



FEED THE FUTURE

The U.S. Government's Global Hunger & Food Security Initiative



FINAL REPORT

FEED THE FUTURE MALI CLIMATE CHANGE ADAPTATION
ACTIVITY



USAID
FROM THE AMERICAN PEOPLE

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Cover photo: A millet field in one of MCCAAs' communes in Djenné Cercle. Here farmers are adopting improved post-harvest handling and storage, one of MCCAAs' effective adaptive strategies to reduce crop losses during harvest and post-harvest periods. (Credit: MCCAAs)

DISCLAIMER

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ACRONYMS

ACLED	Armed Conflict Location & Event Data Project
AQIM	Al-Qaeda in the Islamic Maghreb
DRA	Direction Régionale de l’Agriculture
FAMa	Malian Armed Forces
FY	Fiscal Year
GCAM	Groupe Communal d’Assistance Météorologique
GLAM	Groupe Local d’Assistance Météorologique
GSPC	Salafist Group for Preaching and Combat
IED	improvised explosive device
IRI	International Research Institute for Climate and Society
IRS	Intensive Rice System
ISGS	Islamic State in the Greater Sahara
ISWAP	Islamic State West Africa Province
JNIM	Jama’ at Nusrat al-Islam wal Muslimeen
MCCAA	Mali Climate Change Adaptation Activity
M&E	monitoring and evaluation
MINUSMA	United Nations Multidimensional Integrated Stabilization Mission in Mali
MNLA	National Movement for the Liberation of Azawad
MUJAO	Movement for Oneness and Jihad in West Africa
ORM	Office Riz Mopti
ORTM	Office de Radiodiffusion-Télévision du Mali
PDESC	Plan de Développement Economique, Social et Culturel
PERSUAP	Pesticide Evaluation Report Safer Use Action Plan
PLASA	planting without watering
PMP	pest management plan
RNA	régénération naturelle assistée (natural assisted regeneration)
SIPRI	Stockholm International Peace Research Institute

EXECUTIVE SUMMARY

The USAID Mali Climate Change Adaptation Activity (MCCAA) is pleased to submit its final report covering the period of July 30, 2015 to October 29, 2020. USAID awarded MCCAA to build resilience to climate change by providing individuals, households, organizations, and the government of Mali with reinforced capacity to adapt to the shocks and stresses that come with climate change. MCCAA aimed to achieve this through three objectives: (1) increase the adaptive capacity of targeted communities, households, people, and systems; (2) increase inclusion of climate change considerations to enable the country in accelerating the transition to climate resilient and sustainable economic development; and (3) increase the adoption of local solutions to climate variability and change by communities and individual households.

MCCAA was a consortium effort led by Chemonics and supported by key partners Abt Associates (formerly Abt Environmental Research and formerly Stratus Consulting, Inc.), the Humanitarian Response and Development Lab at Clark University, Sahel Eco, Groupe de Recherches et d'Applications Techniques, Association de Soutien aux Initiatives Communautaires, Harmonie Du Développement au Sahel, and Steve Kroll and Associates. Together, MCCAA promoted the provision and use of accurate, appropriate, and timely climate information to vulnerable populations, increased the inclusion of climate change considerations into commune-level governance systems, and increased the adoption of local solutions to climate variability and change by communities and individual households. MCCAA carried out a significant amount of training during the life of the Activity. The Activity's overall goal was to ensure that each beneficiary and the household in which that beneficiary resided were more resilient to climate change and the shocks and stresses that can occur with climate variability. In Exhibit 1, next page, we present key MCCAA accomplishments.

EXHIBIT 1. MCCA A BY THE NUMBERS



Cowpea icon by ciciliakwo from the Noun Project

To address Results 1 and 3 of the Activity, MCCA A used a development pathway to guide its activities. The development pathway approach consists of five steps as follows: first, a person (representing a household) must be **aware** that this innovation (technique or technology) exists. Second, they must have **access** to that innovation

and any required resources or assets. Third, they must decide that the innovation has **utility** for them. Fourth, they must then decide that they would like to begin trying to **use/apply** the innovation. And fifth and finally, they apply the innovation consistently over time, effectively **adopting** that innovation. MCCA activities advanced households and individuals along this continuum by providing them with the skills, information, and techniques necessary to adapt to the stresses and shocks of climate change. The four types of climate information provided to households included daily, weekly, 10-day, and seasonal forecasts. The four types of climate information training that the Activity conducted were planning of sowing date, planning of timely application of fertilizer and pesticide, seed selection, and planning of field tasks. The eight types of training MCCA provided on climate change adaptive farming techniques were soil fertility/conservation, improved agricultural practices, pest control/IPM, plant disease management, improved seed varieties and selection, water management, improved post-harvest storage, and livestock management practices. Given that farmers each have different circumstances with which they may be confronted, within these eight types of training, MCCA geared various adaptive practices (43 in total) that fall within these eight training types. In this way, MCCA aimed to build individual and community resilience based upon farm-level problem identification at the Project outset.

For Result 2, MCCA worked with 76 institutions and 42 communes during the life of the activity. Some of these institutions work at all levels of society, such as Direction Nationale de la Météorologie (Mali Météo) and others, such as community associations, work within local communities. There is intrinsic value in building understanding of climate change across institutions, given that these institutions will work together but ultimately need to have their own internal capacity. MCCA also worked with NGOs that often work with community associations. The better equipped that the NGOs and associations are to work together, the more feasible it is to promote adaptation to climate change at the community level. MCCA also integrated a climate change action plan into the planning documents (Plans de Développement Economique, Social et Culturel, or PDESCs) of 42 communes. These plans guide the commune authorities' actions in addressing issues of resilience to climate change within their respective communes. A major constraint, which was outside the scope of this Activity to address, was the security situation. The lack of stability in many communes discouraged both public and private investment into the communes, so we could not fully operationalize the commune plans. We did, however, share the climate change action plans with all USAID partners and many non-USAID partners in Mopti Region and guided commune-level interventions by many USAID partners.

Our team deemed training as an essential mechanism to build capacity for multiple climate scenarios that Malians might soon encounter. MCCA provided training and resources for adaptive techniques and technologies that beneficiaries used to ultimately build both personal and overall community resilience to climate shocks and stresses and help themselves overcome the effects of climate change. Specifically, MCCA trained Malians on how to best adapt to a drier year than normal, a wetter year than normal, and a normal year. Each of these scenarios came with consequences that had previously been identified with beneficiaries. For example, a wetter year could lead to flooding in farmers' fields. Thus, teaching farmers about how to prevent flooding of their fields was important. A drier year could lead to catastrophic crop

loss — if not the outright failure of plants to grow. MCCAAs promoted germination and subsequent soil humidity by introducing, for example, drought-resistant seeds, mulching, and tied ridging. In a normal year, and with the very real issue of the lack of soil fertility, MCCAAs introduced use of rapid composting, proper use of chemical fertilizer, and assisted natural regeneration to promote soil fertility. “Adoption,” or use of what was learned to overcome the stresses of one of these three scenarios, was considered as having an impact. This impact was the tangible increase in resilience capacities built in individuals who, by use of an adaptive technology and use of climate information could better adapt and provide for themselves and for their families in future. MCCAAs also trained commune-level officials in implementing their climate change action plans.

In 2020, MCCAAs carried out an effectiveness study, repeating its efforts from 2018 and 2019. Households receiving MCCAAs services adopted climate information practices significantly more often than households that did not receive MCCAAs services. Exhibit 2 below presents the study’s findings, which confirm that households with services stated clearly at the highest level of significance more often than households not receiving services that they adopted daily climate information for decision-making on 15 out of 18 types of weather-related decisions.

EXHIBIT 2. 2020 EFFECTIVENESS STUDY RESULTS

I have <u>adopted</u> Daily Weather Information to lead the decision on:	Households Receiving MCCAAs Services		Households Not Receiving MCCAAs Services	
	Yes	No	Yes	No
	%	%	%	%
Type of cattle to keep	87.4	44.8	12.6	55.2
Pasture location	85.3	53.7	14.7	46.3
Breed type to keep	84.0	47.0	16.0	53.0
Participation in off-farm/commercial activities	82.4	53.5	17.6	46.5
Food management	82.4	46.9	17.6	53.1
Planting trees	81.1	51.0	18.9	49.0
Whether to borrow for agricultural activities	80.7	54.3	19.3	45.7
Hiring labor for agri-activities	79.7	55.7	20.3	44.3
Use of inorganic fertilizer	72.6	34.5	27.4	65.5
Type of variety to grow	72.0	22.2	28.0	77.8
Soil and water conservation	71.5	47.2	28.5	52.8
Type of crop to grow	71.2	29.0	28.8	71.0
Use of organic fertilizer (compost/mulch)	70.7	32.9	29.3	67.1
Location of field to plant crops	70.4	54.5	29.6	45.5
Whether to farm or not	67.5	35.7	32.5	64.3
Land allocation for crops	66.0	59.6	34.0	40.4
Decision to do monoculture	63.5	57.6	36.5	42.2
Irrigation	64.4	60.4	35.6	39.6

**For this analysis the N value was 240 for both households with and without services and was drawn from a single sample.*

INTRODUCTION

The USAID/Mali Climate Change Adaptation Activity (MCCAA) is a five-year Activity. It was designed as a two-year base period, at which time USAID would activate a three-year option period. MCCAA began on July 30, 2015 and sought to (1) increase the adaptive capacity of targeted communities, households, people and systems; (2) increase inclusion of climate change considerations to enable the country in accelerating the transition to climate-resilient and sustainable economic development; and (3) increase the adoption of local solutions to climate variability and change by communities and individual households.

MCCAA's interventions focused on the rain-fed areas of Mopti Region, where the Activity facilitated the uptake of climate, market, and agricultural information and adaptive practices vital for Malian farmers, local decision-makers, and key Malian institutions to initiate and maintain a resilience pathway.

This final report covers the period from July 30, 2015 to October 29, 2020.

We begin by presenting the background and key approach to MCCAA before presenting cumulative results achieved and assessment impact for each of the three Activity results. Because addressing the issue of women's implication within MCCAA was critical, we present an examination of key issues that confronted MCCAA in increasing women's participation and benefits and some solutions the Activity found to address these issues; we will present a similar examination for youth. We also present a summary of the security environment of the Mopti Region, given the level of insecurity that has complicated Activity implementation, with a detailed assessment in Annex D. We then present a summary of environmental compliance, with a Fiscal Year (FY) 2020 Pesticide Evaluation Report Safer Use Action Plan (PERSUAP) compliance tracker and environmental mitigation and monitoring report (EMMR) in Annex C.

