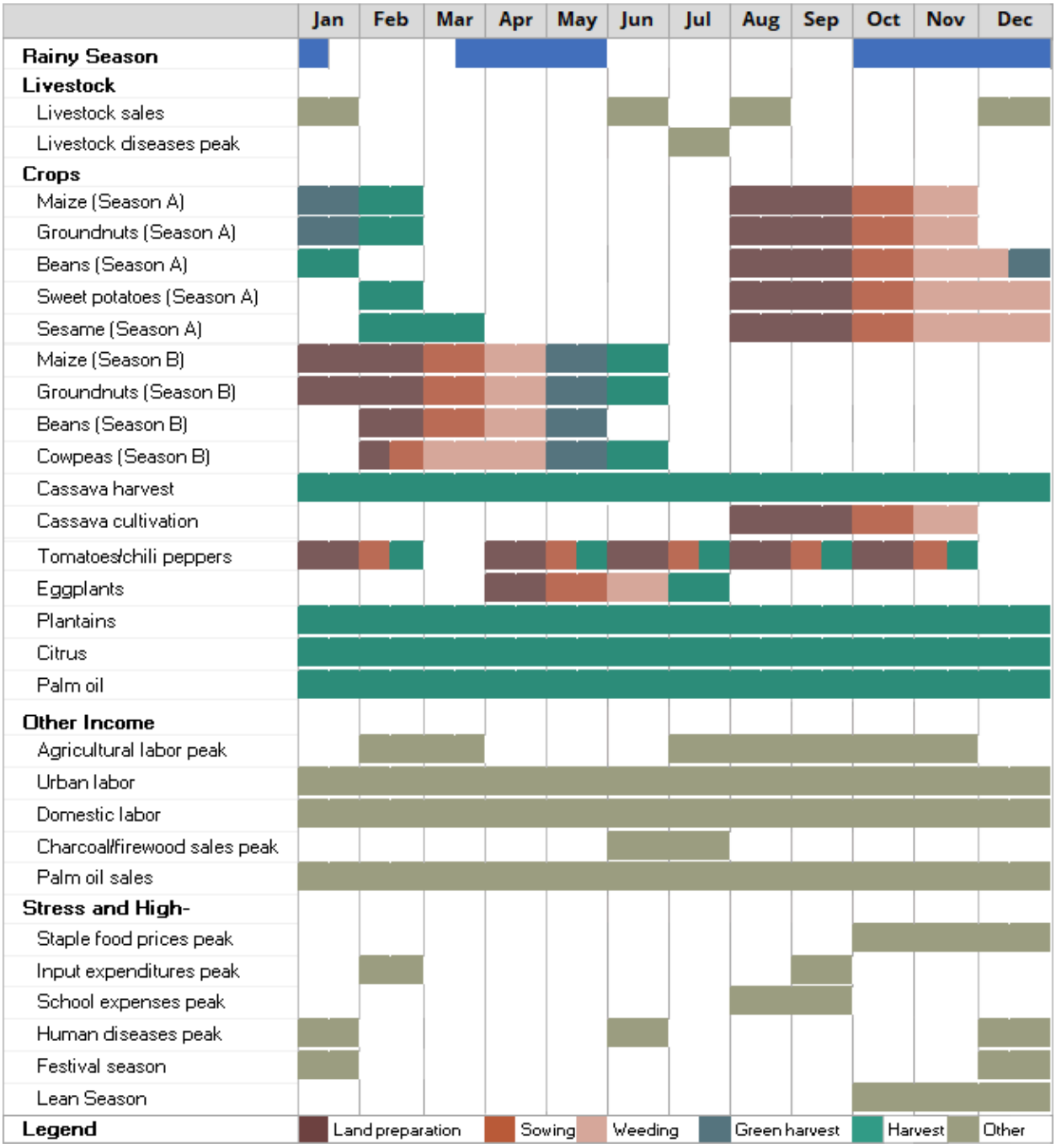
5 = Excellent season for household food security (e.g., due to good rains, good prices, good crop yields)
4 = Good season or above average season for household food security
3 = Average season for household food security
2 = Below-average season for household food security
1 = Poor season for household food security (e.g., due to drought, flooding, livestock disease, pest attack)

Note: Production year refers to the farming year, usually beginning with the start of the main rains.

Seasonal Calendar for Reference Year

The seasonal calendar (see Figure 2) illustrates the main economic activities and events of the reference year. It traces the rainy months, livestock activities, agricultural activities, important periods for other income-generating activities, as well as periods of increased expenditure and economic stress.

Figure 2. Seasonal Calendar



In the *Kinshasa Peri-Urban Livelihood Zone*, the Rainy Seasons follow a bi-modal pattern, which is crucial for rain-fed agriculture and livestock rearing. The first Rainy Season starts in October and ends in mid-January. This season marks the beginning of agricultural Season A. The second Rainy Season starts in mid-March and ends in May, supporting the second cycle of planting in Season B. Land preparation for the main crop, cassava, starts in August and ends in September, followed by the plantation of seedlings in October. Cassava harvests take place at any time of year, but the main

harvest period is November (13 months after planting) in the next year. Maize and groundnuts are cultivated in two seasons, the main one being Season A, where land is prepared in August and September, sowing occurs in October, weeding in November, and dry harvesting in February (there is some green harvesting in January). Beans follow the same Season A cycle, but are grown in smaller quantities, typically by middle and better-off households only. Season B for maize and groundnuts is much smaller in terms of volume. It starts with land preparation in January and February, sowing in March, weeding in April, and harvesting in June (with some green harvesting in May).

Cowpeas are mainly cultivated in Season B, with land preparation in early February, sowing in mid-February, weeding in March and April, green consumption in May, and harvesting in June. Season A green consumption for maize and groundnuts occurs in January, and Season B green consumption for maize and groundnuts happens in May. Beans are also cultivated in the two seasons. In Season A, land preparation occurs in August and September, sowing in October, weeding in November to December, green consumption in December, and harvesting in January. In Season B, land preparation occurs in February, sowing in March, weeding in April, and green consumption in May. There is no dry harvesting in this season. Sesame is cultivated during Season A, and harvesting occurs from February to March in very small quantities.

Households in this zone take advantage of the natural lowland terrain to cultivate sweet potato and vegetables such as tomato, chili pepper, eggplant, onions, and celery. Land preparation for sweet potato occurs in August to September, with planting in October, weeding in November to December, and harvesting in February. Vegetables like tomatoes and peppers have various cycles of cultivation the entire year. Land preparation occurs in January, June, August, and October, with sowing the next month, and harvesting a few weeks after sowing. Eggplant production peaks between April and July.

Plantain, citrus fruit, and palm trees are perennial crops, and production continues throughout the year. The consumption and sale of cassava and amaranth leaves are typical for households in this zone and occur throughout the year.

The success or failure of livestock-keeping depends on the outcome of the Rainy Seasons. During this period, the availability of surface water and pasture for livestock improves, leading to increased conceptions and births. Gestation periods are 5-6 months for small ruminants (goats and sheep) and almost four months for pigs. All animal sales peak in December and January, coinciding with the festive season, and in August for the preparation of the school year. Animal slaughter, primarily involving pigs and small ruminants, typically occurs in December and January.

Agricultural labor sales are most intensive from August to November and from February to March. Palm oil sales, transporting water (i.e., domestic labor done for wealthier local households), employment, and casual labor occur throughout the year. Charcoal, firewood, and wood sales peak in June and July when it is dry and farming demands are low.

Livestock disease outbreaks typically occur in July, while human disease outbreaks generally occur in June, December, and January. The Lean Season, the most challenging period in terms of food access, begins in October and extends to December. Livestock are also sold in June to avoid the spread of diseases. During this time, food stocks are depleted, particularly for poorer households, and food prices are high.

Table 2 outlines the typical division of labor, distinguishing between shared and non-shared tasks. Shared tasks among men, women, boys, and girls include planting, weeding, and threshing, as well as production and sale of charcoal and wood. Men are primarily responsible for land preparation, irrigation, palm oil production and sales, livestock-keeping and animal slaughter, meat sales, and sales of live animals. Men are more involved in employment and paid casual labor, but women can also participate. Women are mainly responsible for harvesting and crop sales, rearing poultry, collecting and selling firewood, and most household chores, including collecting water, cooking, feeding small children, and doing laundry.

Table 2. Typical Division of Labor

Shared Tasks	Women's Tasks	Men's Tasks
• Planting, weeding, and threshing • Charcoal production and sale • Wood collection and sale • Urban casual labor and employment	• Harvesting • Crop sales • Poultry rearing and sales • Firewood collection and sale • Household chores	• Preparing and irrigating land • Palm oil production and sale • Pig, goat, and sheep rearing, slaughter, and sales • Transporting water (domestic labor)

Wealth Breakdown and Productive Assets

Table 3 summarizes the types and numbers of productive assets that typical households within each wealth group own and/or manage. Asset holdings are shown in a range that reflects the diversity of households' situations within a wealth group. Figure 3 shows the percentage of households within the zone that falls in each wealth group. The socioeconomic categorization of households in the zone was carried out by the communities themselves.

Several key factors influence wealth distribution in the zone, including land ownership, labor availability, livestock ownership, possession of other productive assets, and the types of economic activities performed, such as involvement in trade and wage labor. Most households do not own land and instead rent it from landowners or concessionaires, many of whom reside in Kinshasa. Only middle and better-off households own land, with women particularly disadvantaged in land ownership due to inheritance restrictions. Women across all wealth groups access land primarily through rental arrangements, as inheritance rights are limited. Land scarcity adds further challenges, making rental the most common method to farming access among women.

Table 3. Wealth Breakdown

Household Size and Productive Assets	Very Poor	Poor	Middle	Better-Off	Poor Female-Headed
Household size	5-7	6-8	7-9	8-10	5-7
Land owned (hectares [ha])	0	0	1-2	1-3	0
Land cultivated (ha)	0.3-0.5	0.5-0.85	1-1.5	1-2	0.35-0.5
Land rented/sharecropped (ha)	0.3-0.5	0.5-0.9	0	0	0.35-0.5
Land cultivated – food crops (ha)	0.15-0.3	0.3-0.65	0.45-1.1	0.5-1.15	0.2-0.45
Land cultivated – cash crops (ha)	0.1-0.25	0.1-0.3	0.25-0.7	0.5-0.85	0-0.2
Pigs	0	0	0-5	0-10	0
Goats	0	0	0	0-10	0
Sheep	0	0	0-5	0	0
Poultry	5-15	5-20	15-25	15-30	5-10
Motorcycles	0	0	0-1	0-2	0
Generator sets	0	0	0-1	0-1	0
Wheelbarrows	0	0	0-1	0-1	0
Mobile phones	1	1	1-2	1-3	1

Agricultural practices are consistent across wealth groups, with similar crops and cultivation techniques used throughout the zone. However, wealthier households tend to cultivate larger portions of their own land, achieving higher production levels by relying on local labor.

Arrangements such as sharecropping and rental agreements between concessionaires and farmers are common, with payments often exchanged for land use over a specified period. Despite these arrangements, agricultural productivity is limited by challenges, such as restricted land access, crop pests, and inefficient farming techniques. Livestock production is constrained by limited access to pastures, frequent animal diseases, and insufficient funds for necessary inputs. Conflicts between breeders and farmers add further complexity to livestock production. Women typically do not inherit or purchase livestock and have minimal involvement in this aspect of production. Unlike agricultural arrangements, there are no specific agreements for livestock production between wealth groups, though poorer households often work for wealthier groups in agricultural settings.

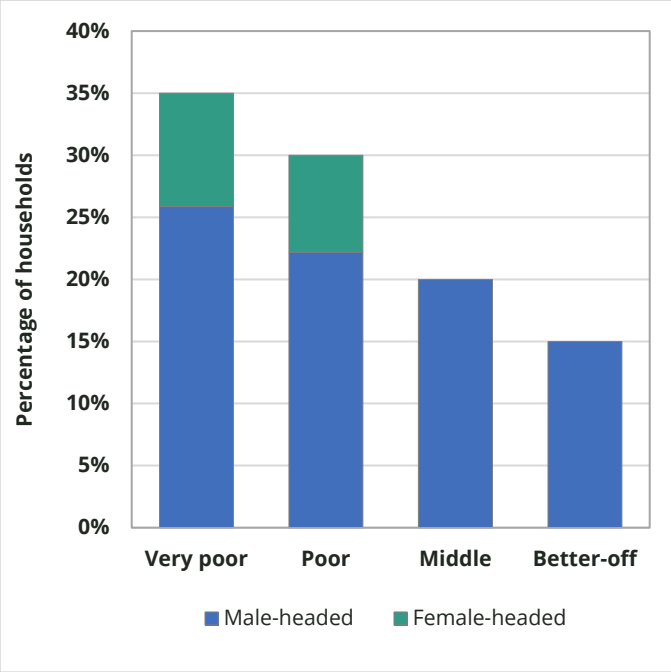
In CD34, access to land is a significant limitation for agriculture and livestock activities. During the reference year, poorer households cultivated rented land, while middle and better-off households cultivated their own land. Differences in crop production among wealth groups were evident in the

types and quantities of crops cultivated, which depended on the amount of land and financial resources available to each group. Middle and better-off households were able to contract labor, while very poor and poor households, with less land available, focused primarily on subsistence cultivation. These poorer households often worked as laborers for wealthier households to supplement their food and cash income.