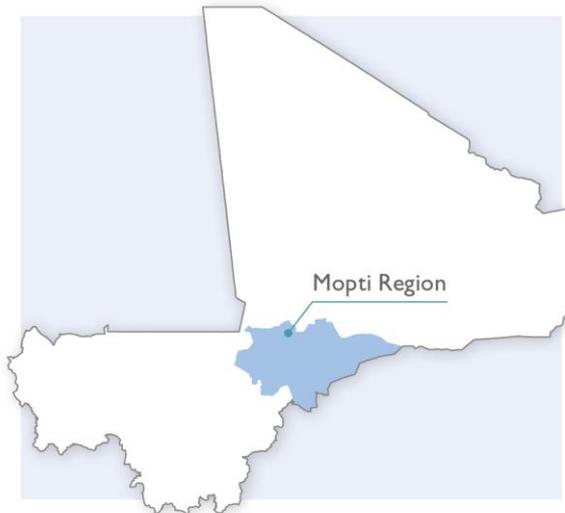
This section will be followed by presentation of MCCAA's monitoring and evaluation, with a final indicator table included in Annex B. MCCAA has learned many lessons during the life of the Activity. In a following section, we present those lessons and some recommendations for future initiatives in Mali and for the design of future resilience activities. Finally, in Annex A, we include a financial summary to demonstrate contract value and costs incurred. Although many USAID final reports include first-person narratives or firsthand accounts of how the project has helped its beneficiaries, this final report does not include such identifying data or photos due to the insecurity of the region MCCAA implemented in. This final report does include narrative comments from interviews held with beneficiaries; however, to safeguard their privacy, we have removed any identifying information beyond their names (e.g., photos, community).

BACKGROUND OF THE ACTIVITY

Rural Mopti (see Exhibit 3, next page) faces climate change challenges. The Sahel is a marginal climatic zone where small changes in temperature, rainfall, or drought frequency or severity significantly affect the habitability and agricultural productivity

of the area. Climate change makes life even harder for subsistence farmers and marginal populations.

EXHIBIT 3. MOPTI REGION



Women, who are central players in Mali’s agricultural workforce, face even more limitations. Youth, for whom unemployment is highest, do not view agriculture or animal husbandry as a viable career choice, and many leave rural areas for cities. Rural producers are largely illiterate and risk-averse, facing significant socioeconomic barriers to accessing tools and technologies that would improve their livelihoods.

Looking at Sahelian climate projections over the next decades, many studies predict that rainfall will become increasingly variable — in onset, distribution, and duration of the rainy season. Compared with a no climate change scenario, Mali’s income from agriculture and livestock will decrease by 15 percent due to both export and rainfed agriculture, given that the variability in rainfall patterns is having impact on areas even outside Mopti Region such as Segou and Sikasso. Further, in years when there is less drought too much rainfall in certain areas can lead to fields being inundated with subsequent loss of all plants and valuable topsoil. MCCA focused significantly on soil fertility to enable farmers to build-up soil. Recent field studies show more severe impact in the *zone exondée* (non- irrigated landscape comprising the Bandiagara-Hombori plateau, the Gondo-Mondoro plain, and Gourma peneplain), where crops will be most affected by climate stress. Those who will face the greatest consequences will be low-income subsistence farmers and the families, extension agents, and service providers that surround them. These farmers are the most vulnerable and the most critical to support for agricultural livelihoods to be maintained for future generations.

In Mali, where 80 percent of the population relies on agriculture for their primary livelihood, Mali Météo has been a vital resource for seasonal climate information since 1981. Mali Météo is best known for its Agro-Météorological Advisory Program, which was launched as an emergency response to severe drought and famine in the 1980s. This Program began by supplying agro-meteorological information to rural communities and authorities to help them make better decisions in managing their agro-pastoral livelihoods. It has engaged regional and national actors to gather

information, provide 10-day bulletins with information and advice, and broadcast three-, seven-, and 10-day weather forecasts. Mali Météo has been a financially autonomous parastatal agency since 2012. With its relatively new status, it must raise financial resources from the public and private sector and is expected to someday manage Mali’s synoptic weather stations, which the Agence pour la Sécurité de la Navigation Aérienne en Afrique et à Madagascar currently manages. Today, Mali Météo is a capable agency with the potential to create and disseminate climate information that Malians need to sustain their livelihoods. However, for this to happen, Mali Météo must recognize two things. First, generating information, even when it is accurate, is inadequate if it cannot be accessed, understood, or applied by end users. Second, creating a viable agency by improving the information and packaging it to be attractive, informative, and applicable to a variety of actors can be done in a financially and operationally sustainable way.

USAID/MALI MISSION CONTEXT AND MCCA A RESULT FRAMEWORK

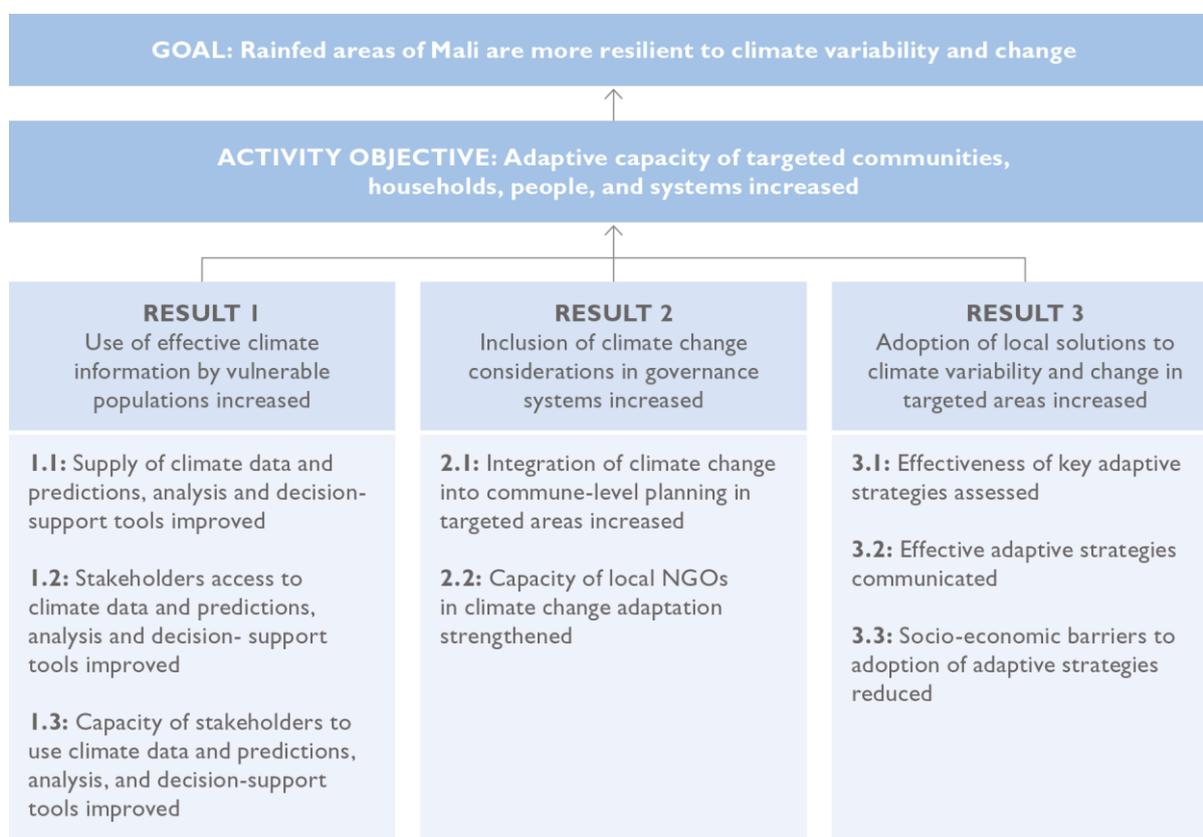
MCCA A was designed and implemented with the following strategies in mind:

- USAID’s Climate Change and Development Strategy (2012 to 2018), whose goal was to enable countries to accelerate their transition to climate-resilient, low-emission sustainable economic development.
- USAID/Mali’s Feed the Future strategy, which focuses primarily on two value chains, cereals and livestock. Because agriculture is highly dependent on the climate, specifically rainfall, in Mali, MCCA A was designed to provide information and an evidence base for some of the activities undertaken under Feed the Future IR A1: Improved sustainable agricultural productivity, specifically as related to the increased use of and dissemination of information for climate-smart agricultural practices and to contribute to Feed the Future IR B1: Increased resilience of vulnerable communities and households.
- USAID/Mali’s Resilience Strategy, which aims to reduce the effects of recurrent shocks and stresses on vulnerable populations in targeted regions by reducing the initial impact of the shock or stress in question, improving communal and households’ ability to recover quickly, and promoting inclusive economic growth.
- USAID/Mali’s Country Development Cooperation Strategy Framework (2016 to 2020), which has an overall goal of supporting Malians secure a democratic, resilient, and prosperous future. MCCA A specifically contributed to Development Objective 2: Resilience – Adaptive capacity of vulnerable communities & households increased and to DO.2.2.1, Increasing the quantity, quality, and accessibility of climate information to promote application of adaptation strategies both at the livelihood level and into commune-level planning to build resilience to climate stress and climate shocks and promote sustainable livelihoods.

MCCA A’s results framework, Exhibit 4 on the next page, identifies the strategy building blocks to achieve the Activity’s objective of increasing the adaptive capacity of targeted communities, households, people, and systems. The Activity used this framework as a planning and management tool. The results framework

conveys the development hypothesis implicit in the approach to achieving contract results and the cause-effect relationships between MCCAAs three results and the Activity’s objective.

EXHIBIT 4. MCCAAs RESULTS FRAMEWORK



KEY APPROACH TO MCCAAs

To adapt to climate stress (a long-term trend that increases vulnerability) and climate shock (sudden onset event that affects vulnerability), and climate variability (changes in annual on-set of each rainy season) subsistence farmers in rain-fed areas of Mopti Region make farming decisions by mobilizing and reallocating household assets, such as human, financial, natural, social, political, and physical assets. The fewer the assets, the harder it is to react to climate stresses or recover from climate shocks. The conceptual approach operationalizes USAID’s development hypothesis and MCCAAs theory of change (see box, next page) by building institutional-level resilience with Mali Météo and local governments and the community level with households and villages.

USAID/MALI DEVELOPMENT HYPOTHESIS

Within a focused zone for resilience and across the mission, if basic nutrition, health, and water supply are improved; if adaptive capacity to variable climatic regimes are strengthened; if conflict-mitigating measures are implemented; and economic livelihoods diversified, then chronically vulnerable populations in agro-pastoral and marginal agriculture livelihood zones will become more resilient.

MCCAA THEORY OF CHANGE

If the use of effective climate information by vulnerable populations is increased, the inclusion of climate change considerations in governance systems is increased, and the adoption of local solutions to climate variability and change in targeted areas is increased, then Mali's rain-fed ecosystems, communities, and livelihoods will be more resilient to climate vulnerability and change, increasing the potential for sustainable and equitable economic growth.

Working from an understanding of the context in which the most vulnerable operate, MCCAA produced, improved, provided access to, and demonstrated actionable ways to use climate information. MCCAA will do so by working with Malian decision-makers and local stakeholders (end users) to strengthen the assets they call on to respond to climate stresses and shocks, with the understanding that end users have different needs and adaptive capacity depending on their social roles and status (e.g., gender, age, socioeconomic status). MCCAA activities will then be brought to scale once the key challenges to accessing and using climate information have been fully analyzed and once target stakeholders have an increased capacity to serve as knowledge brokers within their communities and organizations.

MCCAA began work in 25 target communes in Mopti Region during the base period and expanded activities to 17 additional communes during the option period (see Exhibit 5, next page). MCCAA selected these communes based on their being among USAID's identified "resilience communes"; the presence of other USAID projects with whom MCCAA collaborated, such as Harande, the Cereal Value Chain project, or the Livestock for Growth project; and identified by the government of Mali as a "vulnerable" commune. Due to security issues, MCCAA suspended programmatic activities in 25 villages in Douentza Cercle, as described further in Section 3 of this report.

EXHIBIT 5. MCCA A CONCEPTUAL - RESILIENCE FRAMEWORK

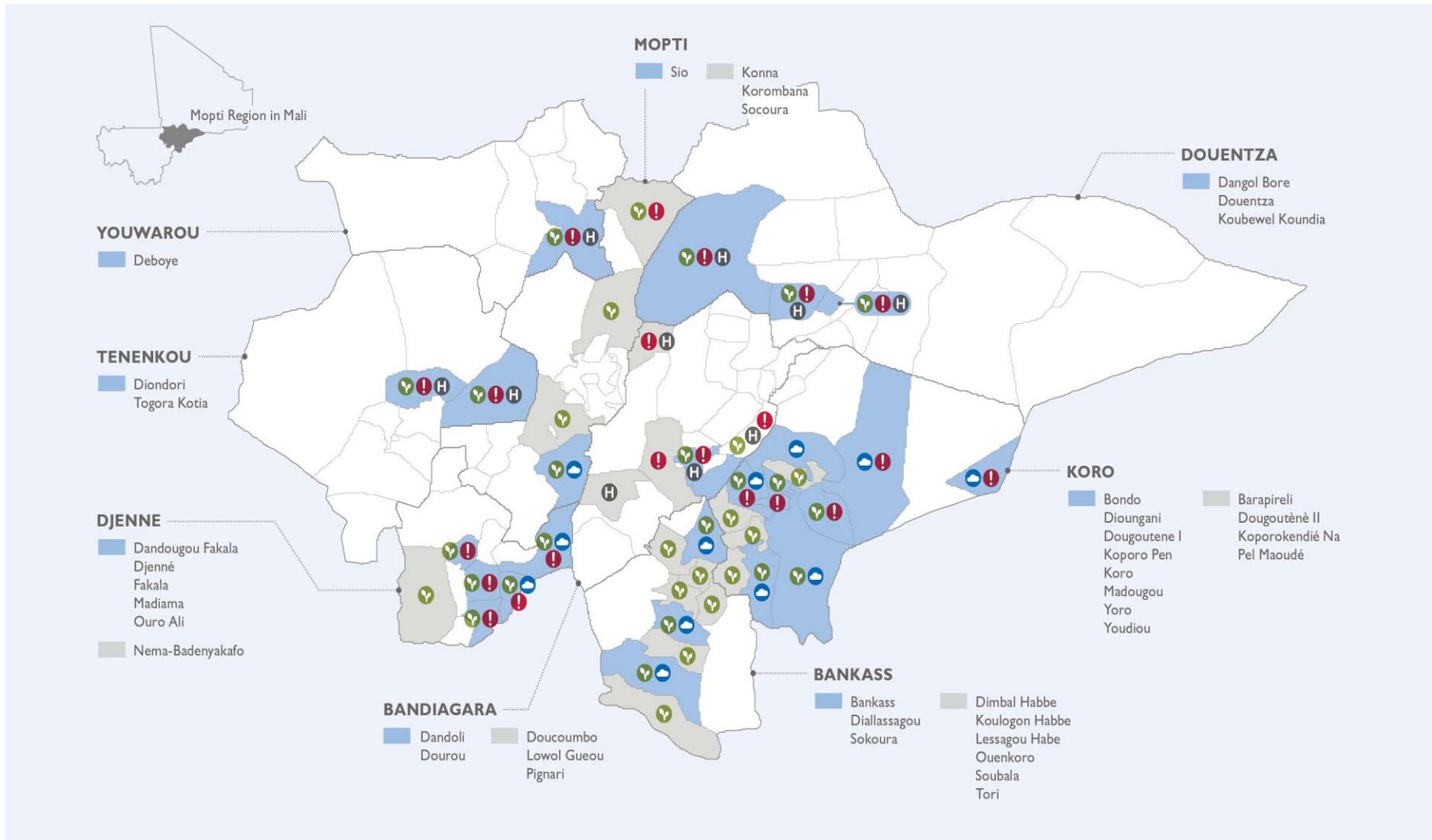


- Lack of local government vision and planning for resilience (political, social, human)
- Short-term climate shocks and emergencies paralyze local government and extension agents' ability to plan for "no regret" scenarios in the medium term (natural, social, political, human, physical)
- Limited understanding of end-user perceptions, decision-making processes, and social barriers by Malian service providers and international development practitioners (human, natural, physical)
- High socioeconomic barriers to investing in new technologies, primarily in rain-fed agricultural areas of the country where greater climate variability is most felt (financial, social, human)
- Poor understanding of gender roles and identity of the most vulnerable, which leads to insufficient strategies to support them in their livelihood activities (social, human, financial)
- Low quality of climate information and weakened observational infrastructure (physical, financial)
- Financially and operationally unsustainable meteorological advisory services (human, political, financial)

- **Human:** Increase understanding of end users through disseminating differentiated behavioral baseline assessment findings; improve skills and knowledge related to adaptive practices through training, demo plots, exchanges, climate change workshops for stakeholders
- **Social:** Connect value chain actors to existing services through bundling (Agromet Toolbox); facilitate sharing of information through champion relais communautaires
- **Political:** Improve government planning for resilience in PDESCs (Climate Proofing) with greater representation in local decision-making (Climate Proofing Committees) by incorporating involvement of marginalized groups
- **Financial:** Reduce socioeconomic barriers through PPPs to facilitate access to climate information and connecting to Agromet Toolbox; support subsidies for the most vulnerable; diversify revenue stream of Mali Météo; collaborate with other FTF initiatives
- **Natural:** Demonstrate and scale up adaptive practices that address barriers (access to training, physical inputs) and build on capabilities of end users to sustainably manage their natural environment
- **Physical:** Improve access to physical inputs and physical infrastructure and connect with training and financial support; develop financial plan for Mali Météo to rehabilitate observation stations and input/output dissemination

- Target MCCA A communes (and villages) access accurate climate information and tools that they can then apply to their livelihood activities
- Mali Météo better understands needs of end users and provides quality climate information and advisories through existing value chain channels
- Mali Météo works on a diversified funding strategy and has clear business plan for the next 10 years
- Local governments better understand end users and plans to support them are included in their PDESCs through the Climate Proofing process
- Extension services (including champion relais communautaires and extension agents) are aware of government's role in Climate Proofing and provide tangible advice and inputs to value chain actors
- Local NGOs strengthened through use of OCAT to improve operations towards becoming USAID/Forward partner and to manage climate change activities on the ground
- Rigorous monitoring of demonstration activities conducted under MCCA A assesses effectiveness of adaptive practices and provides an evidence base to promote uptake in additional communes
- Socioeconomic barriers for the most vulnerable reduced through innovative communications, financing, Agromet Toolbox services, literacy, and government inclusion activities

EXHIBIT 6. MOPTI REGIONAL MAP



- Initial MCCA communes (years 1-5)
- Expansion MCCA communes (years 3-5)
- USAID/Feed the Future communes
- USAID/GCC Information for Adaptation Activity
- Most vulnerable communes based on Millennium Development Goal categorization
- Harande communes

CUMULATIVE RESULTS ACHIEVED AND ASSESSMENT IMPACT

Below we present each of MCCAAs three result areas and accompanying intermediate result areas. A complete list of indicators can be found in Annex B.

RESULT 1: USE OF EFFECTIVE CLIMATE INFORMATION BY VULNERABLE POPULATION INCREASED

During the life of the Activity, MCCAAs achieved the following milestones that contribute to Result 1:

- Worked with 405 focal points (of which 18 were women) and 2,025 *relais* (of which 715 were women), to distribute climate information to vulnerable populations at the village level. This information included the daily forecast by Mali Météo.
- Disseminated daily, weekly, and 10-day forecasts to eight radio stations throughout Mopti Region (see box, right). Additionally, MCCAAs sent these weather forecasts to Sahel Eco agents for distribution to village-level focal points. MCCAAs also distributed climate forecasts to USAID partners in Mopti Region, including Harande, Catholic Relief Services, and the World Vegetable Center. The forecasts include the following elements:
 - Predicted and observed maximal and minimal temperatures at the *cercle* level in Mopti Region
 - Rainfall expected and received at the *cercle* level in Mopti Region
 - Wind direction observed at the *cercle* level in Mopti Region
 - Discussion about visibility and expected rain fall in Mopti Region
- 679,820 individuals trained in climate change adaptation
- 778,961 people using climate information or implementing risk-reducing actions to improve resilience to climate change
- \$52,950 mobilized for climate change adaptation
- 12,354 farmers collecting rainfall data from rain gauges and sending data to Mali Météo

RADIO STATIONS DISSEMINATING CLIMATE INFORMATION IN MOPTI REGION

- Bandiagara: Banguine Radio
- Koro: Orona Radio
- Douentza: Dande Douentza
- Djenné: Jamana Radio
- Bankass: Kantiguiya Radio
- Mopti: Office de Radiodiffusion-Télévision du Mali (ORTM)
- Tenenkou: Beldohore Radio
- Youwarou: Dande Deboye

- Supported capacity building of 1 Groupe Local d'Assistance Météorologique (GLAM) and 9 Groupes Communal d'Assistance Météorologique (GCAMs)
- Supported gender analysis for Mopti Region
- Supported Mali Météo in the creation of a 10-year strategic plan formally accepted by the council of ministers
- Completed livelihood analysis in four livelihood zones

Intermediate Result 1.1: Supply of climate data and predictions, analysis, and decision-support tools improved

Mali Météo distributed daily, weekly, 10-day, and seasonal forecasts to eight radio stations in Mopti Region for distribution, which increased local population overall access to climate information. MCCA A also distributed the forecasts to USAID partners and local NGOs in Mopti Region. In all three of the effectiveness studies conducted by MCCA A (2018 to 2020), respondents reported that hearing climate information via the radio was the No. 1 way in which they received climate information. Further, respondents in villages where MCCA A did not work also reported that radio is the top way in which they receive climate information.

MCCA A linked 12,354 farmers to locally installed rain gauges, which serve as a local source of critical information. MCCA A installed three rain gauges in each village where the Activity operated. Installing more than one rain gauge permitted Activity beneficiaries to see the difference in the amount of rainfall even near their village. This supply of local climate information helped farmers to better understand the concept of variability and perceive a forecast considering potential variance.

Part of MCCA A's mandate was to build Mali Météo's capacity as an entity to in effect diversify and to link Mali Météo with other sources of potential funding. To this end, MCCA A supported the development of Mali Météo's 10-year strategic plan. This strategic plan identified both private and public sector opportunities. The council of ministers formally adopted the strategic plan (see box, right).

My thanks go especially to the ambassador of the United States of America in Mali who despite his very busy agenda was kind enough to enhance the opening ceremony of the validation workshop by his presence.

Finally, I would like to thank and congratulate the Mali Climate Change Adaptation Activity Team for their constant support without which the process would not have been successful.

—DJIBRILLA A. MAIGA,
NATIONAL DIRECTOR OF MALI
MÉTÉO, TO USAID FOLLOWING
THE VALIDATION OF ITS 10-
YEAR STRATEGIC PLAN

Intermediate Result 1.2: Stakeholders' access to climate data and predictions, analysis and decision-support tools improved

Citizens throughout Mopti Region had access to climate forecasts as they were broadcasted on the eight radio stations that already disseminate daily and weekly

forecasts. Furthermore, radios broadcasted this information twice daily — once in the late morning when listeners are normally returning from their fields to their mid-day break and once in the late afternoon when producers have returned from work in the field. This information is also broadcasted to the entire Mopti Region via ORTM.