Very poor households cultivated 0.3-0.5 ha of land, with 0.15-0.3 ha dedicated to food crops and 0.1-0.25 ha to cash crops. Poor households cultivated 0.5-0.85 ha, with 0.3-0.65 ha allocated to food crops and 0.1-0.3 ha to cash crops. Middle households cultivated 1-1.5 ha, divided into 0.45-1.1 ha for food crops and 0.25-0.7 ha for cash crops. Better-off households cultivated 1-2 ha, with 0.5-1.15 ha for food crops and 0.5-0.85 ha for cash crops. Poor female-headed households cultivated 0.35-0.5 ha, with the land divided into 0.2-0.45 ha for food crops and up to 2 ha for cash crops. There is a progressive increase in land area cultivated with increasing wealth. Overall, the better-off cultivated almost four times the land cultivated by the very poor.

Figure 3. Wealth Breakdown

Note: All results are the mid-point of a range



Livestock are a significant source of income in this zone, serving as an important means of investing, saving, and safeguarding against difficult years. The main types of livestock kept include goats, sheep, pigs, and poultry. Livestock provide direct access to food through meat and are also a crucial source of cash income through the sale of live animals and some meat. Households from all wealth groups in CD34 own livestock, with wealthier households possessing more animals. Pigs, goats, and sheep are particularly valuable due to their high economic value and the financial security they provide to the households that own them. Middle and better-off households raise more types of animals, and generally have larger quantities than poorer households. Very poor households typically own 5-15 poultry, poor households own 5-20 poultry, and poor female-headed households are usually limited to owning 5-10 poultry. Middle households own up to five pigs, five sheep, and 11-25 poultry. Better-off households own up to 10 pigs, 10 goats, and 15-30 poultry.

Households from all wealth groups own basic hand-held farming tools. In terms of other asset ownership, middle households may own up to one motorcycle, up to one generator set, up to one

wheelbarrow, and 1-2 mobile phones. Better-off households typically own a maximum of two motorcycles, up to one generator set, one wheelbarrow, and 1-3 mobile phones.

Wealthier households have the resources to hire labor from poorer households, particularly for tasks such as land preparation, sowing, weeding, and harvesting. In contrast, poorer households possess few productive assets and rely primarily on their own family labor. Household size tends to increase with wealth. Very poor and poor female-headed households typically have a household size of 5-7 members, poor households 6-8 members, middle households 7-9 members, and better-off households 8-10 members.

The proportion of households in the zone is distributed as follows: very poor households make up 23-40% of households from all wealth groups, poor households make up 25-35%, middle households make up 15-25%, and better-off households make up 10-20%. The proportion of female-headed households is similar in the very poor and poor wealth groups, representing 20-30% of households in each wealth group. Among wealthier households, there are typically no female-headed households. It is important to note that in this livelihood zone, land is a limiting resource, and women can rent their own portion of land. However, women can neither inherit nor purchase livestock.

Sources of Food

Figure 4 presents the sources of food for households in different wealth groups in the livelihood zone for the period January to December 2023. January represents the start of the consumption year because it is when the consumption of crops from the main harvest season starts. Food is presented as a percentage of the annual kilocalorie (kcal) needs of the household and is based on the internationally accepted 2,100 kcal per person per day.

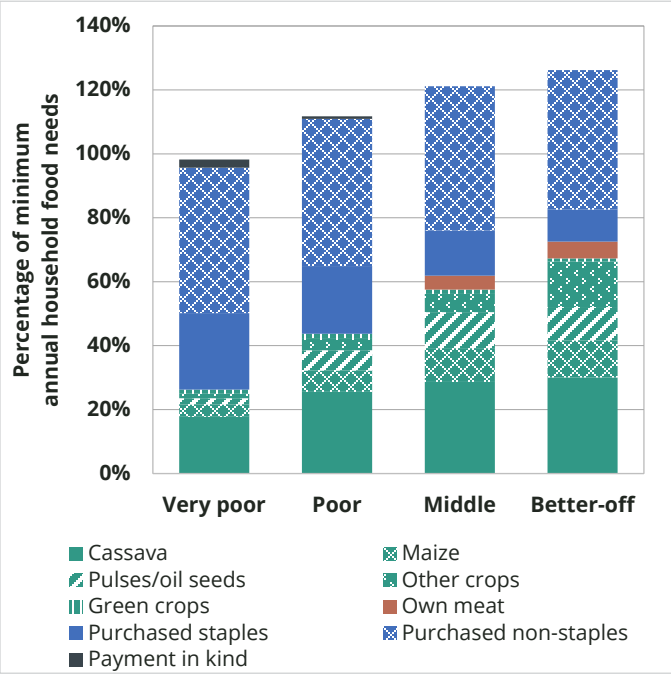
Households from all wealth groups relied mostly on crop production and food purchases as their main sources of food in the reference year. Payment in-kind, a common practice, particularly during the cassava harvest, was a minor source of food for poorer households.

When considering total annual food consumption, there was a clear progressive increase in the amount of food consumed with rising wealth. Overall, the very poor consumed between 95-100% of their minimum annual food needs, the poor consumed 105-115%, the middle consumed 115-125%, and the better-off consumed 120-130%.

Crop production was the most important source of food for middle and better-off households, and was the second most important source of food for poorer households. Wealthier households obtained 55-70% of their minimum food needs from crop production. For very poor households, crop consumption covered 20-35% of their minimum annual food needs, while for poor households, this figure ranged between 40-50%. Cassava — fresh, dried, and flour — was the main crop consumed by households. Cassava flour was used to prepare different dishes like *fufu* and *chikwangue*, which were commonly served alongside cassava leaves. Very poor households obtained

15-20% of their minimum annual food needs from cassava, poor households obtained 20-30%, and middle and better-off households obtained 25-35%. Households from all wealth groups obtained 1-2% of their minimum annual food needs from green consumption, from groundnuts cultivated in Season A and beans cultivated in Season B. Very poor households obtained 3-5% of their minimum annual food needs from cereal (i.e., maize), poor households obtained 5-8%. middle households obtained 8-12%, and better-off households obtained 10-15%.

Figure 4. Sources of Food



Pulses and oil seeds (groundnuts, cowpeas, and small quantities of beans and sesame) were important sources of vegetable protein and fat. Very poor households obtained about 2% of their minimum annual food needs from this source, poor households obtained 5-8%, and wealthier households obtained 10-12%. Meat from households' own animals was a source of animal protein only wealthier households, covering 4-6% of their minimum annual food needs. Other crops included plantains, sweet potatoes, and palm oil. Very poor households obtained 1-2% of minimum their annual food needs from this category of crops, poor households obtained 3-5%, middle households obtained 4-8%, and better-off households obtained 10-20%.

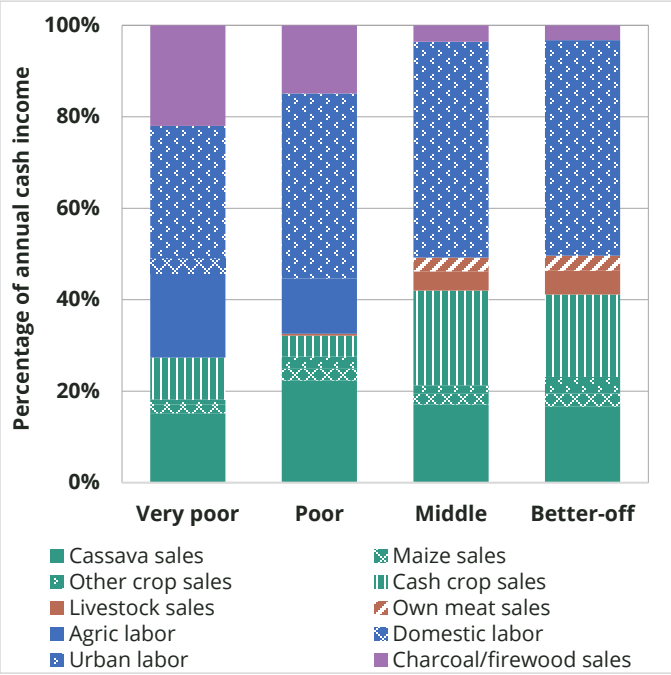
Purchased food was the main source of food for poorer households and the second most important source of food for wealthier households. These foods can be divided into staples and non-staples. Staple foods include maize flour, rice, and cassava flour. Very poor and poor households obtained 20-25% of their minimum annual food needs from purchased staples, while middle households obtained 10-20% and better-off households obtained approximately 10%. Non-staple foods included *chikwangue*, beans, cowpeas, groundnuts, sesame, squash seeds, sugar, meat, palm oil, milk, salted/smoked fish, fresh fish, vegetables, and bread. Households from all wealth groups obtained 40-50% of their minimum annual food needs from this category. Payment in-kind was an important additional source of calories for poorer households at certain times of the year. It was common for households to receive maize as payment. Very poor households obtained 2-3% of their minimum annual food needs from this category, while poor households obtained less than 1%.

There was no food aid in the livelihood zone in the reference year. Overall, the reference year was average in terms of food security, with households from all wealth groups meeting their minimum annual food energy needs.

Sources of Cash Income

Households in different wealth groups obtained cash income by different means (see Figure 5). Urban labor sales and crop sales were the main income source for households from all wealth groups in the *Kinshasa Peri-Urban Livelihood Zone*. Additionally, households earned income from livestock and meat sales and local agricultural labor. They also generated income from the direct sale of charcoal and firewood and from domestic labor for wealthier local households.

Figure 5. Sources of Cash Income as a Percentage of Annual Cash Income



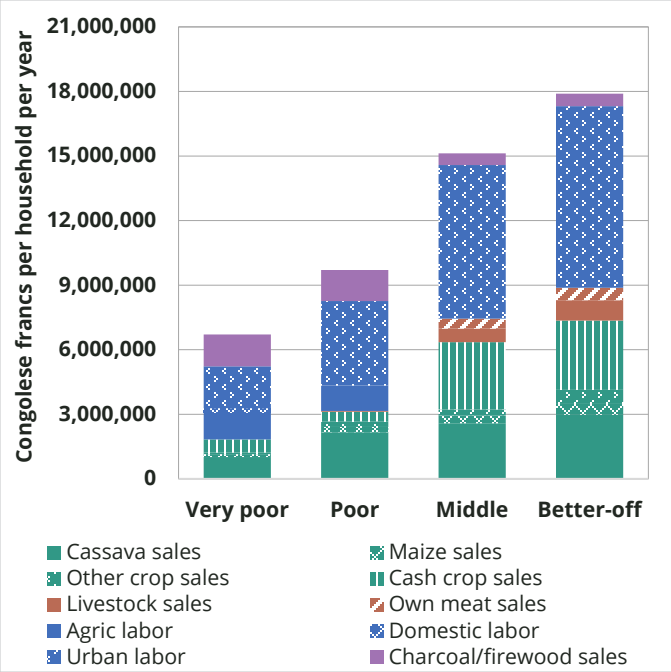
The urban labor market is an important source of income in this zone, but the types of labor carried out by households from the four wealth groups differ considerably. Very poor and poor households work primarily in the construction sector, where unskilled labor demand is high, including in quarries and transporting building materials to and around building sites. Poorer households also find menial labor opportunities in other sectors, including in and around major markets, as security guards, in loading and unloading, and by collecting rubbish. Both men and women take up urban labor for several days per month throughout the year, often working in multiple sectors at a time to make ends meet. Middle and better-off households also engage in unskilled labor, but they typically also engage in skilled employment in jobs such as teaching, nursing, and clerical work, which provide more stable salaries.

Very poor households primarily obtained income from urban labor, which accounted for 25-35% of their total income, followed by crop sales contributing 25-30%, and charcoal and firewood sales accounting for 20-25%. Agricultural labor contributed an additional 15-20% of total income, while the remaining 3-5% was earned from domestic labor.

Poor households generated 35-45% of their cash income from urban labor. Additionally, they earned 30-35% of their total annual cash income from crop sales, around 15% from charcoal and firewood sales, and 10-15% from agricultural labor.

Middle households earned 45-50% of their total annual cash income from urban labor/employment and 35-45% from crop sales. Livestock sales, charcoal and firewood sales, and sales of meat from their own livestock each contributed 2-5% to their total annual cash income during.

Figure 6. Total Annual Cash Income



Better-off households secured 45-50% of their total annual cash income from urban labor and employment and 35-45% from crop sales. They earned approximately 5% from livestock and own-meat sales and around 3% each from charcoal and firewood sales.

Differences between wealth groups in the absolute amount of cash income generated during the reference year were considerable. This gap is illustrated in Figure 6 and Table 4. Better-off households earned almost three times the cash income of very poor households. The differences between wealth groups in per capita cash income were smaller than for total income. Better-off households earned almost two times the annual per capita cash income of very poor households. There was a progressive increase in annual per capita cash income with increasing wealth.

Table 4. Income Summary Table (Congolese Francs or CDF)

Wealth Group	Very Poor	Poor	Middle	Better-Off
Annual income per household[3]	6,000,000-7,500,000	9,000,000-11,000,000	14,000,000-16,000,000	16,000,000-20,000,000

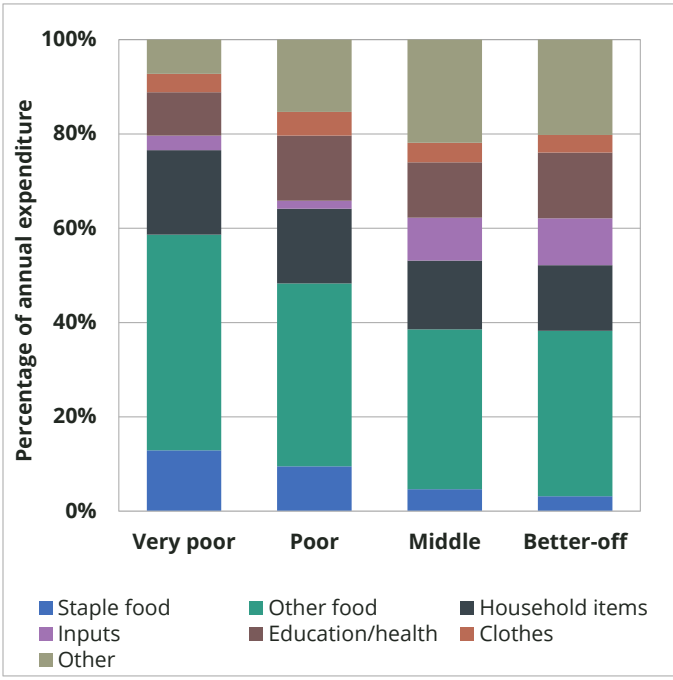
Expenditure Patterns

Figure 7 presents expenditure patterns for the reference year January to December 2023. While absolute expenditure increases with wealth in line with total cash income, this graph's expenditure breakdown by percentage shows the *relative* amount of income spent on different categories. Households in the zone need to various essential expenditures over the year. These include staple foods (maize flour, rice, and cassava flour), non-staple foods (*chikwangue*, beans, cowpeas, groundnuts, sesame, squash seeds, sugar, meat, palm oil, milk, salted/smoked fish, fresh fish, vegetables, and bread), household items/services (salt, soap, tea, coffee, lighting, milling, etc.), productive inputs, social services (i.e., health and education), clothing, transport, as well as other essential and non-essential items, such as cosmetics, taxes, telephone credit, religious contributions,

[3] The average exchange rate from January to December 2023 was 1 USD = 2,382 CDF.

funeral contributions, other social contributions, tobacco, beer, festivals/celebrations, domestic staff, house repairs, and savings. Households did not purchase water.

Figure 7. Total Annual Cash Expenditure by Category



Households from all wealth groups spent significant proportions of their annual income on staple and non-staple foods. As noted in the Sources of Food section, poorer households secured 65-75% of their annual food energy needs from food purchases, while wealthier households obtained 50-65% of their annual food energy needs from this source.

Very poor household expenditures on staple foods accounted for 10-15% of annual expenditure in the reference year. Non-staple food expenditure was 40-50% of total expenditure, household items (lighting and grinding costs) were 15-20%, productive inputs were approximately 3%, health and education were 5-10%, clothing/shoes were 3-5%, and "other" items (including transportation, phone credit, festivals, etc.) were 5-10%.

Poor household expenditures on staple foods accounted for about 10% of annual expenditure. Non-staple food expenditures were 35-45% of total expenditure, household items were 12-20%, productive inputs were about 2%, social services were 10-20%, clothing/shoes were about 5%, and "other" were 10-20%.

Middle households spent approximately 5% of their total annual expenditure on staple foods, 30-40% on non-staple foods, 10-20% on household items, 5-15% on productive inputs, 10-15% on social services, about 4% on clothing/shoes, and 20-25% on "other" items.

Better-off households' expenditure on staple foods were approximately 3% of annual expenditure, non-staple foods were 30-40%, household items were 10-20%, productive inputs were 5-15%, social services were 10-20%, clothing/shoes about 4%, and "other" items were 15-25%.

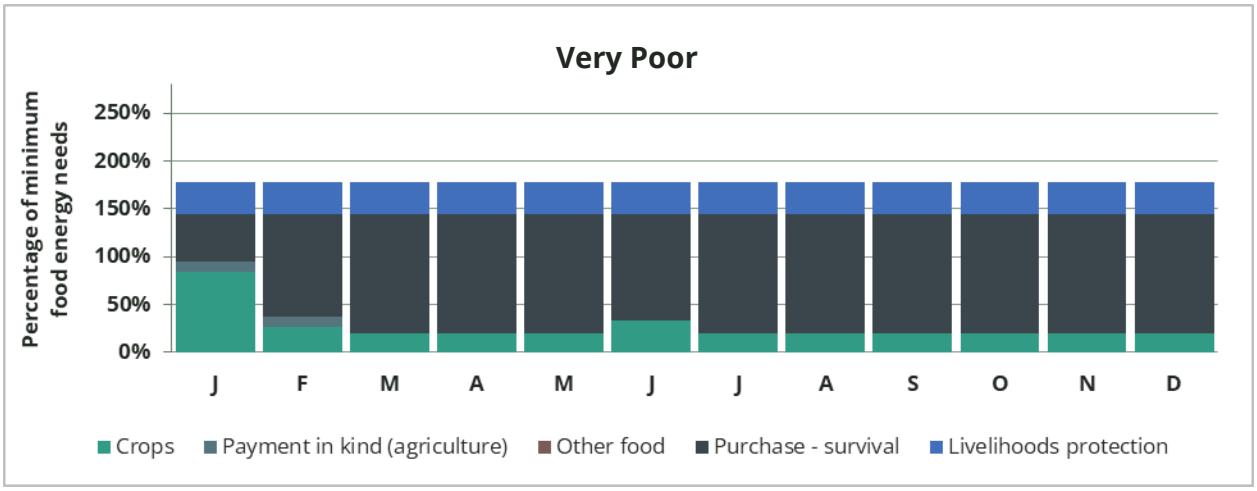
Spending on non-staple foods was the largest category of expenditure for all wealth groups in the reference year. For very poor and poor households, household items constituted the second-largest category of expenditure, while for middle and better-off households, the second most significant expenditure was in the "other" category, reflecting the larger amount of disposable income that could be spent on non-essential items.

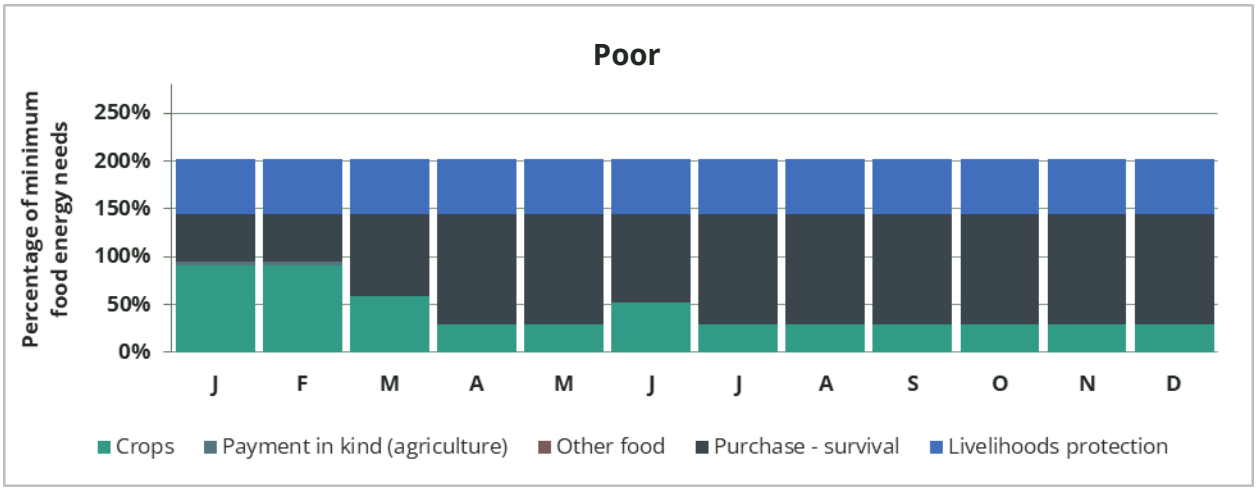
Food Access Calendars

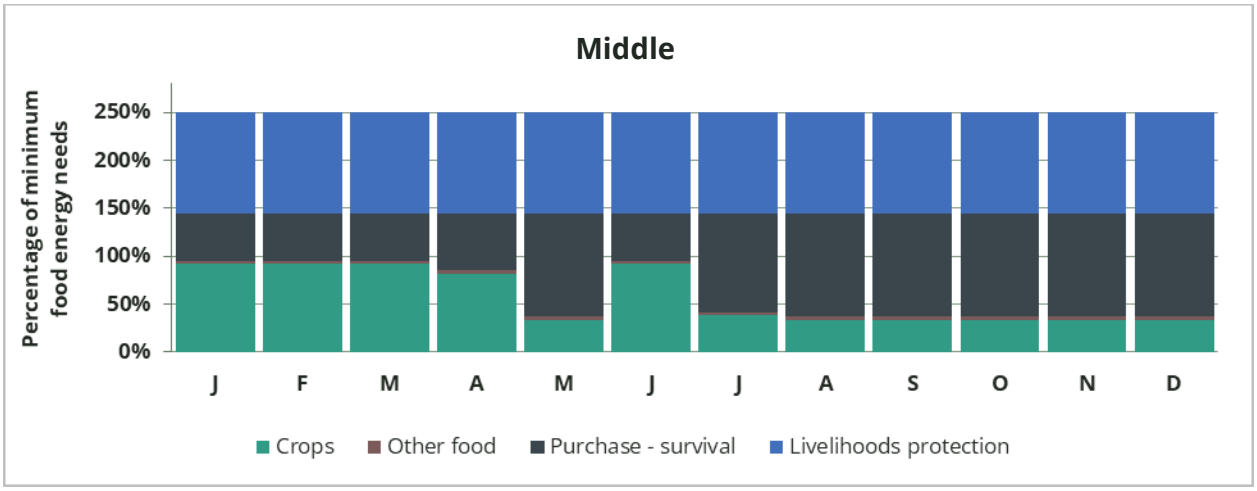
The graphs in Figure 8 present monthly food and cash access calendars for the four wealth groups.

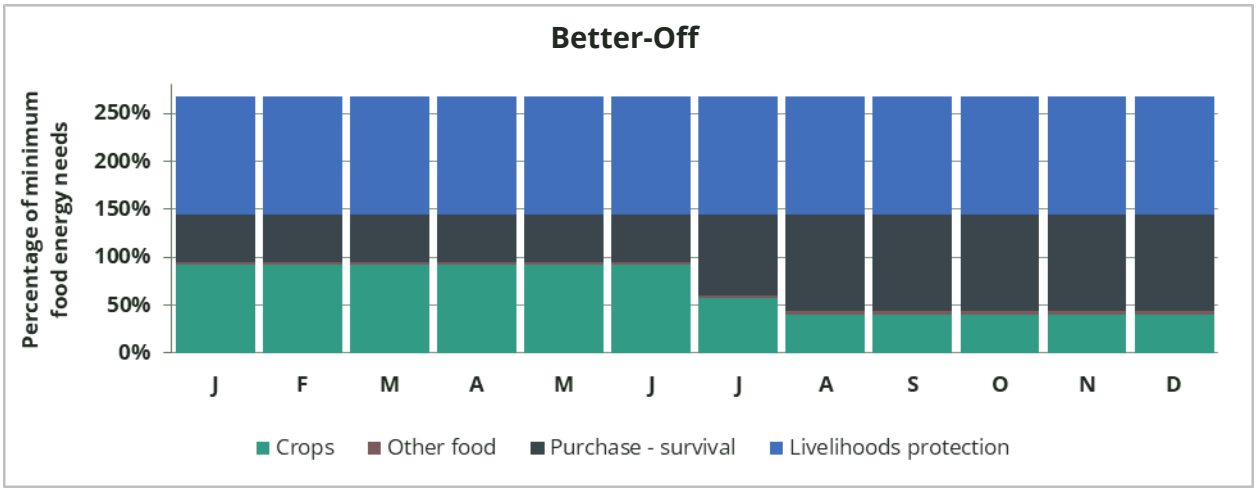
Households in all wealth groups were able to meet their survival and livelihoods protection thresholds year-round in the reference year. The main harvest period in this livelihood zone started in January and the second harvest period started in May. Very poor and poor households obtained some food from payment in-kind for casual agricultural labor (in teal). Food purchases are important across all wealth groups in this peri-urban zone.