MCCAA also distributed climate information to USAID projects operating in Mopti Region to enable those projects to transmit information to farmers in villages where MCCAA is not working. MCCAA also sent climate information to local NGOs and non-USAID partners to permit distribution via other networks to increase stakeholder access. Lastly, MCCAA used a tool called Agromet Toolbox to distribute climate information to project focal points. This application permitted focal points to access daily weather information for the Mopti Region and share this information at the village level.

MCCAA worked directly with one GLAM and nine GCAMs to build their capacity to incorporate regional- and communal-level information into Mali Météo’s forecasts; climate forecasts’ accuracy improve exponentially as data points are added to them. The GLAM and GCAMs not only had their systems improved by structural support, but they in turn served as a direct connection to MCCAA focal points, other technical services, and the general public.

Intermediate Result 1.3: Capacity of stakeholders to use climate data and predictions, analysis, and decision-support tools improved

The supply of climate data is useful for farmers and vulnerable populations who make decisions about what to plant, when to plant, when to apply fertilizer, and when to apply pesticide/herbicide. Specifically, MCCAA worked with producers at the village level to take climate information that came to them via radio, focal points, via the smartphone application Agromet Toolbox and with this knowledge apply this knowledge by decisions that led to their use of certain adaptive technologies. To examine how well this adoption of climate smart technologies was moving forward, MCCAA conducted three effectiveness studies during the life of the Activity that analyzed the use of adaptive technologies and climate information by both Activity beneficiaries and non-Activity producers. This enabled MCCAA to measure its impact on local populations. The studies also gave clear indications as to which technologies beneficiaries found most useful and how they used climate information to make informed decisions. MCCAA used the results of the 2018 and 2019 studies to adjust programming so that it would better meet Activity beneficiaries’ needs to make the link between climate information and use of an adaptive technology.

RESULT 2: INCLUSION OF CLIMATE CHANGE CONSIDERATIONS IN GOVERNANCE SYSTEMS INCREASED

During the life of the Activity, MCCAA achieved the following milestones, which contribute to Result 2:

- Signed memorandum of understanding with 42 communes
- Established climate-proofing committees in 42 communes
- 42 climate change action plans legally adopted and integrated into commune PDESCs
- 118 institutions with improved capacity to assess or address climate change

Intermediate Result 2.1: Integration of climate change into commune-level planning in targeted areas increased

During the life of the Activity, MCCAА signed a memorandum of understanding with each commune where the Activity was active. These memoranda of understanding permitted clear understanding between MCCAА and respective commune officials. The Activity established a climate-proofing committee in each of the 42 communes, which comprised local technical officials and commune officials. MCCAА formally trained committees on climate change adaptation and served as a direct conduit to the committees that develop PDESCs within communes. After training these officials and intensive consultations with every village within their communes, MCCAА developed climate change action plans. All 42 communes legally adopted the climate change action plans and inserted them into the communes' PDESCs. These plans clearly identify how their respective commune seeks to overcome the effects of climate change in their commune. These plans were distributed to the governor of Mopti Region, USAID, and non-USAID partners who could potentially finance one of more of the activities found within the plan. Finding resources to address the needs identified with the plans was an issue, and to address this, MCCAА organized a training for commune staff to raise their awareness about how to advocate for their plans both within the public and private sector. Between 2018 and 2020, 21 communes mobilized \$52,950 from sources such as the Malian Red Cross, the United Nations Multidimensional Integrated Stabilization Mission in Mali (MINUSMA), the World Food Programme, GIZ, DFID, European Union to address issues as defined by their commune plans. In following up with communes about the level to which they had been able to implement the plans, the most major obstacle they faced is the Mopti Region's high level of insecurity. Many communes reported that they had ongoing humanitarian/emergency projects, but none linked to climate change. Donors seemed very reluctant to commit significant resources for development-related work given the high level of insecurity.

Intermediate Result 2.2: Capacity of local NGOs in climate change adaptation strengthened

MCCAА worked with 118 institutions — both public and private — to raise their capacity in climate change adaptation. This built sustainability into the Activity from Day 1. MCCAА's approach was holistic and approached the need to build resilience. In systems, this meant PDESCs that address climate change and people well-versed in the impacts of climate change to implement these plans; with producers, individuals trained to adapt to climate change to cope with shocks and stresses; and institutions such as NGOs, local associations, and communal bodies who will facilitate the implementation of climate change adaptation. MCCAА noted the importance of working with beneficiaries and associations at the local level; NGOs and commune officials at the commune level; and the GLAM for Mopti Region, Direction Régionale de l'Agriculture (DRA), Office Riz Mopti (ORM), and Mali Météo at the national level. Preparing entities at all levels to address climate change built in sustainability from the outset of the Activity.

RESULT 3: ADOPTION OF LOCAL SOLUTIONS TO CLIMATE VARIABILITY AND CHANGE IN TARGETED AREAS INCREASED

During the life of the Activity, MCCA A achieved the following milestones which contribute to Result 3:

- 778,961 people supported to adapt to the effects of climate change
- 93,722 farmers and others applied improved technologies or management practices
- 155,310 hectares of land placed under an improved technology or management technique
- 167,686 individuals received short-term agricultural sector productivity or food security training
- 155,310 hectares under improved management practices or technologies that promote improved climate risk reduction and/or natural resources
- 125,639 rural households benefitting from MCCA A activities
- 630,959 individuals participating in food security programs
- 50 percent of women participants in program designed to increase access to productive economic resources (assets, credit, income, or employment)
- Yield of targeted agricultural commodities among program participants raised:
 - Rice: 147 percent
 - Millet: 74 percent
 - Cowpea: 98 percent
- Developed and deployed Agromet Toolbox to facilitate communication between Mali Météo and focal points permitting focal points to send data to Mali Météo and for Mali Météo to send weather forecasts to said focal points
- Distributed the Mali Climate Change Adaptation Guide in French, Bambara, Dogon, and Peul, distributing 499 guides in total
- Completed socioeconomic study of barriers to climate change adaptation
- 25 adaptive practices tested and another nine techniques introduced, resulting in 679,820 people trained on an adaptation technology, of whom 258,528 were women

Intermediate Result 3.1: Effectiveness of key adaptive strategies assessed

The Activity conducted three effectiveness studies during its implementation. The findings of these studies helped to inform adaptation programming. The studies examined households both with and without MCCA A services. Key findings include:

1. A significant number (94 percent) of households with services reported benefitting from a village-based “relay” providing extension services, with a significant number (91 percent) reporting that they considered these services reliable.
2. Overwhelmingly, households without services reported significantly greater difficulty in accessing essential agricultural inputs during the last season. This

was true for accessing fertilizer (79.2 percent), seeds (62.1 percent), pesticides (60 percent), farm equipment (40.4 percent), livestock feed (31.7 percent), and hired labor (22.1 percent). These results also indicate that households with services find it significantly less difficult to access all major agricultural inputs.

3. Households with services reported a significantly higher number of respondents that are aware of daily climate information (52.1 percent), weekly climate information (33.8 percent), 10-day climate information (11.3 percent), and seasonal climate information (41 percent). 27.1 percent of households without services are not aware of any climate information.
4. A significant number of households with services perceived training on climate information to be of great utility/usefulness and of average utility, relative to households without services, 44.3 percent of households with services reporting using significantly more daily climate information in comparison with 14.2 percent of households without services.
5. Households with services reported applying climate change adaptation technologies significantly more than households without services on all four measures of utility. This was especially true for improved production, restoring vegetation, and protecting ground moisture.
6. Households with services reported (62.5 percent) a significant improved ability to cope with climate risks as a “a lot,” whereas the without-services group (47.1 percent) reported an “average” ability to cope with climate risks.
7. Households with services (60.4 percent) reported a significant “a lot” in ability to improve household income over households without services. Households without services (51.7 percent) perceived an “average” ability to increase their food security.

Intermediate Result 3.2: Effective adaptive strategies communicated

MCCAA organized many trainings on adaptive technologies and promoted multiple trainings for each individual beneficiary to ensure that they are prepared to employ an adaptation strategy that can assist in overcoming the effects of climate change. This approach led to 679,820 individuals (of whom 258,528 were women) being trained in technologies. In 2018, 2019, and again in 2020, MCCAA carried out an effectiveness study¹ to determine the project’s “effectiveness” in supplying high-quality, timely climate information to rural households in the Mopti Region. This was achieved by measuring the differences between households receiving project services and

¹ The MCCAA 2020 Effectiveness Study can be found on the Development Experience Clearinghouse here: https://dec.usaid.gov/dec/content/Detail_Presto.aspx?vID=47&ctID=ODVhZjk4NWQtM2YyMi00YjRmLTkxNjktZTcxMjM2NDBmY2Uy&rID=NTc1MzI4

households not receiving project services. The general term “services” includes households that received climate information and climate change adaptation techniques. Households receiving MCCA services adopted climate information practices significantly more often than households that did not receive MCCA services. Exhibit 6 below confirms that households with services stated clearly at the highest level of significance ($p = .000$)² more often than households not receiving services that they adopted daily climate information for decision-making on 15 out of 18 types of weather-related decisions.

EXHIBIT 7. 2020 EFFECTIVENESS STUDY RESULTS

I have <u>adopted</u> Daily Weather Information to lead the decision on:	Households Receiving MCCA Services*		Households Not Receiving MCCA Services*		P-value
	Yes	No	Yes	No	
	%	%	%	%	
Type of cattle to keep	87.4	44.8	12.6	55.2	0.000
Pasture location	85.3	53.7	14.7	46.3	0.000
Breed type to keep	84.0	47.0	16.0	53.0	0.000
Participation in off-farm/commercial activities	82.4	53.5	17.6	46.5	0.000
Food management	82.4	46.9	17.6	53.1	0.000
Planting trees	81.1	51.0	18.9	49.0	0.000
Whether to borrow for agricultural activities	80.7	54.3	19.3	45.7	0.000
Hiring labor for agri-activities	79.7	55.7	20.3	44.3	0.000
Use of inorganic fertilizer	72.6	34.5	27.4	65.5	0.000
Type of variety to grow	72.0	22.2	28.0	77.8	0.000
Soil and water conservation	71.5	47.2	28.5	52.8	0.000
Type of crop to grow	71.2	29.0	28.8	71.0	0.000
Use of organic fertilizer (compost / mulch)	70.7	32.9	29.3	67.1	0.000
Location of field to plant crops	70.4	54.5	29.6	45.5	0.005
Whether to farm or not	67.5	35.7	32.5	64.3	0.000
Land allocation for crops	66.0	59.6	34.0	40.4	0.294
Decision to do monoculture	63.5	57.6	36.5	42.2	0.317
Irrigation	64.4	60.4	35.6	39.6	0.506

*For this analysis the N value was 240 for both households with and without services and was drawn from a single sample.

MCCA conducted trainings on the following subjects, as described below.