Figure 8. Seasonal Food and Cash Access Calendars per Wealth Group









Poor Female-Headed Households

Female-headed households are found in the very poor and poor wealth groups, as shown in the wealth breakdown (Figure 3). During fieldwork, data collectors conducted in-depth interviews with poor female-headed households. In the *Kinshasa Peri-Urban Livelihood Zone*, widows or single mothers typically lead female-headed households. This is a group that faces similar constraints and characteristics as male-headed households in the same wealth group, but they are further disadvantaged by a lack of adult male labor, which potentially leads to additional constraints on certain types of asset ownership, productive work, income-generating activities, and access to services including higher education for their children.

Figure 9 shows that poor female-headed households and poor male-headed households share a similar pattern of food access. In the reference year, they both met their annual minimum food energy needs from similar food sources, mainly their own crops and food purchases. Poor male-headed households cultivated about 50% more land than poor female-headed households and thus harvested more and derived more calories from crop production than female-headed households.

Figure 9. Sources of Food: Poor Households vs Poor Female-Headed Households

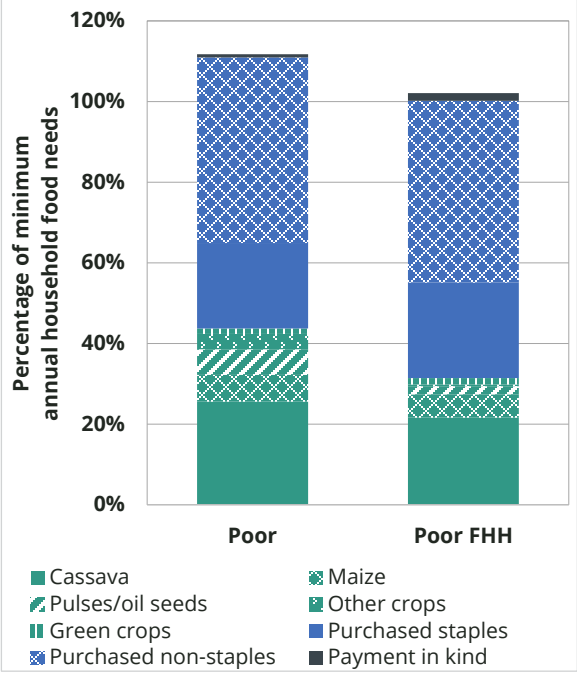
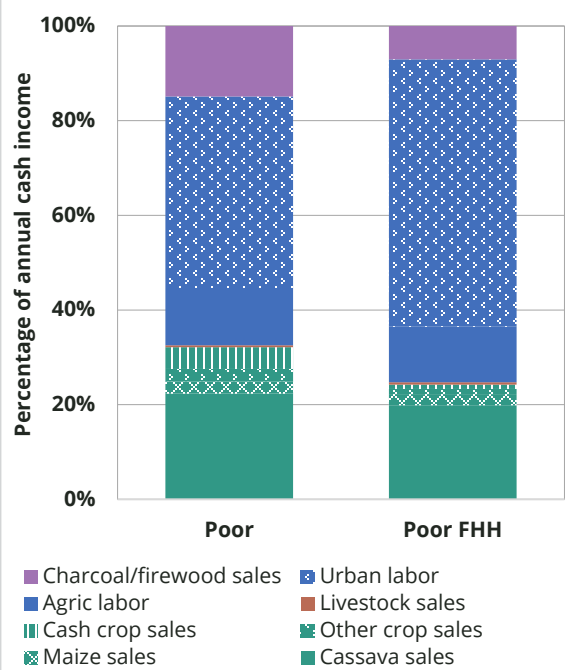


Figure 10. Sources of Cash: Poor Households vs Poor Female-Headed Households



The income picture in Figure 10 shows that poor male-headed households and poor female-headed households shared the same sources of cash income in the reference year. The main sources of cash income for poor female-headed households were, in order of importance: urban labor, crop sales, agricultural labor, and minor contributions from charcoal and firewood sales.

Comparing total cash income, poor female-headed households earned about 20% less than poor male-headed households in the reference year. Poor female-headed households typically have a smaller number of members (5-7) compared to male-headed households (6-8), which means that per capita cash income was approximately 5% less for poor female-headed households in the reference year.

Urban paid labor constituted a much higher percentage of annual cash income for poor female-headed households at 50-60% compared to approximately 40% for poor male-headed households. Crop sales made up a smaller percentage of annual cash income for poor female-headed households at 20-30% compared to 30-35% for poor male-headed households. Charcoal and firewood sales also contributed a smaller percentage of annual cash income for poor female-headed households at 10-20% compared to 5-10% for poor male-headed households. In the category of agricultural labor, both poor female- and male-headed households earned approximately the same percentage of annual cash income at 10-15%.

Response Strategies

In response to hazards and years with poor production, households attempt to meet their minimum food needs and cash requirements in several ways. Below are some common strategies employed by households.

Households from all wealth groups try to reduce expenditures on non-essential or more expensive items first, such as cutting down on festival costs or not buying clothes or utensils that year. Households consume less rice and maize in favor of cassava flour, which is the more affordable staple.

Very Poor and Poor Households

Very poor and poor households try to increase cash income by increasing casual labor activities to earn more cash. However, in bad years, as increasing numbers of people flood the labor markets, this option quickly loses its value because wage rates drop and jobs are harder to find, pushing households to increase petty trade and charcoal production and sales.

Middle and Better-Off Households

Middle and better-off households cope with hazards differently. These households sell additional livestock to cover basic food and non-food expenses in bad years. They also increase labor, petty trade, and other self-employment activities.

Key Parameters for Monitoring

The key parameters listed in Table 5 are food and income sources that make a substantial contribution to the household economy in the *Kinshasa Peri-Urban Livelihood Zone*. These should be monitored to track potential losses or gains to local household economies through ongoing monitoring systems or periodic assessments.

Table 5. Key Parameters for Monitoring

Item	Key Parameter – Quantity	Key Parameter – Price
Crop production	• Maize Season A – quantity produced • Maize Season B – quantity produced • Cassava – quantity produced • Groundnuts Season A – quantity produced • Cowpeas Season B – quantity produced • Tomatoes – quantity produced • Peppers – quantity produced • Eggplants – quantity produced	• Maize Season A – producer price • Cassava – producer price • Tomatoes – producer price • Peppers – producer price • Eggplants – producer price

Item	Key Parameter – Quantity	Key Parameter – Price
Livestock production	• Pigs – herd size • Goats – herd size	• Pigs – producer price • Goats – producer price
Other food and cash income	• Palm oil sales – quantity • Cultivation labor – number of days • Harvest labor – number of days • Employment/casual employment – number of days • Charcoal/firewood sales – quantity sold	• Palm oil sales– producer price • Cultivation labor – wage rates • Harvest labor – wage rates • Employment/casual employment – wage rates • Charcoal/firewood sales – producer price
Expenditure		• Maize – consumer price • Cassava – consumer price • *Chikwangue* – consumer price

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Annex: Data Collection Tools

This annex presents the data collection tools used during fieldwork for the 2024 DRC livelihood zone baseline assessment. The tools include four interview forms in French that were used to collect quantitative and qualitative data from key informants, market traders, community representatives, and household representatives in each livelihood zone. The data collected using these instruments supported the HEA baseline methodology described in this report and informed the development of the livelihood zone baseline profiles and associated analysis.

Formulaire d'entretien 1 : Entretien avec un informateur clé de la zone administrative

Zone administrative	Date	Intervieweur(s)

FORMULAIRE DE CONSENTEMENT

Il vous est demandé de participer à cette étude de recherche. Les études comme celle-ci sont utilisées pour répondre à des questions et à des demandes de renseignements.
apprendre de nouvelles informations sur les moyen d'existence. Vous pouvez choisir de ne pas participer à l'étude ou de la quitter à tout moment. Les informations personnelles recueillies ne seront ni enregistrées ni conservées. Nous aimerions maintenant vous demander si vous acceptez de participer à cette étude :

- Pouvez-vous confirmer que vous êtes âgé d'au moins 18 ans ?
- Acceptez-vous de participer à cette étude ?

DÉTAILS SUR LES INFORMATEURS CLÉS

Nom	Poste/Organisation	Nom	Poste/Organisation

DESCRIPTION DES ZONES DE MOYEN D'EXISTENCE DANS LA ZONE ADMINISTRATIVE

		Zone de Moyen d'Existence 1 :	**Zone 2 :**	**Zone 3 :**
Principale catégorie de moyens d'existence				
Principales caractéristiques *(Système de production, topographie, végétation, ressources naturelles, densité de population, sols, précipitations)*				
Principales cultures consommées : *Classer par ordre d'importance pour la consommation domestique*	1			
	2			
	3			
Principales cultures vendues (cultures vivrières ou de rente) : *Classer par ordre d'importance pour le revenu monétaire du ménage*	1			
	2			
	3			
Principaux animaux et produits d'élevage consommés : *Classer par ordre d'importance pour la consommation domestique*	1			
	2			
	3			
Principaux animaux et produits d'élevage vendus : *Classer par ordre d'importance pour les revenus monétaires*	1			
	2			
	3			
Ferme principale Produits vendus : *Classer par ordre d'importance pour les rentrées d'argent*	1			
	2			
	3			

REMARQUE : le reste de ce format permet d'enregistrer des informations pour UNE SEULE zone de moyen d'existence dans le district. Si plus d'une zone doit être couverte, une deuxième copie des pages suivantes sera nécessaire.

ZONE DE MOYEN D'EXISTENCE: _____

MARCHÉS : Identifiez les principaux marchés d'origine et de destination pour chaque produit, ainsi que les noms de tout marché intermédiaire important pour indiquer un itinéraire commercial (par exemple, marchés locaux -> Gao/Kayes [intermédiaire] -> Bamako [destination]).

Principales cultures vendues	**Route commerciale**
1.	
2.	
3.	

Principaux animaux vendus	**Route commerciale**
1.	
2.	
3.	

Principaux produits agricoles hors propriété vendus	**Route commerciale**
1.	
2.	
3.	

Principaux aliments achetés en cas d'épuisement des stocks	**Route commerciale**
1.	
2.	
3.	

Accès au marché

L'accès au marché est-il bon ou mauvais dans cette zone défavorisée ?	
Pourquoi ? (par exemple, bonnes/mauvaises routes, proche/éloigné d'un centre urbain)	

Travail : Quelle est la part du travail occasionnel total effectué par des personnes de la zone dans différents lieux (par exemple, 70 % dans la zone rurale locale, 20 % dans les villes locales, 10 % en dehors de la zone) ?

Zone rurale locale	Villes locales	Zone extérieure	Total
			100%

En dehors de la zone, où vont les gens ?

LES DONNÉES SUR LES PRIX DU MARCHÉ : Demandez des données sur les prix pour l'année de référence et des données pour les cinq dernières années jusqu'à aujourd'hui. Idéalement, nous voulons des informations sur les principales cultures vivrières, les cultures de rapport, le bétail et les taux journaliers de main-d'œuvre.

DANGERS ET CALENDRIER : Inclure les *événements positifs* **ainsi que les** *dangers périodiques ou intermittents.*

Un risque périodique ou intermittent est un risque qui affecte la production agricole ou animale *certaines années, mais pas toutes :*

Sécheresse	Givre	Le vent	Épidémie de maladies des cultures	Animaux sauvages
Inondations	Grêle	Ravageurs des cultures	Maladie épidémique du bétail	Événements du marché

Année **2**	**Saisonnier Performance (1-5*)**		**Événement(s)**	**Réponse** : Qu'ont fait les gens eux-mêmes pour faire face au problème ? Y a-t-il eu une aide extérieure ?
2024	Saison 1			
	Saison 2			
2023	Saison 1			
	Saison 2			
2022	Saison 1			
	Saison 2			
2021	Saison 1			
	Saison 2			
2020	Saison 1			
	Saison 2			

***Classez** toutes les saisons les unes par rapport aux autres : et donner une appréciation globale de l'année de consommation.

5 = excellente saison pour la sécurité alimentaire des ménages (en raison, par exemple, de rendements exceptionnels, de bonnes pluies, de bons prix, etc.)