Improved harvest and post-harvest techniques. These trainings are a strategy to build producers’ capacities on good harvesting and post-harvest practices, including good programming; harvesting; and best practices for transport, storage, and crop conservation. These trainings to reduce harvest and post-harvest losses focused on

² A **p-value** is a measure of the probability that an observed difference could have occurred just by random chance. The lower the **p-value**, the greater the statistical significance of the observed difference. We refer to **statistically significant** as $P < 0.05$ and **statistically highly significant** as $P < 0.001$ (less than one in a thousand chance of being wrong). It indicates strong evidence against the null hypothesis, as there is less than a 5% probability the null is correct (and the results are random)

millet, rice, sorghum, fonio, cowpeas, peanuts, and *voandzou* (Bambara beans). **In total**, 48,663 individuals were trained, of whom 18,435 were women.

Improved poultry production. Field agents carried out several trainings on improved poultry raising at the village level in Bandiagara, Bankass, Djenné, Koro, and Mopti Cercles. Trainings used a participatory approach, including questions and answers, debates, and case studies for each module. Modules ranged from general information on poultry farming to housing construction and equipment in improved poultry farming, reproduction and manpower management, and diagnosis and treatment in improved poultry farming. **In total**, 9,484 individuals were trained, of whom 4,122 were women.

Small animal fattening. Field agents focused delivering these trainings to women’s groups to improve beneficiary animal fattening practices. Specifically, this includes helping to choose suitable animals for fattening small ruminants, buying periods for fattening animals, constructing a barn suitable for fattening small ruminants, identifying equipment and material for fattening small ruminants, adequate duration for fattening of small ruminants, animal health monitoring, food rationing to the animals, choosing sales periods for animals, and establishing and managing an operating account for their activities. **In total**, 39,930 individuals were trained, of whom 15,936 were women. See box, right.

**IN THEIR WORDS:
HERETA MAIGA**

According to Hereta, the practice of small ruminant fattening works well in tandem with other practices she learned from her participation in MCCA. The manure from her well-fed animals is enough to cover her fields, and she has not had to pay for fertilizer in three years. Additionally, she feeds her animals in part with leaves from the peanut and cowpea plants that are now thriving in her fields.

Natural assisted regeneration (RNA). In Mopti Cercle, supervisors trained farmers on good RNA practices in the fields, which involves promoting the natural regeneration of woody species in cultivated plots. This practice is geared toward maximal species diversity to optimize total plot yield. **In total**, 110,976 individuals were trained, of whom 38,280 were women. See box, right.

**IN THEIR WORDS:
MOUSSA TANGARA**

Moussa Tangara says he will continue using RNA because it is easy, inexpensive, and provides multiple benefits (increased soil fertility, wood, and livestock feed).

Improved rabbit production. The training employed a participatory approach based on questions and answers and case studies that discussed the advantages and disadvantages of rabbit production, rabbit breeds, reproduction and manpower management, housing, food, diseases, handling rabbits, and operating accounts. **In total**, 18,284 individuals were trained, of whom 8,179 were women.

**IN THEIR WORDS:
OUMAR BOCOUM**

Feeding Oumar’s cattle with urea-enriched fodder has reduced expenses on cattle feed. This year, Oumar spent CFA9,000 to produce the fodder versus spending his normal CFA31,250 on feed. With the money he saves, he can begin investing in other things.

Fodder treated with urea. The purpose of this training is to improve producers’ skills

regarding methodologies of treating roughage with urea. Thanks to this treatment method, it is not only possible to enhance roughage’s nutritional value, but also to improve digestibility and increase animal ingestion. This technology is extremely important for those who have many ruminants, as it enables farmers to economically and efficiently transform low-quality roughage into a product that is highly nutritional. In turn, this enables farmers to economically produce a more lucrative product when sold in the open market. Farmers need only purchase a small, inexpensive quantity of urea, allowing them to leverage their existing product, which would cost significantly more if purchased on the open market. Thus, this method is advantageous for farmers with already limited monetary resources. **In total**, 16,349 people were trained on how to treat fodder with urea, of whom 6,774 were women. See box, right.

Training on climate change. Field agents and village-level focal points carried out climate change training to ensure that local populations were aware of climate change and its impacts on Mali. Further, introduction to climate change in schools was used to sensitize both teachers and students as to the impacts on the country. **In total**, 51,044 individuals were trained, of whom 19,604 were women.

Rapid composting. The purpose of these trainings is to build the capacity of producers on good heap and pit composting practices. Composting can be adopted both in fields and vegetable gardens and contributes to manure supply. **In total**, 69,354 individuals were trained, of whom 25,426 were women. See box, right.

**IN THEIR WORDS:
YOUSOUF TOGO**

Before applying compost to his millet fields, a normal season would yield about 500 kilograms of millet per hectare. With the use of compost, a hectare now yields 900 to 1,000 kilograms of millet. According to Youssouf, the change in productivity for plots with compost was immediately evident.

Fruit tree planting techniques (PLASA method)

The PLASA (planting without watering) method is a new tree planting technique in the dry season that can significantly reduce the plants’ watering frequency while maintaining their survival and growth rates.



Photos: Steps in the use of the PLASA method. (Photo Credit: MCCA)

The basic principle of PLASA is to ensure that the hair root, the main source of water supply to the plant, remains wet during in the dry season. The PLASA method saves water and time: one liter of water per week per plant, a watering frequency ranging from one time per week to one time every 15 days to possibly one time a month, and

often at zero watering during the dry season. This variable depends, among other things, on the species of the plant, the climate, and the nature of the soil. **In total**, 10,737 individuals were trained, 4,163 of whom were women.

Water and soil conservation. The field agents trained the producers mainly on half-moons, grass strips, filter bunds, and stone bunds, whose roles are to help restore degraded and barren lands by reducing the runoff of rainwater, slowing water flow, and reducing the transport of fertile soil and gully and silting phenomena to fight land erosion. This also aims to conserve water and improve irrigation. **In total**, 161,266 individuals were trained, of whom 58,509 were women.

Mulching. Field agents trained farmers in fields and market gardens on mulching techniques. Mulching is an excellent means of fertilization by restoring the nutrients needed to feed crops. It keeps moisture in the soil, prevents the fruit from touching the ground, and discourages rot and pest attacks. Further, it promotes healthy and high-quality production. This technique is increasingly practiced in vegetable gardens. **In total**, 37,624 individuals were trained in this technology, of whom 14,716 were women.

Reforestation. Reforestation helps to combat the effects of climate change. Trees lead to a reduction of soil erosion rate. Trees also serve as a nitrogen fixer for fields that are nearby and help with soil stability. **In total**, 189 individuals were trained in reforestation, of whom 96 were women.

Improved shelling techniques: MCCA introduced a select group of beneficiaries to improved shelling techniques to facilitate extracting groundnut seeds more effectively from husks. This time- and labor-saving technique is intended to help women exert less energy in getting access to groundnuts which are helpful in the diet and through this savings be able to sell fresh groundnuts and groundnut oil cheaper. **In total**, 339 individuals were trained, of whom 132 were women.

Introduction to “trap” plants to eradicate striga. MCCA introduced to a very select group of beneficiaries the use of plants that work to eradicate striga in farmers’ field. Because striga is a profoundly serious issue in Mopti Region, MCCA introduced several techniques to facilitate eradication. **In total**, 102 people were trained of whom 50 were women.

Intensive Rice Systems (IRS). The IRS is a crop methodology designed to increase the productivity of irrigated rice cultivation by changing the management of plants, soil, water, and nutrients while reducing input quantities. IRS uses much less seed than conventional production. For example, in irrigated systems in Mali, farmers use only 6 kg/ha of seed for IRS; traditionally, they use 40 to 60 kg/ha — a 85 to 90 percent reduction in seed. Farmers also use a limited amount of or no nitrogen fertilizer. The results, in most cases, are increased patty rice yields. This system allows rice farmers in Mali to adapt to increasingly longer dry sequences. Villagers report that they will work together to use this technology or will engage youth to help with the activity. **In total**, 4,349 persons were trained, of whom 1,643 were women.

Improved fodder production. The choice of a fodder plant is based on its advantages, the technical constraints of its exploitation, and the economic interest. Fodder species

cultivated fall into two broad groups: grasses and legumes, whose biology and technical requirements are different. To these are added the ligneous, or trees and shrubs. MCCA introduced improved bourgou and cowpea varieties to selected beneficiaries to improve animals' access to a source of good fodder. **In total**, 947 individuals were trained, of whom 348 were women.

Improved gardening techniques. The aim of these trainings is to reinforce the producers' capacities on good market gardening practices to improve their production and their income. Trainings covered techniques such as making garden beds, improved nursery production techniques, improved sowing/transplanting and maintenance techniques, market gardening, association and rotation of vegetable crops, and improved seeds. Field agents trained producers and *relais* at the village level. **In total**, 10,651 individuals were trained, of whom 6,230 were women.



Photos – Water tower feeding market gardens and sign denoting market garden project. (Photo Credit: Association pour le Développement Actif et Participatif)

Crop association. Where there is a mix of nitrogen-fixing plants near non-nitrogen-fixing plants, this raises overall soil fertility and is a natural means to combat striga. **In total**, 7,973 individuals were trained in crop association, of whom 2,943 were women.

Zai. The field agents trained producers mainly on the use of *zai*, which has a role to contribute to the restoration of degraded and barren lands by reducing the runoff of rainwater, slowing water flow, and reducing the transport of fertile soil and gully and silting phenomena to fight land erosion. This also aims to conserve water and improve irrigation. **In total**, 3,440 individuals were trained on this technique, of whom 1,225 were women.

Crop rotation. This is a technique that is essential to soil fertility and one of the most effective and least costly methods for controlling weeds, diseases, and pests. Yields

depend largely on good planning of crop rotation. **In total**, 9,959 individuals were trained, of whom 3,410 were women.

Production and use of bio-pesticides. This training is intended to improve the knowledge of market gardeners on the different formulas of biopesticides they can use against the pests of market garden crops. The training focused on products (inputs) used in the manufacture of biopesticides, materials, and equipment necessary for the manufacture of biopesticides, alternative products used in integrated management of predators and pests, the production of biopesticides used in market gardening production, and the use of biopesticide treatment. Materials used to make these bio-pesticides include garlic, hot pepper, neem seeds, tobacco, papaya leaves, tomato plants, and soap. **In total**, 26,787 individuals were trained, of whom 12,679 were women. See box, right.

**IN THEIR WORDS:
AMINATA GOULAKAN**

Prior to using biopesticides, Aminata could only afford to purchase chemical pesticides for one sole application on her market garden plots, per year which cost her about CFA25,000. With the self-production of biopesticides, she can cheaply treat her plots as needed. These results encouraged her to train other women in her village and female producer co-ops in other villages.

Fruit tree grafting. The overall objective of the training was to enable producers to graft fruit trees to create improved varieties by grafting, the choice of rootstock, removal of grafts, implantation of grafts, and maintenance of the grafted plant. **In total**, 5,329 individuals were trained, of whom 1,934 were women.

Microdose. This is targeted at producers who have problems with striga in their fields. The overall objective is to raise the soil fertility, because this will naturally combat striga. Left unchecked, striga can lead to significant crop loss. The first training course educates producers on the problems that striga can cause and then how to address the issue. Individuals were trained about the problems that striga causes and how a mix of soil fertility measures can lessen the problems caused by striga. **In total**, 4,355 individuals were trained, of whom 1,629 were women.

Habrobracon Hebetor. This training instructs producers how to introduce this wasp to their fields. The wasp is a natural enemy of the caterpillar that destroys millet stalks. By encouraging this wasp in the field, farmers are using a natural way to rid their fields of the caterpillar. **In total**, 3,089 producers were trained on this technique, of whom 952 were women.