4 = saison bonne ou supérieure à la moyenne pour la sécurité alimentaire des ménages

3 = une saison moyenne en termes de sécurité alimentaire

2 = saison inférieure à la moyenne pour la sécurité alimentaire des ménages

1 = mauvaise saison (par exemple, en raison d'une sécheresse, d'une inondation, d'une attaque de ravageurs) pour la sécurité alimentaire du ménage

Veuillez classer les trois principaux ***risques chroniques*** qui affectent les ménages de cette région.
(Remarque : un risque chronique affecte de manière significative la production agricole ou animale presque chaque année).

[2] Bien que nous soyons généralement intéressés par la compréhension de l'année de consommation (à partir de la principale période de récolte), il est généralement plus facile de compléter ce tableau pour l'année agricole (à partir de la principale saison de production).

1.	2.	3.

PRODUCTION DE CULTURES : Demandez les données sur les cultures du district pour les 5 dernières années, pour les principales cultures de la zone de moyen d'existence. Remplissez le tableau suivant pour les rendements spécifiques à la zone de moyen d'existence.

Principales cultures vivrières et de rente	Rendement / hectare dans l'année de référence	Rendement / hectare lors d'une "mauvaise" année (année ?)	Rendement / hectare en "bonne" année (année ?)	Besoin en semences / hectare

Les rendements indiqués dans le tableau des productions végétales ci-dessus sont-ils avec ou sans intrants ?
_____

Quels types d'intrants de culture sont utilisés ?_____

Comment les ménages agricoles stockent-ils leurs récoltes (quel type de stockage, quelle protection offerte, etc.) ?
_____

Y a-t-il des coopératives d'agriculteurs dans la région et quels sont les avantages qu'elles offrent aux agriculteurs ?
_____

PRODUCTION DE BÉTAIL (année de référence)

Type d'animal	Nombre de mois entre les naissances par femmelle adulte	Durée de la période de lactation (jours ou mois)	Production moyenne de lait par jour	Poids moyen de la carcasse à l'abattage
Bovins			Saison humide : Saison sèche :	

INTERVENTIONS

DISTRIBUTION DE L'AIDE ALIMENTAIRE : recueillir des informations sur les quantités et la distribution de l'aide alimentaire par année au cours des cinq dernières années pour la région administrative.

AUTRES TYPES D'INTERVENTIONS

Y a-t-il eu d'autres types d'interventions dans la zone de moyen d'existence (par exemple, des programmes gouvernementaux, d'ONG ou des Nations Unies) ? Des programmes sont-ils actuellement en cours ? Des programmes sont-ils prévus pour l'avenir ? Notez où, quand et par qui ces interventions ont eu lieu.

Existe-t-il des initiatives de soutien communautaire ou des distributions de nourriture (par exemple pour les ménages pauvres) ?

CALENDRIER SAISONNIER (à discuter avec un groupe plus restreint, par exemple les responsables agricoles, les responsables de l'élevage, les responsables du développement rural, etc.)

Etapes: 1. Sélectionnez les stratégies d'acquisition de nourriture et de revenus les plus importantes dans la liste suivante et indiquez leur calendrier - en les ombrant - dans le tableau ci-dessous. Assurez-vous d'avoir couvert toutes les principales activités alimentaires et génératrices de revenus des pauvres.
2. Notez les activités réalisées par les hommes et celles réalisées par les femmes (dans la colonne "Qui ?").

Pluies Cultures : - Principales cultures destinées à la consommation - Principales cultures destinées à la vente Bétail : - Production laitière - Ventes de bétail - La chaleur et les naissances	L'emploi : - Main-d'œuvre locale (par exemple, dans les exploitations agricoles) - Emploi en dehors de l'exploitation (par exemple, fabrication de briques) - Migration de la main-d'œuvre (où ?) Aliments sauvages/Gibier : - Collecte et consommation par type Travailleur indépendant	Pêche : - Où et quand Achats de nourriture : - Moment des achats et prix (le plus élevé/le plus bas) Période de soudure annuelle : - Calendrier Exploitation minière - Périodes de pointe	Pour les cultures, indiquez le calendrier des éléments suivants : - LP (préparation des terres) - P (plantation) - W (désherbage) - CG (consommation verte) - H (récolte) - T (battage) Indiquer les variations d'accès à l'aide de flèches : ↑ pour indiquer l'accès aux heures de pointe et ↓ pour indiquer un accès minimal

		Mois (commencer par le mois de la première production végétale/ récolte (consommer vert) : *écrire en mois*												
Source d'alimentation/activité lucrative	Qui ?													

DESCRIPTIONS ET RÉPARTITION DES GROUPES DE BIEN-ÊTRE : Ceci est **FACULTATIF**. Ne la remplir que si les informateurs semblent bien informés de la situation au niveau du village.

Groupes de richesse : définitions et noms locaux (langue locale)					
Nom du groupe de richesse (Français)					
Description d'un ménage type (par exemple, monogame, polygame, monoparental)					
Terrains possédés (pâturage + culture, y compris culture de rente)					
Terrains loués/exploités					
Terres **cultivées** (propriété +) terres louées)	Surface totale				
	Superficie des cultures vivrières				
	Superficie des cultures de rente				
Principales cultures destinées à la vente					
Principales cultures vivrières					
Intrants agricoles utilisés (engrais, pesticides, fumier)					
Principaux types de bétail possédés					
Principales sources de revenus agricoles hors propriété					
Pourcentage de ménages dirigés par une femme					
Autres causes de différences de production ou d'échange					

SÉLECTION DES VILLAGES

Nom de la zone de moyen d'existence	**Village**
Identifier les villages à visiter : • sont typiques de la zone de moyen d'existence • ont connu une situation assez moyenne au cours de l'année de référence • ne sont pas, de préférence, dans une mauvaise situation actuellement • ne font pas l'objet de visites répétées de la part des équipes d'évaluation Notez l'accessibilité de chaque village.	

Formulaire d'entretien 2 : Visite du marché et entretien avec le commerçant

Province / Territoires	Marché	Date	Intervieweurs

FORMULAIRE DE CONSENTEMENT

Il vous est demandé de participer à cette étude de recherche. Les études comme celle-ci servent à répondre à des questions et à obtenir de nouvelles informations sur les moyens d'existence. Vous pouvez choisir de ne pas participer à l'étude ou de la quitter à tout moment. Les informations personnelles recueillies ne seront ni enregistrées ni conservées. Nous aimerions maintenant vous demander si vous acceptez de participer à cette étude :

- Pouvez-vous confirmer que vous êtes âgé d'au moins 18 ans ?
- Acceptez-vous de participer à cette étude ?

OBSERVATIONS DU MARCHÉ (taille, fréquence, variété, quantité de marchandises vendues, jour de la semaine, heure de la journée)

DONNÉES SUR **LES PRIX DU MARCHÉ**	**Description de l'article**	**Unité de mesure**	**PRIX BAS à AR**	**Prix bas MOIS**	**PRIX ÉLEVÉ à AR**	**Prix élevé MOIS**	**Prix actuel**
1. Principales cultures vivrières et de rente	*par ex. le maïs*	*kg*	*250*	*Octobre*	*450*	*Août*	*500*
2. Principaux types d'animaux et de produits animaux							
3. Autres Inclure : - les dépenses (par exemple, le thé/café) - les éléments de revenu (par exemple, les fagots de bois de chauffage)							

- Produits alimentaires d'urgence							
- l'artisanat							

COMMERCE DE CULTURES ALIMENTAIRES (y compris les DENRÉES AGRICOLES vendues en dehors de la zone ou introduites dans la zone)

Notez sur cette page les résultats de l'entretien avec le(s) commerçant(s) de cultures vivrières de taille moyenne à grande. Il est préférable d'interroger les commerçants individuellement et en privé (par exemple, dans l'arrière-boutique de leur magasin). Pour savoir à qui vous vous adressez, posez les questions suivantes :

i) Depuis combien de temps exercez-vous votre activité ?
ii) Êtes-vous un grand/moyen/petit négociant sur ce marché ?
iii) Combien d'autres opérateurs - de quelle taille - y a-t-il sur ce marché ?

	Principale culture vivrière commercialisée	Deuxième culture vivrière commercialisée
Nom de la culture vivrière		
Saisonnalité de l'année de référence a) Mois où le volume d'échanges et le prix moyen sont les plus élevés		
b) Mois où le volume des transactions et le prix moyen sont les plus bas		
LES ALIMENTS IMPORTÉS : Identifier la principale source d'approvisionnement au cours de l'année de référence, ainsi que tout marché intermédiaire important pour indiquer un itinéraire commercial. Notez les noms et les emplacements des marchés, qui peuvent inclure les "marchés locaux".	Mois importée :	Mois importée :
	Marché source en dehors de la zone de libre-échange :	Marché source en dehors de la zone de libre-échange :
	Marché intermédiaire :	Marché intermédiaire :
	Marché de destination à l'intérieur de la LZ :	Marché de destination à l'intérieur de la LZ :
LES DENRÉES ALIMENTAIRES EXPORTÉES : Identifier les principaux marchés de destination au cours de l'année de référence, ainsi que tout marché intermédiaire important pour indiquer un itinéraire commercial. Notez les noms et les emplacements des marchés, qui peuvent inclure des "marchés locaux".	Mois exportée :	Mois exportée :
	Marché source à l'intérieur de la zone de libre-échange :	Marché source à l'intérieur de la zone de libre-échange :
	Marché intermédiaire :	Marché intermédiaire :
	Marché de destination en dehors de la LZ :	Marché de destination en dehors de la LZ :

Principales routes commerciales lors d'une "mauvaise" année, si elles sont différentes de celles de l'année de référence. Expliquer les raisons de ces différences.		
Raisons de l'évolution récente des prix (voir le tableau des données sur les prix à la page précédente)		
Quelles installations de stockage utilisez-vous (taille, type, protection contre les intempéries, etc.) ?		

COMMERCE DES CULTURES DE RENTE

Notez sur cette page les résultats de l'entretien avec le(s) commerçant(s) de cultures de rente de taille moyenne à grande. Il est préférable d'interroger les négociants individuellement et en privé (par exemple, dans l'arrière-boutique de leur magasin). Pour savoir à qui vous vous adressez, posez les questions suivantes :

iv) Depuis combien de temps exercez-vous votre activité ?
v) Êtes-vous un grand/moyen/petit négociant sur ce marché ?
vi) Combien d'autres opérateurs - de quelle taille - y a-t-il sur ce marché ?

	Principale culture de rente commercialisée	Deuxième culture de rente commercialisée
Nom de la culture commerciale		
Saisonnalité de l'année de référence a) Mois où le volume d'échanges et le prix moyen sont les plus élevés		
b) Mois où le volume des transactions et le prix moyen sont les plus faibles		
Identifier les principaux marchés d'origine et de destination au cours de l'année de référence, ainsi que tout marché intermédiaire important pour indiquer un itinéraire commercial. Notez les noms et les emplacements des marchés, qui peuvent inclure les "marchés locaux".	Mois exportée :	Mois exportée :
	Marché source à l'intérieur de la zone de libre-échange :	Marché source à l'intérieur de la zone de libre-échange :
	Marché intermédiaire :	Marché intermédiaire :
	Marché de destination en dehors de la LZ :	Marché de destination en dehors de la LZ :
Principales routes commerciales lors d'une "mauvaise" année, si elles sont différentes de celles de l'année de référence. Expliquer les raisons de ces différences.		
Raisons de l'évolution récente des prix (voir le tableau des données sur les prix à la page précédente)		
Quelles installations de stockage utilisez-vous (taille, type, protection contre les intempéries, etc.) ?		

BÉTAIL ET PRODUITS DU BÉTAIL

Consigner les résultats des entretiens avec les négociants en bétail de taille moyenne à grande.

	Principal type d'animaux ou de produits animaux	Deuxième type d'animaux ou de produits animaux
Nom du bétail		
Saisonnalité de l'année de référence a) Mois où le volume d'échanges et le prix moyen sont les plus élevés		
b) Mois où le volume des transactions et le prix moyen sont les plus bas		
Identifier les principaux marchés d'origine et de destination au cours de l'année de référence, ainsi que tout marché intermédiaire important pour indiquer un itinéraire commercial. Notez les noms et les emplacements des marchés, qui peuvent inclure les "marchés locaux".	Mois échangée :	Mois échangée :
	Marché source :	Marché source :
	Marché intermédiaire :	Marché intermédiaire :
	Marché de destination :	Marché de destination :
Principales routes commerciales lors d'une "mauvaise" année, si elles sont différentes de celles de l'année de référence. Expliquer les raisons de ces différences.		
Raisons de l'évolution récente des prix (voir le tableau de données à la page précédente)		

AUTRES SOURCES DE REVENUS DOMESTIQUES IMPORTANTES (par exemple, bois de chauffage, charbon de bois, poisson, artisanat, etc.)

Consigner les résultats de l'entretien avec le(s) médiateur(s).

	Principal type de produit	**Deuxième type de produit**
Nom de l'article		
Saisonnalité de l'année de référence a) Mois où le volume d'échanges et le prix moyen sont les plus élevés		
b) Mois où le volume des transactions et le prix moyen sont les plus faibles		
Identifier les principaux marchés d'origine et de destination au cours de l'année de référence, ainsi que tout marché intermédiaire important pour indiquer un itinéraire commercial. Notez les noms et les emplacements des marchés, qui peuvent inclure les "marchés locaux".	Mois échangée :	Mois échangée :
	Marché source :	Marché source :
	Marché intermédiaire :	Marché intermédiaire :
	Marché de destination :	Marché de destination :
Principales routes commerciales lors d'une "mauvaise" année, si elles sont différentes de celles de l'année de référence. Expliquer les raisons de ces différences.		
Raisons de l'évolution récente des prix (voir le tableau de données à la page précédente)		
Quelles installations de stockage utilisez-vous (taille, type, protection contre les intempéries, etc.) ?		

Formulaire d'entretien 3 :
Représentants de la communauté : Sujets généraux et répartition de la richesse 1

Province / Territoire	Zone de subsistance	Village
Intervieweurs	Date	Nombre de participants Hommes _____ Femmes _____

Procédures :

1. **Présentez l**'équipe, expliquez les **objectifs de** l'évaluation et demandez leur consentement.
2. Demandez aux dirigeants ou aux représentants de la communauté de vous donner un **aperçu de** la situation dans la communauté.
3. Expliquez l'année de référence pour laquelle nous collectons des données.

FORMULAIRE DE CONSENTEMENT

Il vous est demandé de participer à cette étude de recherche. Les études comme celle-ci sont utilisées pour répondre à des questions et à des demandes de renseignements.
apprendre de nouvelles informations sur les moyens de subsistance. Vous pouvez choisir de ne pas participer à l'étude ou de la quitter à tout moment. Les informations personnelles recueillies ne seront ni enregistrées ni conservées. Nous aimerions maintenant vous demander si vous acceptez de participer à cette étude :

- Pouvez-vous confirmer que vous êtes âgé d'au moins 18 ans ?
- Acceptez-vous de participer à cette étude ?

PRODUCTION VÉGÉTALE

Principales cultures vivrières et commerciales *(récolte sèche sans consommation verte)*	Unité de terre	Rendement/unité au cours de la période de référence **avec les intrants (semences + engrais), etc.)**		Rendement/unité dans la période de référence **sans intrants (semences + engrais, etc.)**		Besoin en semences/ unité
		Champ *(cultures vivrières et commerciales)*	***Jardins, zones humides et terres irriguées***	***Champ*** *(cultures vivrières et commerciales)*	***Jardins, zones humides et terres irriguées***	

[1] **REMARQUE :** ce formulaire étant long, il est judicieux de mener cet entretien avec 2 à 4 groupes distincts, en se concentrant sur des sujets différents. Vous pouvez commencer par n'importe quelle section (par exemple, le calendrier saisonnier est un sujet neutre pour commencer).

Quel est le pourcentage (%) des ménages qui utilisent des intrants ? _____

Quels types d'intrants de culture sont utilisés ?_____

Comment les ménages agricoles stockent-ils leurs récoltes (quel type de stockage, quelle protection offerte, etc.) ?
_____

Y a-t-il des coopératives d'agriculteurs dans la région et quels sont les avantages qu'elles offrent aux agriculteurs ?
_____

Traduit avec DeepL.com (version gratuite)
PRODUCTION D'ANIMAUX (année de référence - *divisée par saison si nécessaire*)

Type d'animal		Nombre de mois entre les naissances	Durée de la lactation (jours ou mois)	Production moyenne de lait par jour
Vaches	Saison humide			
	Saison sèche			

Volaille	Nombre moyen d'œufs par an et par poule
Poulets - locaux	

MIGRATION DES ANIMAUX (vers l'extérieur ou vers l'intérieur)

	Mauvaise année*	Année bonne/moyenne**
Migration du bétail	A :	A :
	Quand :	Quand :

*Veuillez décrire une "mauvaise année" :
_____

** Décrivez une "bonne année" ou une "année moyenne" :
_____

Quels sont les membres du ménage qui migrent avec le bétail au cours d'une bonne/moyenne année ?
_____

Quels sont les membres du ménage qui migrent avec le bétail lors d'une mauvaise année ?
_____

MARCHÉS (période de référence) **NOTE : LES PRIX SONT POUR LA PÉRIODE DE RÉFÉRENCE**

DONNÉES SUR **LES PRIX DU MARCHÉ**	**Description de l'élément**	**MARCHÉ (lieu d'achat ou de vente)**	**UNITÉ DE MESURE**	**Prix bas (préciser le mois)**	**Prix élevé (préciser le mois)**
Principales cultures vivrières et de rente	*par exemple, le maïs*	*Katsina*	*par exemple, Tier*	*250 (Nov)*	*450 (août)*
Principaux types d'animaux et de produits animaux (par exemple, animaux vivants, peaux, lait, viande, miel)					
Travail occasionnel Taux de salaire journalier (type de travail, hommes, femmes)					
Autres Inclure les éléments importants : - **les postes de dépenses** (par exemple, les intrants, le thé/café). - **éléments de revenu (par exemple**, fagots de bois de chauffage, artisanat, poisson) - Produits alimentaires d'urgence					

TRAVAIL :

Qui effectue le travail occasionnel (hommes, femmes, garçons, filles) ?

Où les gens vont-ils pour trouver un emploi occasionnel ?

Les hommes :

Les femmes :

Les garçons :

Les filles :

Précisez le pourcentage (%) de ménages pratiquant le travail occasionnel ?

Très pauvre :

Pauvre :

Moyen :

Aisé:

Veuillez inclure les différents types de travail occasionnel dans le calendrier saisonnier des pages suivantes.

LE CALENDRIER SAISONNIER (LE CALENDRIER SAISONNIER CONCERNE L'ANNÉE TYPE).

Etapes: **1. sélectionnez les** stratégies d'acquisition de nourriture et de revenus les plus importantes et indiquez leur calendrier - en les ombrant - dans le tableau ci-dessous. Assurez-vous d'avoir couvert toutes les principales activités alimentaires et génératrices de revenus des pauvres.
2. Notez les activités réalisées par les hommes et celles réalisées par les femmes (dans la colonne "Qui ?").

Pluies Cultures : - Principales cultures destinées à la consommation - Principales cultures destinées à la vente Bétail : - Production laitière - Ventes de bétail - La chaleur et les naissances Jardinage	L'emploi : - Main-d'œuvre locale (par exemple, dans les exploitations agricoles) - Emploi en dehors de l'exploitation (par exemple, fabrication de briques) - Migration de la main-d'œuvre (où ?) Aliments sauvages/Gibier : - Collecte et consommation, par type Pêche : - Où et quand Travail indépendant	Achats de nourriture : - Moment des achats et prix (le plus élevé/le plus bas) Période de soudure annuelle : - Calendrier Exploitation minière - Périodes de pointe Santé - Malaria, diarrhée, etc.	Pour les cultures, indiquez le calendrier des éléments suivants : - LP (préparation des terres) - P (plantation) - W (désherbage) - CG (consommation verte) - H (récolte) - T (battage) Indiquer les variations d'accès à l'aide de flèches : ↑ pour indiquer l'accès aux heures de pointe et ↓ pour indiquer un accès minimal

	Mois (commencer par le mois de la première production végétale (manger vert) : *écrire en mois*												
Source d'alimentation/activité rémunératrice	**Qui ?**	**Sep**	**Oct**	**Nov**	**Déc**	**Jan**	**Fév**	**Mar**	**Avr**	**Mai**	**Juin**	**Jul**	**Août**
Pluies													
Bovins : "heat" (chaleur)													
naissances													
la production de lait													
ventes													
migration													
prix													
Shoats : "heat" (chaleur)													

naissances													
la production de lait													
ventes													
migration													
prix													
Migration du bétail													
Prix du bétail													
Maladies du bétail													
Maladies humaines													
Saison de la faim													
Pic de main-d'œuvre agricole													
Pic de main-d'œuvre non													
Bois de chauffage / charbon de													
Source d'alimentation/activité rémunératrice	**Qui ?**	**Sep**	**Oct**	**Nov**	**Déc**	**Jan**	**Fév**	**Mar**	**Avr**	**Mai**	**Juin**	**Jul**	**Août**
Achats d'aliments de base													
Prix des denrées alimentaires de													
Collecte d'aliments sauvages													
Envois de fonds													
Petit commerce													
Disponibilité de l'eau - humains													
Disponibilité de l'eau - bétail													
Saison des festivals													
Pêche													
Autre :													
Autre :													
Autre :													

Autre :													
Remplir le champ CROPS ci-dessous →													

DANGERS

CALENDRIER : inclure les ***événements positifs ainsi*** que les ***risques périodiques ou intermittents.***

Un risque périodique ou intermittent est un risque qui affecte la production agricole ou animale *certaines années, mais pas toutes :*				
Sécheresse	Conflit	Le vent	Épidémie de maladies des cultures	Animaux sauvages
Inondations	Grêle	Ravageurs des cultures	Maladie épidémique du bétail	Événements du marché

Saison agricole[2]	**Saisonnier Rang (1-5*)**		**Événement(s)**	**Réponse** : Qu'ont fait les gens eux-mêmes pour faire face au problème ? Y a-t-il eu une aide extérieure ? Lier les réponses aux événements.
2024	Saison 1			
	Saison 2			
2023	Saison 1			
	Saison 2			
2022	Saison 1			
	Saison 2			
2021	Saison 1			
	Saison 2			
2020	Saison 1			
	Saison 2			

*** Classer** toutes les saisons les unes par rapport aux autres :

5 = une excellente saison pour la sécurité alimentaire des ménages (par exemple, en raison de rendements exceptionnels, de bonnes pluies, de bons prix, etc.)

4 = bonne saison ou saison supérieure à la moyenne pour la sécurité alimentaire des ménages

3 = une saison moyenne en termes de sécurité alimentaire des ménages

2 = saison inférieure à la moyenne pour la sécurité alimentaire des ménages

1 = mauvaise saison (par exemple, en raison d'une sécheresse, d'une inondation, d'une attaque de ravageurs) pour la sécurité alimentaire du ménage

Veuillez classer les trois principaux ***risques chroniques*** qui affectent les ménages de cette région. (Remarque : un risque chronique est un risque qui affecte de manière significative la production agricole ou animale presque chaque année).		
1.	2.	3.

[2] Bien que nous soyons généralement intéressés par la compréhension de l'année de consommation (à partir de la principale période de récolte), il est généralement plus facile de compléter ce tableau pour l'année agricole (à partir de la principale saison de production).

DIVISION DU TRAVAIL

Qui fait quel type de travail ?

Activité	Les hommes	Les femmes	Garçons (<18)	Filles (<18)
Production végétale				
Préparation des terres				
Plantation				
Désherbage				
Récolte				
Battage				
Moulage				
Vente sur le marché - cultures vivrières				
Vente sur le marché - cultures de rente				
Aller chercher de l'eau				
Effarouchement des oiseaux				
Autre lutte contre les nuisibles				
Stockage des récoltes				
Autre :				
Autre :				
Production animale				
Traite - bovins, chameaux				
Traite - chèvres, brebis				
Élevage en saison sèche - bovins				
Élevage en saison sèche - chèvres, moutons				
Élevage en saison humide - bovins				
Élevage en saison humide - chèvres, moutons				
Vente au marché - bovins				
Vente au marché - chèvres, moutons				
Vente sur le marché - lait				
Abreuvement en saison sèche - bovins				
Abreuvement en saison sèche - chèvres, moutons				
Abreuvement en saison humide - bovins				
Abreuvement en saison humide - chèvres, moutons				
Élevage de porcs				
Élevage de lapins				
Élevage de cochons d'Inde				
Élevage de volailles				
Soins aux animaux malades				
Abattage				
Clôture				
Construire un abri				
Autre :				
Autre :				

Autres activités de revenus				
Collecte et vente de bois de chauffage				
Production et vente de charbon de bois				
Pêche				
Brassage				
Petit commerce				
Artisanat				
Travail de construction				
Récolte et vente de sable et de pierres				
Exploitation minière de l'or				
Autre :				
Autre :				
Activités des ménages				
Collecte de l'eau pour l'usage domestique				
Cuisiner des repas				
Collecte de bois de chauffage à usage domestique				
Achat de nourriture				
Alimentation des enfants en bas âge				
Laver le linge				
Soins aux enfants				
Soins aux personnes âgées				
Soins aux malades				
Construction / réparation de maisons				
Autre :				
Autre :				

Qui décide de la manière dont le revenu est dépensé
- les hommes (M), les femmes (W), les garçons (B), les filles (G) ?