Food processing and transformation. This training focused on helping women understand how to clean and transform fonio and then package that fonio for sale on the market. Fonio is a small grain cereal that can be grown in six to eight weeks and can be grown under poor soil conditions. The major issue with fonio is that it is difficult to clean, and this makes it less desirable to most households. However, because of its very hearty resistance to pests, it is a crop that can build resilience in many communities in central Mali. Women's cooperatives transform fonio and create a packaged product that is ready to cook. **In total**, 31 women were trained on this technique.



Photo: Fonio produced by MCCA A Beneficiaries. (Photo Credit: MCCA A)

Straw chopper and baler techniques: These trainings are a strategy to build producers' capacities on good harvesting and post-harvest practices, including storage and conservation of crops. This will reduce losses at harvest and post-harvest periods. These trainings focused on millet, rice, sorghum, fonio, cowpeas, peanuts, and *vousandzou*. **In total**, 896 individuals were trained, of whom 346 were women.

Safe use of chemical pesticides, fungicides: These trainings focused on the proper use of chemical pesticides, specifically the correct dosage required and the use of PPE. The trainings further covered correct disposal of containers that had contained the pesticide and fungicide. **In total**, 9,738 individuals were trained, of whom 3,435 were women.

Introduction and use of drought-resistant and improved seed: Farmers who are aware of drought-resistant seed informed MCCA A on many occasions of the overall benefit to yield. Use of this seed lessens risk that seeds will die prior to germination, and MCCA A beneficiaries frequently requested this technique. **In total**, 4,077 individuals were trained, of whom 2,672 were women.

Intermediate Result 3.3: Socioeconomic barriers to adoption of adaptive strategies reduced

MCCA A carried out several refresher trainings during the life of the Activity to equip beneficiaries with the necessary knowledge to respond to multiple climate shocks and stresses. Trainings offered to beneficiaries were meant to enable participants to apply the technology as easily as possible. MCCA A also solicited open and candid feedback from participants so that trainings could be adapted and refined as needed over time. Taking one technology as an example, introducing farmers to the IRS is both a way to raise overall yields for each farmer and a way in which some farmers could engage youth. This can, in effect, put youth to work.

Climate change affects all of us, but its effects are felt most among those most in need. The way of life of rural communities, which has never been easy, is becoming increasingly uncertain as climate predictability deteriorates. To maintain their resilience despite this constant change, vulnerable communities will need actionable

climate information for informed decision-making and new livelihood strategies to overcome socioeconomic barriers that limit adaptation.

One of the Activity's results is increased use of effective climate information by vulnerable populations. For this, MCCAAs has made three rain gauges available to each village, and monitoring and data collection committees (quantity of rain received) have been set up around these rain gauges. These committees are made up of both men and women, and in some villages, a rain gauge is dedicated only to women. MCCAAs also made a smartphone with the Mali Météo Agromet Toolbox application available to each village as part of the sending of rain-gauge data collected by the committees.

The meteorological information received is used in the implementation of their activities (e.g., agriculture, animal husbandry, fishing, forestry) and has many advantages in the implementation of these activities. Indeed, this information constitutes a working tool for the peasant (much like his hoe). Meteorological information guides the farmers on the choice of crops, the choice of seed varieties, the sowing dates, the weeding period, the times of use of fertilizers and pesticides, post-harvest storage, the choice of locations, livestock watering and grazing, fodder conservation, agroforestry practices (RNA, reforestation). Even in the dry season, these data inform farmers as to the potential for high winds and excessive heat.

With MCCAAs's support, women have better access to weather information. The Activity worked with Mali Météo and local radio station to transmit weather information at times when women would typically be listening to the radio. Further, women were appointed to head rain gauge committees and to work as village relays and focal points to ensure that MCCAAs received direct feedback from women as it refined the transmission process.

The Activity's specific actions in favor of women — technical capacity building and introduction to the income-generating techniques of rabbit farming, poultry farming, processing, market gardening, and small animal fattening — will reduce the disparities between the sexes. This ties directly into the strategic framework for the fight against poverty and the national gender policy in Mali.

GENDER AND YOUTH INCLUSION

MCCAAs conducted a gender inclusion study and a behavioral baseline to gain a better understanding about the barriers to vulnerable populations' usage of climate-smart techniques. With the findings, MCCAAs was able to program activities to better include both women and youth in project activities. These studies were further enhanced by the yearly efficiency study undertaken by MCCAAs (2018 through 2020). MCCAAs has shared the results of these studies with USAID.

GENDER INCLUSION

Women play an integral part in development. Women are responsible for raising the next generation in Mali, and ensuring that they have the proper tools and knowledge to do so is of paramount importance to the country's future. Increasing women's participation in the Activity was challenging, given the zone of intervention and the increasing influence that terrorists have over Mopti Region. Despite the challenges, MCCA focused on the following to address inclusion:

1. **Implicating women in the collection of weather information:** Women played a key role in collecting climate information, given that the MCCA approach required that 40 percent of each rain gauge group be female. These groups were key to collecting village-level information and transmitting it to the focal point, who would then transmit this data to Mali Météo. All within the group were sensitized to this information's importance and better understood why it was important and how they could use this information to make planting decisions for their families.
2. **Understanding climate change and its impacts on women:** MCCA educated women and girls about the effects of climate change on Mali and specifically on Malian women. Women have defined cultural norms within Malian society and have specific information needs. Working through women's associations, MCCA addressed their information needs and directly informed women about climate change's impacts on Mali.
3. **Women as climate information conduits:** In every village where MCCA carried out activities, it worked with one focal point and five *relais communitaires*. The five *relais communitaires* assisted the focal point and were ready to assume their duties in case the focal point could no longer do so. The women became a source where other women or men could come to learn more about climate change or get climate information. Because at times it was easier for a woman to speak to another woman, this helped to reduce a barrier to this information.
4. **Women-focused adaptation technologies:** Although all adaptation technologies introduced by MCCA could be applied by men or women, there are technologies that are favored by and more culturally aligned with women. These include poultry raising, small animal fattening, food processing, and vegetable gardening. MCCA sought to specifically link women with adaptation technologies that would provide a source of income to permit women to attend to their families' greater needs, including paying for school fees for children, paying for health care, and having the ability to buy additional grain for household consumption if the harvest was inadequate. There was also a nutritional benefit, given that the consumption of protein and micronutrients was increased at the household level.
5. **Constraint of access to land:** Although MCCA was able to increase women's knowledge about the impacts of climate change, ensure that women played a key role in climate information, and increase access to economic activities to raise income, MCCA could not involve as many women as it

would have liked simply due to the lack of land ownership by women. Further, women are culturally less involved in the production of millet and sorghum in some areas where the Activity worked. This constraint was one that the Activity could not mitigate.

Incorporating women into the Activity was, for the most part, not challenging between 2015 through 2018. As the influence of the terrorists in Mopti Region spread further south in 2019 and 2020, it became more challenging. MCCA used adaptive management and implementation to work in areas where women could still be included. Moving forward, future activities will need to focus on Mopti Region.

YOUTH INCLUSION

As women play a key role in development, so do youth. They are the future generation, and it is critical to provide opportunities for them to participate in the development process. To this end, MCCA focused on the following:

- 1. Work with youth associations:** MCCA worked with youth associations to train them on the impacts of climate change upon Mali and how those impacts may affect livelihoods. Youth associations work at the village level and thus have a direct impact on their villages.
- 2. Climate change training in schools:** MCCA trained children and teachers in schools throughout Mopti Region. The Activity did this to ensure that it reached the next generation with climate change information. This was also a way to train teachers on the effects of climate change on Mali so that they could serve as a source of information for the communities in which they worked in addition to their students.
- 3. Youth as climate information conduits:** MCCA sought to have youth serve as *relais communitaires* for the communities in which they lived, given that they have perspectives that are important when a village is planning on how to address the effects of climate change.
- 4. Work in rain gauge committees:** MCCA encouraged youth to become members of the rain gauge committees. Because youth leaders can inspire other youth, this was a way to help train them in the importance of climate information and use of climate data in making decisions.
- 5. Constraint of access to land:** As with women, youth often lack access to land and are often engaged as laborers on others' land. For this reason, youth were heavily involved in activities geared toward women to enable livelihood creation.

In future programming, it will be particularly important to not focus as much attention of placing a certain number of hectares under a technology or management practice. Attaining this indicator meant that we focused more on men, who own land, and not on women and youth, who often do not own land.

SECURITY ENVIRONMENT

Security was a constant issue throughout the life of the Activity. There were normal security challenges such as guarding against theft, employing a journey management system to ensure that staff movement is tracked in case of problems with a car, and more recently, the effects of COVID-19 and the special precautions required to continue operations. In addition to these normal security challenges, Mali has been plagued with a progressively worsening problem of terrorism and growing disputes between Dogon and Peul in Mopti Region. The current security situation in Mopti Region remains fluid. There was a significant increase in the number of attacks in Mopti Region during the Activity, with more and more attacks occurring south of Sévaré town. These included direct attacks against the Government of Mali, the United Nations, and both local and international non-governmental organizations. Civilian deaths due to land mines and improvised explosive devices increased year over year. To ensure staff safety, MCCA A adopted a security rating system that allowed for the security situation to be adjusted by commune. There were four rating classifications:

1. Green: Low Risk
2. Yellow: Medium Risk
3. Orange: Medium+ Risk
4. Red: High Risk

At the end of the Activity, Douentza, Youwarou, and Tenenkou Cercles remain **high** risk, given the almost free movement of elements of Al-Qaeda in the Islamic Maghreb (AQIM), Macina Liberation Front, Jama'at Nusrat al-Islam wal Muslimeen (JNIM), and other terrorist elements. Further, there is increased use of improvised explosive devices (IEDs) in Douentza Cercle and significant increase in carjacking, banditry, targeted assassinations, and kidnapping of local staff. This significant increase and continued use of landmines prompted MCCA A to suspend activities in Douentza. At the end of the Activity, Bankass Cercle, Bandiagara Cercle, Koro Cercle, and Mopti Cercle are all rated as **medium+** risk because of the attacks in many of the communes where MCCA A operates, frequent intimidation, harassment, and theft that directly affects NGOs operating in the *cercle*, assassinations of several Malian government officials, and growing civil demonstrations against MINUSMA. Further, there has been a marked increase in attacks on villages, with many farmers losing livestock and crops during these terrorist attacks. A bridge was partly damaged between Bandiagara and Bankass along the national route. Djenné Cercle is also rated **medium+** risk because of the frequent passage of terrorists near Djenné and their apparent control over many communes in Djenné Cercle found on the other side of the river. Continued concerns over ethnic tensions between the Peul and Dogon and the high risk of terrorists' attacks in communes that border Burkina Faso all remain security challenges.

MCCA A monitored local and regional conditions to operate in the dynamic and fluid security environment in Mopti Region. MCCA A also operated based on the

recommendations of the Chemonics Security Director following multiple in-country security assessments. These recommendations included:

- No traveling to Tenenkou, Youwarou, and Douentza Cercles and north of the Niger River due to significant risk posed to staff by terrorism and use of IEDs
- Limiting stays in Bandiagara and Djenné Cercles to one night when possible
- Using strict journey management controls, including satellite phones and vehicle trackers

As armed groups pushed closer to Sévaré and villages were being attacked some 2 kilometers from Mopti, the following additional travel restrictions were put in place:

- Suspension of all staff movement along the Sévaré-Konna route
- Prior to any movement along the route Sévaré-Koro route, make direct contact with the appropriate officials in Bandiagara, Bankass, and Koro

During the life of the Activity, the Malian government imposed movement restrictions, requiring the Activity's partners to be highly creative in how they moved around Mopti Region. Even though these restrictions were eventually lifted, they posed challenges given the ban on the use of motorcycles. This hampered visits by state agents to Activity beneficiaries and directly hampered the agents that MCCA had deployed.