Source de revenus	Très pauvres / pauvres HH	Ménages moyens / plus aisés
Ventes de gros bétail (bovins/camelles)		
Vente de petit bétail (moutons, chèvres)		
Ventes de poulets		
Ventes de lait		
Ventes d'œufs		
Ventes de cultures vivrières		
Ventes de cultures de rente		
Travail occasionnel des hommes		
Travail occasionnel des femmes		
Travail occasionnel des garçons		
Travail occasionnel des filles		
Travail indépendant des hommes		
Travail indépendant des femmes		
L'emploi indépendant chez les garçons		
L'auto-emploi des filles		
Revenus migratoires des hommes		
Revenus migratoires des femmes		
Revenus migratoires des garçons		
Revenus migratoires des filles		
Crédit pris par les hommes		
Crédit pris par les femmes		
Transferts monétaires reçus par les hommes		
Transferts monétaires reçus par les femmes		
Dons reçus par les hommes		
Cadeaux reçus par les femmes		
Envois de fonds reçus par les hommes		
Envois de fonds reçus par les femmes		
Autre :		
Autre :		
Autre :		
Autre :		

LA FOURNITURE ET LE COÛT DES SERVICES DANS CE DOMAINE		
	Accès des ménages très pauvres/pauvres (type, lieu, coût, qualité)	**Accès des ménages moyens/plus aisés** (type, lieu, coût, qualité)
Type de logement (toiture, murs, sol)		
Eau potable (robinet, forage, puits ouvert, rivière, lac, étangs, eau de surface, pluie récoltée, etc.)		
Eau pour d'autres usages (robinet, forage, puits ouvert, rivière, lac, étangs, eau de surface, pluie récoltée, etc.)		
Assainissement (toilettes/latrines et évacuation des déchets)		
Soins de santé (dispensaire, centre de santé, hôpital, traditionnel, etc.)		
Eclairage (torche/batterie, solaire, kérosène, électricité, etc)		
Combustible pour la cuisine (bois de chauffage, charbon de bois, gaz, autres)		
Communication par téléphone mobile (voix, données)		
L'éducation (primaire, secondaire, tertiaire, maternelle, professionnel, etc.)		
Sources de crédit : banque / microfinance / coopératives / prêteurs (et conditions)		
Plans d'épargne (et conditions)		

Organisations travaillant dans la région (et le secteur)	

DESCRIPTION ET VENTILATION DES GROUPES DE RICHESSE

Groupes de richesse : définitions et noms locaux (langue locale)		A	B	C	D
Nom du groupe de richesse (Français)		Très faible (VP)	Pauvre (P)	Moyen (M)	Mieux loti (BO)
Terrains possédés (pâturage + culture, y compris culture de rente)					
Jardins et/ou zones humides et/ou **propriétés** irriguées					
Terrains loués/exploités					
Terres **cultivées** (possédées +/- terres louées)	Surface totale				
	Superficie des cultures vivrières				
	Superficie des cultures de rente				
Principales cultures vivrières					
Principales cultures destinées à la vente					
Accès aux pâturages communaux (le cas échéant)					
Installations de stockage des récoltes					
Bétail :	Total				
	Prod.				

Groupes de richesse : définitions et noms locaux (langue locale)		A	B	C	D
Bovins détenu	Bœufs de labour				
Chèvres possédées	Total (fourchette)				
	Prod.				
Ovins possédées	Total				
	Prod.				
Chameaux	Total				
	Prod.				
Porcs					
Poulets / volailles					
Autre animaux d'élevage					
Partage du bétail (Sous quel type d'arrangement ?)					
Autres causes des différences de production (par exemple, qualité de la terre, accès à l'irrigation, à la main-d'œuvre, aux intrants agricoles, etc.)					
Autres biens productifs du ménage (par exemple, charrues, pompes d'irrigation, arbres, ruches, matériel de pêche, motocyclettes, véhicules)					
Nombre de femmes par mari (si société polygame)					

Groupes de richesse : définitions et noms locaux (langue locale)	A	B	C	D
Taille du ménage - Moins ceux qui vivent à l'étranger + Plus ceux des autres familles				
Les biens fonciers/élevages et la taille du ménage indiqués ci-dessus concernent-ils une **ou plusieurs épouses** ?				
% de ménages dans chaque groupe de richesse (empilage proportionnel)				
Chefs de ménage (hommes ou femmes) en pourcentage par groupe de richesse (en utilisant l'empilement proportionnel).	VP_FHH : _____%	P_FHH : _____%	M_FHH : _____%	BO_FHH : _____%
	VP_MHH : _____%	P_MHH : _____%	M_MHH : _____%	BO_MHH : _____%
Principales **sources de revenus en espèces**, classées par ordre d'importance <u>Liste de contrôle des sources de revenus en espèces</u> :	1. 2. 3.	1. 2. 3.	1. 2. 3.	1. 2. 3.
- Travail agricole - Autre travail occasionnel (par exemple, construction) - Travail domestique rémunéré - Emploi salarié	- Envois de fonds - Collecte de bois de chauffage ou combustion de charbon de bois - Collecte et vente d'aliments sauvages - Exploitation minière	- Ventes de récoltes - Vente de légumes - Brassage - Petit commerce (commerce à petite échelle)	- Commerce (à grande échelle) - Petites entreprises - Pêche - Transport (par exemple, taxi, pick-up)	
Mois de consommation de la propre récolte				

Groupes de richesse : définitions et noms locaux (langue locale)	A	B	C	D
Stratégies de réaction en cas de **mauvaise année**				
Niveaux de scolarisation généralement atteints par les garçons/filles				
Principales **contraintes** et priorités de développement →				

Dernière étape :

Sélection des participants aux entretiens dans les différents groupes de richesse.

- Demandez aux dirigeants de la communauté d'organiser 4 à 6 personnes de chaque groupe de richesse provenant de différents ménages, plus un cinquième groupe de 4 à 6 femmes pauvres du groupe de richesse provenant de ménages dirigés par des femmes.
- Notez ce dont vous avez besoin sur une feuille de papier (avec les principales caractéristiques de chaque groupe - terre, bétail, main-d'œuvre, etc.
- Au moins la moitié des participants aux entretiens avec les ménages dirigés par des hommes doivent être des femmes (issues de ménages dirigés par des hommes, si c'est le cas le plus fréquent).
- Expliquez que vous interrogerez chaque groupe de richesse séparément. Fixez une heure et un lieu de réunion pour chaque groupe de richesse.
- Échangez vos numéros de téléphone avec l'animateur afin de pouvoir vous prévenir mutuellement en cas de changement de programme.
- Les dirigeants communautaires ne devraient pas être inclus dans les entretiens avec les groupes de richesse.
- Les participants au groupe de santé doivent être informés à l'avance que l'entretien sera très long (2 à 4 heures), et qu'il convient donc de demander des personnes actives capables de bien expliquer. Ils doivent également être informés que l'entretien ne sera pas rémunéré.

Formulaire d'entretien 4 : Entretien avec le représentant du ménage

Cercle/ Région	Zone de subsistance	Village
Groupe de richesse	Année de référence	Type d'année
Intervieweurs	Date	Nombre de participants à l'entretien Hommes _____ Femmes _____

Procédures

1. ***Présentez l'****équipe et expliquez les objectifs de l'entretien avec le groupe de discussion. Demandez leur consentement.*
2. *Vérifiez que le groupe témoin est composé de personnes appartenant au **groupe de richesse** que vous avez demandé - demandez-leur individuellement de décrire brièvement leurs terres, leur bétail et/ou leurs sources de revenus.*
3. *Expliquer l'**année de référence** et s'assurer que les personnes interrogées se réfèrent à l'année de référence pendant le reste de l'entretien.*
4. *Recueillir des informations sur le **ménage type** de ce groupe de richesse (nucléaire, élargi, polygame, etc.), sa taille et sa composition, et préparer un **profil d'actifs** pour l'année de référence (voir page suivante).→*

FORMULAIRE DE CONSENTEMENT

Il vous est demandé de participer à cette étude de recherche. Les études comme celle-ci sont utilisées pour répondre à des questions et à des demandes de renseignements.
apprendre de nouvelles informations sur les moyens de subsistance. Vous pouvez choisir de ne pas participer à l'étude ou de la quitter à tout moment. Les informations personnelles recueillies ne seront ni enregistrées ni conservées. Nous aimerions maintenant vous demander si vous acceptez de participer à cette étude :

- Pouvez-vous confirmer que vous êtes âgé d'au moins 18 ans ?
- Acceptez-vous de participer à cette étude ?

PAGE DE SYNTHÈSE

	% KCALS RÉSUMÉ	**RÉSUMÉ DES REVENUS EN ESPÈCES (NAI)**	**DÉPENSES (NAI) RÉSUMÉ**
CULTURES : nourriture et revenus en espèces			**DENRÉES ALIMENTAIRES**
ÉLEVAGE : nourriture et revenus en espèces			
ACHATS DE DENRÉES ALIMENTAIRES : denrées alimentaires			
RELIEF / Filets de sécurité / Alimentation scolaire : nourriture et revenus en espèces			
ALIMENTS SAUVAGES, POISSONS ET GIBIER : nourriture et revenus en espèces			**ARTICLES NON ALIMENTAIRES**
TRAVAIL / EMPLOI : alimentation et revenus en espèces			
TRAVAIL AUTONOME : revenus en espèces			
DONS : nourriture et revenus en espèces			
AUTRES : nourriture et revenus en espèces			

TOTAL →			

À la fin de votre entretien, n'oubliez pas de.. :

- vérifier que le total des aliments s'élève à environ 100 %.
- vérifier si les recettes totales correspondent aux dépenses totales.

Taille et composition du ménage/de la famille

Nombre de personnes dans le foyer vivant/ mangeant à la maison quotidiennement (Inclure les personnes à charge supplémentaires, exclure les personnes vivant à l'étranger)		Nombre d'enfants à l'école primaire	Les garçons :	Les filles :
		Nombre d'enfants à l'école secondaire	Les garçons :	Les filles :
Nombre d'épouses par ménage				
Nombre de personnes travaillant "à temps plein" (en dehors de l'enseignement)	Homme adulte (18+) :	Femme adulte (18+) :	Garçons (<18) :	Filles (<18) :

Profil des propriétés foncières (y compris les terres héritées et possédées par le mari et l'épouse / les épouses)

Quelle est la superficie de terre généralement possédée par le ménage ? Enregistrer dans l'unité locale		Combien de terres supplémentaires sont louées ? Ou combien de terres sont louées ?	
Quelle est la part de ces terres qui est cultivée ?		Quantité record de terres cultivées en cultures vivrières	
Quelle est la proportion des terres cultivées qui sont irriguées ?		Enregistrer les terres cultivées en cultures de rente	
Les ménages ont-ils généralement accès à des terres communales ?			

Profil du bétail (propriété). Si les animaux ne sont pas possédés mais soignés pour le compte d'autres personnes, veuillez indiquer

Type de bétail :		1. Bovins	2. Chèvres	3. Moutons	**4. Porcs**	**5. Autres**
Nombre de personnes détenues au début de l'année de référence	x	Bœufs: Autre;				
Nombre de femelles matures						
Nombre de naissances dans l'année	+					
Nombre de ventes au cours de l'année (p3)	-					
Nombre d'échanges au cours de l'année	-					
Nombre d'animaux abattus (p3)	-					
Nombre de personnes décédées au cours de l'année	-					
Nombre de dons au cours de l'année	+/-					
Nombre d'achats effectués au cours de l'année (p12)	+					
Nombre à la fin de l'année de référence	=					

Autre bétail. Estimez le nombre typique d'autres animaux possédés par la plupart des ménages du groupe de richesse.

par exemple, volailles, ânes, lapins

Autres actifs

Le ménage possède-t-il d'autres biens de production (ruches, arbres à bois, terres de *fadama*, matériel d'irrigation, charrue, chariot, véhicules, matériel de pêche (filets, bateaux, hameçons), etc. Si oui, énumérez et estimez le nombre.

Polygamie

Les terres / le bétail et la taille du ménage mentionnés sur cette page correspondent-ils à un ménage avec UNE FEMME ou à un ménage comprenant PLUS D'UNE FEMME ?

PRODUCTION D'ANIMAUX (lait, œufs)

Consommation et vente de lait, de produits laitiers et d'œufs	Nombre d'animaux laitiers (a) *[reconfirmer à partir de la page 2]*	Saison	Nombre de jours de production laitière (b)	Production moyenne de lait par animal et par jour (c)	Production totale par saison = (a) x (b) x (c)	Quantité vendue ou échangée *(noter écrémé ou entier)*	Prix par unité vendue	Revenus de trésorerie	Autre utilisation *(par ex., cadeaux, rémunération du travail)*	Solde consommé *(noter écrémé ou entier)*	% des besoins annuels en kcal
Lait de vache		Humide									
		Secs									
Lait de chèvre		Toute l'année									
Lait de brebis		Toute l'année									
Œufs											

Consommation et vente de viande (provenant de son propre bétail)	Nombre total d'animaux abattus	Viande par carcasse (kg)	Viande totale (kg)	Vendu ou échangé	Quand a-t-elle été vendue ?	Prix par unité vendue	Revenus en espèces	Autre utilisation *(par ex., les cadeaux)*	Solde consommé	% des besoins en kcal du foyer

D'AUTRES REVENUS PROVENANT DE L'ÉLEVAGE : **Vente de bétail** *(par exemple, vaches, chèvres, moutons, poulets, porcs) - vérifier p2* **les autres produits de l'élevage** (*par exemple, les peaux)*	Total vendu	Quand ?	Prix par unité vendue	Revenus en espèces
Revenu TOTAL =				

TOTAL % kcals=

ALIMENTS ET ARGENT PROVENANT DE LA PRODUCTION DE CULTURES : *Obtenez des informations quantifiées sur toutes les sources d'aliments pour un ménage type de ce groupe de richesse au cours de l'année de référence (rappelez aux participants l'année spécifique qui vous intéresse et N'OUBLIEZ PAS LA* ***CONSOMMATION VERTE****).*

Production de ses propres cultures : Saison 1

Cultures (cultures vivrières, cultures de rente, légumes, résidus)	Unité de mesure et poids	Quantité produite	Quand	Quantité vendue / échangée.	Prix de vente par unité	Revenus de trésorerie	Quantité pour autre utilisation*	Solde consommé (en kg)	% des ménages besoins alimentaires
Total des cultures alimentaires et des revenus →									

Production de ses propres cultures : Saison 2

Cultures (cultures vivrières, cultures de rente, légumes, résidus)	Unité de mesure et poids	Quantité produite	Quand	Quantité vendue / échangée.	Prix de vente par unité	Revenus de trésorerie	Quantité pour autre usage*	Solde consommé (en kg)	% des ménages besoins alimentaires

* Les "autres utilisations" des récoltes comprennent les semences, la zakat, le paiement du travail, le remboursement des prêts, les cadeaux (à d'autres ménages, aux funérailles, etc.), le brassage, stockés jusqu'à l'année suivante.

Total des cultures alimentaires et des revenus →									

ACHAT ET ÉCHANGE d'aliments de base et d'autres aliments destinés à la consommation

Produits de base (Kcal par kg)	**Unité de mesure et poids**	**Quantité achetée**	**Fréquence** (par semaine ou par mois)	**Durée** (nombre de semaines ou de mois)	**Quand** (quels mois ?)	**Total des kilos achetés**	**% des besoins alimentaires annuels des ménages**	**Prix par unité**	**Coût total**
Millet (3630)									
Maïs (3630)									
Sorgho (3550									
Farine de blé (3460)									
Riz (3540)									
Pâtes (3420)									
Haricots (3390)									
Arachides (5790, sèches)									
Ignames (1040, frais)									
Sucre (4000)									
Huile végétale (9000)									
Huile de palme (9000)									
Lait (640, vache)									
Viande (1450, chèvre)									
Légumes (300 avg)									
Fruits (500 en moyenne)									
Poisson (950, frais)									

Poisson (3090, sec)									
Autre :									
Aliments achetés et coût total →									

REMARQUE : N'oubliez pas de reporter le total des dépenses en espèces et l'apport en calories à la PAGE 1 !

<u>ÉCHANGE DE TRAVAIL - travail occasionnel payé en nourriture par l'employeur (PAM ou gouvernement ou ONG FOOD FOR WORK / FFW placés dans la section RELIEF)</u>

Activité (et qui - hommes, femmes, garçons, filles)	**Unité de** travail (par exemple, jour, hectare)	**Nombre de personnes pratiquant cette activité**	**Fréquence** (par semaine ou par mois)	**Durée de l'accord** (nombre de semaines ou de mois)	**Quand** (quels mois ?)	**Paiement par unité de travail**	**Paiement total reçu par an**	**Quantité pour autre utilisation**	**Solde consommé (en kg)**	**% des besoins alimentaires annuels des ménages**
Total des échanges de main-d'œuvre →										

<u>RELIEF ALIMENTAIRE (y compris les distributions gratuites et le programme "vivres contre travail") / CADEAUX ALIMENTAIRES / PRÊTS ALIMENTAIRES / ALIMENTATION CIBLÉE / ALIMENTATION SCOLAIRE</u>

Description	**Quantité** (et unité de mesure)	**Fréquence** (par semaine ou par mois)	**Durée** (semaines ou mois)	**Quand** (quels mois ?)	**Total reçu**	**Quantité vendue**	**Prix par unité vendue**	**Revenus de trésorerie**	**Autre utilisation** (par exemple, cadeaux, échanges)	**Solde consommé (en kg)**	**% des besoins alimentaires du ménage**
Repas scolaires											
Total →											

LE POISSON, LES ALIMENTS SAUVAGES ET LE GIBIER

Description	**Quantité** (et unité de mesure)	**Fréquence** (par semaine ou par mois)	**Durée** (semaines ou mois)	**Quand** (quels mois ?)	**Total collecté**	**Quantité vendue**	**Prix par unité vendue**	**Revenus de trésorerie**	**Autre utilisation**	**Solde consommé (en kg)**	**% des besoins alimentaires du ménage**
Total →											

AUTRES SOURCES ALIMENTAIRES (par exemple, stocks de cultures reportés de l'année précédente)

Produits de base	**Quantité**	**Quantité vendue**	**Prix par unité vendue**	**Revenus de trésorerie**	**Autre utilisation**	**Solde consommé**	**% des ménages besoins alimentaires**

TRAVAIL CASUEL / EMPLOI (*séparer le travail agricole avant la récolte et le revenu du travail agricole avant et après la récolte)*

Activité / source de revenus[†]	**Qui - hommes, femmes, garçons, filles**	**Unité de travail** (par exemple, jour, acre)	**Nombre de personnes pratiquant cette activité**	**Fréquence** (par semaine ou par mois)	**La durée** (nombre de semaines ou de mois)	**Quand** (quels mois ?)	**Paiement par unité de travail**	**Total des revenus en espèces par an**
Total →								

[†] Liste de contrôle : travail agricole (défrichage, préparation des terres, semis, désherbage, récolte, battage), construction, fabrication de briques, travail occasionnel qualifié (par exemple, menuiserie), emploi salarié, travail domestique, élevage de bétail, pension, envois de fonds.

TRAVAIL INDÉPENDANT / PETITES ENTREPRISES / COMMERCE

Activité / source de revenus‡	**Qui - hommes, femmes, garçons, filles**	**Unité de mesure** (par exemple, la liasse ou le sac, ou le bénéfice journalier)	**Nombre de personnes pratiquant cette activité**	**Fréquence** (par semaine ou par mois)	**Durée de l'accord** (nombre de semaines ou de mois)	**Quand** (quels mois ?)	**Prix ou bénéfice par unité vendue**	**Total des revenus en espèces par an**
Total →								

AUTRES SOURCES DE REVENUS EN ESPÈCES - ENVOIS DE FONDS / TRANSFERTS D'ESPÈCES OU BONS D'ACHAT / TRAVAIL CONTRE RÉMUNÉRATION

Source de revenus	**Qui - hommes, femmes, garçons,**	**Montant des liquidités**	**Fréquence** (par semaine ou par mois)	**Durée de l'accord** (nombre de semaines ou de mois)	**Quand** (quels mois ?)	**Total des revenus en espèces par an**
Total →						

‡ Liste de contrôle pour le travail indépendant : collecte de bois de chauffage, de charbon de bois, d'herbe, artisanat, brasserie. Liste de contrôle pour les petites entreprises et le commerce : petit commerce, commerce, commerce/courtier en bestiaux, location, kiosques et boutiques.

PRÊTS / CRÉDIT

	Montant du prêt au comptant	Source du prêt	Taux d'intérêt	Remboursements pendant l'année de référence (inscrire les dépenses)
Dette résiduelle du précédent PRÊT / CRÉDIT au début de l'année de référence (AR)	(ne pas inscrire dans le revenu de l'année de référence, page 1)			
Nouveau PRÊT / CRÉDIT contracté pendant l'année de référence	(inscrire le revenu de l'année de référence, page 1)			

RAPPEL - REPORTEZ TOUTES LES DENRÉES ALIMENTAIRES ET TOUS LES REVENUS À LA PAGE 1. VÉRIFIEZ QUE LE TOTAL DES DENRÉES ALIMENTAIRES S'ÉLÈVE À ENVIRON 100 %.

MODÈLES DE DÉPENSES *: Obtenez des informations quantifiées sur les principaux postes de dépenses d'un ménage type de ce groupe de richesse au cours de l'année de référence (rappelez aux participants l'année spécifique qui vous intéresse). Quelques catégories sont suggérées ci-dessous. N'oubliez pas de poser des questions sur les* ***variations saisonnières*** *des dépenses.*

Principales catégories de dépenses	*Montant annuel type dépensé*				*Réduction en cas de mauvaise année*
	Quantité (unité) achetée [a]	**Fréquence achetée [b]**	**Prix par unité [c]**	**Total = [a] x [b] x [c]**	
Articles ménagers / services/ WASH					
Thé/café					
Sel					
Savon - bain					
Savon de Marseille					
Combustible de cuisson					
Eclairage					
Broyage des grains					
L'eau					
Ustensiles/pots/jerrycans/ couvertures					
Autres articles HH :					
Entrées					
Médicaments pour le bétail					
Eau pour les animaux					
Location de terrain					
Redevance pour le					
Location de tracteurs					
Semences					
Outils					
Engrais/pesticides/ insecticides/herbicides					
Travail occasionnel (dernière					
Bétail acheté (p2)					
Hameçons de pêche					
Filets de pêche					
Bateaux de pêche					
Réparation de bateaux de					
Autres entrées :					
Services sociaux					
Frais de scolarité					
Uniforme scolaire,					
Papeterie scolaire, livres					
Argent de poche à l'école					
Transport scolaire					
Médecine - adultes					
Médecine - enfants					

Autres services sociaux :					

Autres dépenses					
Crédit téléphonique					
Transport (non scolaire)					
Remboursement du prêt (p11)					
Vêtements/chaussures - adultes					
Vêtements/chaussures - enfants					
Dons (en espèces)					
Obligations					
Festivals					
Cérémonies					
Articles sanitaires					
Réparations de la					
Cosmétique/coiffure					
Économies (nettes)					
Cigarettes/tabac					
Bière/alcool					
Autre :					
Autre :					
Autre :					
Autre :					
Autre :					
Autre :					
TOTAL DES DÉPENSES NON ALIMENTAIRES (transfert à la page 1) →					

LES DIFFÉRENCES ENTRE LES MAUVAISES ANNÉES : *Comment la situation d'une mauvaise année se compare-t-elle à celle de l'année de référence ? Considérez les différences de **chaque** source de nourriture et de revenu (changements quantifiés dans les montants) par rapport à l'année de référence et résumez-les ci-dessous.*

Source de nourriture ou de revenu	**QUANTITÉ dans l'année de référence**	**QUANTITÉ en mauvaise année**
Exemple : vente de bois de chauffage	*1 paquet par semaine*	*2 lots par semaine*
Vente de bois de chauffage ou de charbon de bois		
Travail occasionnel		
Migration de la main-d'œuvre		
Petit commerce		
Ventes de bétail		
Ventes d'ovins et de caprins		
Aliments sauvages		
Cadeaux		
Envois de fonds		
Autre :		
Autre :		
Autre :		
Autre :		

c) ***LES PRIORITÉS DE DÉVELOPPEMENT :*** *Quelles sont les priorités à moyen terme pour améliorer les moyens de subsistance ?*

QUALITÉ DE L'ENTRETIEN (confiance des informateurs, connaissance de la région, cohérence des informations, etc :)

ANNEXE : FEUILLE DE TRAVAIL POUR LES DÉPENSES DE TRAVAIL AGRICOLE *(ou autre)* - EN ESPÈCES OU EN NATURE *(généralement pour les groupes moyens ou plus aisés)*

Culture	Type de travail[§]	Quand ?	Qui ?	Nombre de personnes	Nombre de jours	Salaire journalier / paiement (en espèces ou en nature)	Dépenses totales
TOTAL							

Transférer les dépenses totales à la section des achats d'intrants non alimentaires

§ Liste de contrôle des types de travaux agricoles : défrichement, préparation du sol / labourage, plantation, repiquage, désherbage, pulvérisation, récolte, transport depuis le champ, battage, transformation.