Because of the challenges of operating in an insecure environment, MCCA used core principles of adaptive management. The Activity used a flexible approach to ensure staff and beneficiaries' safety while still accomplishing Activity deliverables. Often, one *cercle* or certain communes would be more unstable because of the increased presence of terrorists or community conflict. This required that MCCA reduce activities within that *cercle*, commune, or village for a certain period and then go back when the situation was calmer. One change within staff placement was necessary for partner Sahel Eco: agents who are Dogon began working in areas that are primarily Dogon, and Peul agents began working in areas that are primarily Peul. This change was needed because of the importance of communities' trust the agents coming from Sahel Eco, and indications were mounting that having agents in communities who were not of the same ethnic make-up was impeding trust from being built.

Agents of Sahel Eco were able to access most communities from 2015 to 2019. Starting in the middle of 2019, the field reported that farmers in some villages were being threatened if they planted and harvested crops. This in turn gave rise to increased militias to protect farmers from armed groups. Armed groups in and near villages appeared to serve as magnets for other armed groups, which further destabilized the region. Despite this, Sahel Eco agents were able to continue working with most villages, but an elaborate system of contacting the village focal points and village elders was necessary to ensure staff safety.

Future USAID Mali partners in Mopti Region will need to have clear mechanisms for operating in what is an increasingly insecure and dangerous zone of operations. Annex D includes a comprehensive final security review.

ENVIRONMENTAL COMPLIANCE

Environmental compliance strategy. USAID approved MCCAAs Environmental Monitoring and Mitigation Plan (EMMP) in FY 2016. MCCAAs updated the EMMP to include new activities proposed during the option period. MCCAAs also designed a comprehensive PERSUAP, which the environmental focal point used and which was well-received by USAID. Staff and subcontractor partners applied the mitigation measures therein when implementing activities. The PERSUAP placed special emphasis on good practices for transport, storage, mixing, spreading, and management of empty chemical pesticide packaging.

During the implementation of MCCAAs activities, staff and partners were trained to understand the specific measures to be carried out to minimize environmental risk. Considering how activities under Result 3 relate to promotion of adaptive technologies that may have an impact on the environment, MCCAAs took great care to train individuals, farmer associations, and community organizations and institutions on the environmental impact of each adaptation technique. Annex C includes a PERSUAP Compliance Tracker and an EMMR for FY 2020.

ACTIVITY MONITORING AND EVALUATION PLAN

The MCCAА monitoring and evaluation team (M&E) analyzed and entered data into DevResults, monitored progress against the monthly action plan, and thoroughly verified data sent to MCCAА by subcontractors. During a typical month, the M&E team conducted weekly visits to subcontractors to verify incoming data, verified the data collection with the SurveyCTO Collect tool, verified the process of sending the data collected on the MCCAА server of the M&E system, verified that previous recommendations given to subcontractors were implemented, checked the quality of the data, and archived documents.

The M&E team carried out field-level monitoring, with all technical specialists on assignment in villages performing spot-checks of the work that subcontractors had completed. Technical specialists conducted quarterly visits to selected villages with the purposes of following work being done by subcontractors and monitoring the progress and quality of trainings.

MCCAА's close monitoring of field activities and quick collection of data via the smartphone application SurveyCTO enabled MCCAА to make changes as needed to field activities to better serve beneficiaries.

LESSONS LEARNED AND RECOMMENDATIONS

MCCAA learned many lessons during the life of the Activity that will help to facilitate future programming in Mopti Region and are described below, presented by IR.

LESSONS LEARNED: RESULT 1: USE OF EFFECTIVE CLIMATE INFORMATION BY VULNERABLE POPULATIONS INCREASED

Result 1 of MCCAA addresses stakeholders' supply, access, and capacity to use climate information. Thus, climate information must be available to the relevant stakeholders; they must have a means by which they can get the climate information and they must know how they can best use the information. Early in the Activity, MCCAA worked with the International Research Institute for Climate and Society (IRI) project managed by Columbia University and found that the validity of the weather forecasts was remarkably high — that is, what Mali Météo forecasted would happen did come about. IRI reviewed Mali Météo's historical data sets and compared them to the forecasts. IRI concluded that Mali Météo's forecasting was excellent, but it lacked wider dissemination to help Malians better understand forecasting and weather information and how they could use this information to their benefit.

With this understanding, MCCAA set out to work with producers on better understanding a weather forecast and finding multiple channels by which weather information could be sent to relevant stakeholders. The lessons that came from this exercise were many.

1. Mali Météo as an agency is linked to the Ministry of Equipment and Transport. A primary source of funding for Mali Météo comes from supplying forecasts that are used for transport purposes — notably, for commercial aviation at Modibo Keita International Airport. Part of the work that MCCAA conducted was to sensitize Mali Météo to “being of value” to other stakeholders. This could in turn lead to potential other sources of funding and lessen the burden on the Government of Mali. To this end, MCCAA supported the creation of a 10-year strategic plan for Mali Météo, which the Council of Ministers formally adopted. The objective of this plan was to diversify Mali Météo's funding stream to build resilience within the organization.
2. Radio is a common source of weather information for people in Mopti Region. MCCAA supported Mali Météo to disseminate forecasts through eight radio stations. This assisted producers to have access to climate information. Efficiency studies in 2018, 2019, and 2020 all concluded that radio is the most effective form for sending out climate information.

3. MCCAА worked with village-level focal points to link three groups of 10 people each to a rain gauge. Producers could see for themselves the difference in rain fall from rain gauges A, B, and C. This helped producers to better understand the complexity of forecasting, the differences that can be seen even in a small radius, and village-level results. This more precise information enabled farmers to know when to plant now that they had the ability to monitor the amount of rainfall and when an adequate amount had fallen in the village as an indicator that seeds could be planted.
4. Mali Météo developed the Agromet Toolbox with support from MCCAА. This application was loaded onto smartphones that Mali Météo then distributed to village-level focal points. The application sent daily climate forecasts for Mopti, and focal points also took readings from rain gauges and sent this information to Mali Météo. These data points permitted Mali Météo to further refine forecasting. Designed with an eye toward building community-level resilience, the application has even more functions than simple transfer of data about weather, such as permitting the transfer of information about agriculture (e.g., state of crops or infestations, transhumance and availability of fodder, access to water points for animals).

Recommendations:

1. Continue work with Mali Météo to further refine the Agromet Toolbox as a resilience tool for the Government of Mali and local Malian communities alike. The application could help the Government of Mali have a clearer picture of issues facing villages and could be used in such a way as to lessen the need for agents of the state to go to villages, a consideration given the issue of security.
2. Expand the Agromet Toolbox to other communes in Mopti Region and nationally.
3. Work with Mali Météo to develop a system of symbols that could be used to transmit climate information that is more easily understood by illiterate farmers.
4. MCCAА recommends that future activities exploit the Agromet Toolbox so that more information will flow from focal points to the Ministry of Agriculture, because this may help in reporting issues with crops and fodder and potentially reduce the need for state agents to visit some producers. This could be of great assistance considering the overall issue of security and movement of state personnel.

LESSONS LEARNED: RESULT 2: INCLUSION OF CLIMATE CHANGE CONSIDERATIONS IN GOVERNANCE SYSTEMS INCREASED

MCCAА facilitated 42 communes in Mopti Region to insert climate change action plans into PDESCs. The clear climate change action plans inserted into governance systems guide the government in responding to the needs of its citizens and addressing climate change at varying levels. All 42 communes legally adopted these plans. Further in this result area was the objective to improve NGOs' capacity to address the issue of climate change. Because NGOs are often implementing village-

level development projects, it was important to prepare those NGOs and associations to focus on building adaptive capacity to climate change. MCCAA increased the capacity of 76 local NGOs/associations during the life of the Activity. Working with commune governments, local NGOs, and associations provided many opportunities to learn lessons. The following are key:

1. Sensitizing both Government of Mali personnel and local organizations to the impacts of climate change was important, because its effects on Mali were not well understood. To that end, each of the 42 communes where MCCAA had a presence established climate proofing committees. These committees were responsible for executing climate change action plans.
2. Funding the activities in the climate change action plan was a major constraint. MCCAA held a training to help commune authorities to better market their climate change action plans and attract funding, which resulted in \$52,950 being brought to Mopti Region communes. The major constraint to attracting donors was the security situation in Mopti Region; many communes there receive funding for humanitarian or emergency work, which is short-term, but climate change is focused on longer term development.
3. Many NGOs identified understanding USAID rules and regulations as an area of weakness during the administration of their organizational capacity assessments. Given the importance of preparing local NGOs to implement USAID-funded initiatives, MCCAA organized a three-day training on USAID rules and regulations.
4. Security and stability will be critical to moving development forward in Mopti Region. An issue that MCCAA faced was the inability of the Malian government's technical services to travel to activity sites because of orders from the security services and the restriction on the use of motorcycles in Mopti Region. The key lesson is that for some activities to take place — such as state monitoring of activities — a certain level of security needs to be present in the zone of operations. Because NGOs are often not the immediate targets of terrorist groups, there is slightly more freedom of movement.

Recommendations

1. Continue to focus work in Mopti Region to communes where resilience efforts can help Malians better adapt to climate shocks and stresses, which can lead to more sustained livelihoods for themselves and for their families. Development can still take place in Mopti Region, but selection of communes must be done carefully.
2. Promote connections and more work between local NGOs and local associations. For both sustainability and capacity of local associations, increase linkages between village-level associations and local NGOs.

LESSONS LEARNED: RESULT 3: ADOPTION OF LOCAL SOLUTIONS TO CLIMATE VARIABILITY AND CHANGE IN TARGETED AREAS INCREASED

MCCAA trained 679,820 people on an adaptation technology, of whom 258,528 were women, resulting in 155,310 hectares of land being put under an improved management practice or technology. The Activity trained individuals on multiple

technologies to prepare them for different types of shocks and stresses associated with climate change. It was especially important for MCCA to ensure that the adaptation techniques and climate information were useful to beneficiaries and that these techniques were helping them to overcome the socioeconomic barriers. Thus, in 2018, 2019, and 2020, MCCA conducted an efficiency study to measure how useful beneficiaries found the respective technologies and how useful they found climate information and submitted each study to USAID. Lessons learned from work with beneficiaries were many, with the following lessons highlighted:

1. Soil fertility is a major issue that confronts farmers in Mopti Region, and they quickly adopted techniques introduced to increase soil fertility.
2. Farmers adopted techniques that required minimal investment; they have time to deploy adaptation techniques but lack large sums of capital to use other techniques. An example of this is the widespread adoption of RNA, which requires almost no investment other than time. However, improved poultry raising requires capital outlay given both the need to invest in chickens, to establish a holding pen, and obtain specialized feed and veterinary care.
3. Beneficiaries found radio the most accessible way to hear climate information. The second-best means of receiving climate information identified by beneficiaries was directly from MCCA focal points and *relais* at the village level.
4. Beneficiaries found the introduction of drought-resistant seed quite helpful. Because rainfall can be patchy throughout Mopti Region, this gave farms more likelihood of success in terms of yield. Beneficiaries frequently requested this technology.
5. Eradicating striga is a major issue in Mopti Region. Farmers adopted low-cost, easily adopted techniques that helped to rid striga from their fields.

Recommendations

MCCA recommends the following to future USAID programs in Mopti Region:

1. Promote more widely the use of bio-fertilizers. Soil fertility remains a significant issue for farmers, and application of bio-fertilizer would be helpful.
2. Focus future programming less on the number of hectares under an improved management technique or practice and focus more on how to promote women and youth to use what little land they have. This promotes both equity within the Activity and addresses youth unemployment.
3. Continue to conduct efficiency studies. These serve as a means by which the Activity can learn how beneficiaries can best be assisted and where resilience actions such as the adaptive strategies that MCCA promoted are working, or where communities may require further support with specific adaptive strategies or alternative adaptive strategies. This would help USAID define and prioritize future programming.

MCCAA puts forth the recommendations under each IR in hope that future programming will bear in mind these important points with the objective to address the needs to beneficiaries.

LESSONS LEARNED: MONITORING AND EVALUATION

Below, we share key lessons learned by the M&E team:

1. *Refresher training for agents.* As the Activity went on, it was especially important to continue to conduct refresher training for agents of all subcontractors on how to fill out the data collection sheets. These trainings provided an opportunity to review how to measure the indicators to ensure that all staff had a common understanding. Further, because agents were collecting data both in written and electronic formats, they were able to query the M&E team about issues they were having with using the data collection sheets for their smartphone data-collection application.
2. *Internet connection.* It is important to collect data both on paper and electronically. Mopti Region can experience poor connection, and this necessitates having backup in a hard-copy format because agents' phones have limited data storage space.
3. *Support from USAID and home office.* Successful collection and reporting require support from USAID and the home office. Because USAID reports data through a collection system established by the agency, support from USAID on how to use this system was important. Additionally, because Chemonics reports data through a system called DevResults, it was imperative that support for it was available when reporting and presenting data.
4. *Training for subcontractors' senior leadership.* Subcontractors' leadership compiled reports for MCCAA, so it was necessary that those who would be reporting the data understood applicable indicators and how to report upon those indicators. Refresher training on this topic was also necessary.

CONCLUSIONS

MCCAA set out to (1) increase the adaptive capacity of targeted communities, households, people and systems; (2) increase inclusion of climate change considerations to enable the country in accelerating the transition to climate-resilient and sustainable economic development; and (3) increase the adoption of local solutions to climate variability and change by communities and individual households. The Activity used 16 indicators to measure progress. Except for indicator 3.6: EG.3-10, 11, 12 Yield of targeted agricultural commodities among program participants with U.S. government assistance [IM-level], whereby millet and cowpea yields did not reach their targets, MCCAA met or surpassed all targets. As important as it is to meet numerical targets, findings from the efficiency studies in 2018, 2019, and 2020 also demonstrated the value of MCCAA to beneficiaries. Direct feedback from Mali Météo, Malian government technical services, and local NGOs showing their sincere praise of the Activity detailing how it had helped are testaments to the excellent work that may not be captured by any of the project indicators but accurately reflect the depth to which this Activity assisted institutions. Indeed, it was the holistic approach and the use of the resilience pathway that permitted MCCAA to link all three result areas with a view to move people, organizations, and the Government of Mali toward greater resilience to climate change.

ANNEX A. DETAILED FINANCIAL INFORMATION

The table below includes a financial summary of actual expenditures for MCCA incurred through October 29, 2020.

Line Item	Contract Funds	Base Period (July 2015 to July 2017)	Option Period (August 2017 to October 2020) **	Funds Remaining as of October 29, 2020
Salaries	\$1,997,155	\$745,765	\$1260,075	
Fringe Benefits	\$1,570,464	\$506,922	\$1,046,276	
Allowances	\$930,365	\$367,800	\$532,113	
Travel, Transport, and Per Diem	\$176,532	\$87,516	\$84,392	
Equipment, Vehicles, Freight	\$654,485	\$424,852	\$219,049	
Other Direct Costs	\$1,460,548	\$597,985	\$867,831	
Special Activities Fund	\$91,400	\$91,400	\$0	
Activities - Trainings	\$547,497	\$192,749	\$355,134	
Small Grants	\$108,907	\$65,560	\$43,348	
Subcontractors	\$2,093,840	\$1,008,604	\$1,093,370	
Total Direct Costs	\$9,631,193	\$4,089,152	\$5,501,588	\$40,453
Overhead	\$1,629,351	\$652,680	\$976,641	
G&A	\$634,570	\$297,105	\$303,927	
Total Estimated Costs	\$11,895,114	\$5,038,937	\$6,782,156	\$74,021
Fixed Fee	\$710,714	\$300,806	\$409,908	
Grand Total	\$12,605,828	\$5,339,743	\$7,192,065	\$74,020

*Line item amounts reflected as of Modification #11

**Represents costs incurred through October 2020

ANNEX B. ACTIVITY INDICATORS

The indicators used to measure progress during the life of the Activity are followed by the LOP target and then the actual LOP attained and these figures converted into a percentage in the table below. Key to MCCAAs success in outperforming on most indicators were the adaptive management techniques used, with the overall focus on meeting Activity deliverables and demonstrating impact at the beneficiary level.

EXHIBIT B-1. ACTIVITY INDICATORS

INDICATORS AND DISAGGREGATION	TARGET LOP	ACTUAL LOP	PERCENTAGE ACHIEVED
Indicator 1.1: EG.11-1, Number of people trained in climate change adaption supported by U.S. government assistance (S)	593,937	679,820	114%
Indicator 1.2: EG.11-2, Number of institutions with improved capacity to assess or address climate change risks supported by U.S. government assistance (R)	105	118	112%
Indicator 1.3: EG.11-6, Number of people using climate information or implementing risk-reducing actions to improve resilience to climate change as supported by U.S. government assistance (R)	556,624	778,961	140%
Indicator 1.4: Number of farmers collecting rainfall data from rain gauges as a result of U.S. government assistance (C)	11,800	12,354	105%
Indicator 1.5: EG.11-4, Amount of investment mobilized (in \$) for climate change adaptation as supported by U.S. government assistance (S)	\$5,000	\$52,950	1059%
Indicator 2.1: EG.11-3, Number of laws, policies, regulations, or standards addressing climate change adaptation officially proposed, adopted, or implemented as a result of U.S. government assistance (S)	42	42	100%
Indicator 3.1: Number of adaptive practices (options for action) tested (C)	25	25	100%
Indicator 3.2: EG.11-5, Number of people supported by the U.S. government to adapt to the effects of climate change	556,624	778,961	140%
Indicator 3.3: EG.3.2-17, Number of farmers and others who have applied improved technologies or management practices as a result of U.S. government assistance (R)	34,547	93,722	271%

INDICATORS AND DISAGGREGATION	TARGET LOP	ACTUAL LOP	PERCENTAGE ACHIEVED
Indicator 3.4: EG.3.2-18, Number of hectares of land under improved technologies or management practices as a result of U.S. government assistance (R)	55,263	155,310	281%
Indicator 3.5: EG.3.2-1, Number of individuals who have received U.S. government-supported short-term agricultural sector productivity or food security training	68,077	167,686	246%
Indicator 3.6: EG.3-10, -11, -12, Yield of targeted agricultural commodities among program participants with U.S. government assistance [IM-level]	Rice: 1,215 kg/ha Millet: 857 kg/ha Cowpea: 398 kg/ha	Rice: 1,785 kg/ha Millet: 635 kg/ha Cowpea: 390.5 kg/ha	Rice: 147% Millet: 74% Cowpea: 98%
Indicator 3.7: EG.3.2-28, Number of hectares under improved management practices or technologies that promote improved climate risk reduction and/or natural resources	55,263	155,310	281%
Indicator CC.1: GNDR-2, Percentage of female participants in U.S. government-assisted programs designed to increase access to productive economic resources (assets, credit, income, or employment)	50%	50%	100%
Indicator CC.2: EG.3-1, Number of rural households benefiting directly from U.S. government interventions	89,778	125,639	140%
Indicator CC.3: EG. 3-2, Number of individuals participating in U.S. government food security programs [IM-level]	556,623	630,959	113%

Key:

- (R) — Required by the RFP
- (S) — Standard GCC Or Feed the Future Indicator
- (C) — Custom Indicators

ANNEX C. PERSUAP COMPLIANCE TRACKER AND EMMR FY2020

EXHIBIT C-1. PERSUAP COMPLIANCE TRACKER

MITIGATION MEASURES	INITIAL COMPLIANCE STATUS (IF NOT KNOWN OR NOT APPLICABLE, SO INDICATE)	ACTIONS PLANNED TO ACHIEVE AND MAINTAIN COMPLIANCE (WITH DEADLINES AND RESPONSIBLE PARTY)	STATUS OF COMPLIANCE ACTIONS AS OF OCTOBER 28, 2020
Support only the pesticides authorized by the 2014 USAID/Mali AEG PERSUAP			
Inventory pesticides being supported and ensure no support for pesticides listed in Exhibit 3 of Section 3.2	Not applicable	Pulled from PERSUAP and distribute list of pesticides to be promoted and/or used by MCCA – field adaptation specialist Trained Sahel Eco, who advised producers	Documentation is on file with MCCA
Distribute copies of the list of allowed active ingredients (AIs) with matching commercial product names to all Activity field extension staff	Not known	Distributed copies of allowed active ingredients (AIs) list to relevant MCCA partners – field adaptation specialist	This was distributed during the trainings, which were delivered to MCCA partners (DRA-Mopti, ORM, Sahel Eco), focal points, and <i>relais</i>
Ensure that USAID MCCA-funded pesticide support is limited to only pesticides approved by the PERSUAP	List of authorized, approved pesticides in Exhibit 2 of Section 3.2 .	Developed tracker for pesticides procured or supported by MCCA – field adaptation specialist	This has been confirmed; documentation is on file with MCCA
Pesticide technical assistance and use must be governed by a set of locally adapted, crop-and-pest specific IPM-based pest management plans and observe enumerated use restrictions.			
Identify any sensitive and protected areas near Activity sites	Inventory lists and maps of sensitive and protected areas	Updated list and/or map of sensitive and protected areas near Activity sites – community resilience expert	Done for existing work sites

MITIGATION MEASURES	INITIAL COMPLIANCE STATUS (IF NOT KNOWN OR NOT APPLICABLE, SO INDICATE)	ACTIONS PLANNED TO ACHIEVE AND MAINTAIN COMPLIANCE (WITH DEADLINES AND RESPONSIBLE PARTY)	STATUS OF COMPLIANCE ACTIONS AS OF OCTOBER 28, 2020
Using information in PERSUAP Exhibit 5, Section 3.6 , and Annex VI , adopt and/or develop crop- and pest- specific IPM-based pest management plans (PMPs)	Recommended IPM practices in Exhibit 5, Section 3.6 . Review Exhibit II-1 in Annex II and the proposed IPM program in Annex III	PMPs developed for dry crops – community resilience expert, field adaptation specialist	MCCAA community resilience specialist and field adaptation specialist (environmental compliance focal point) developed these PMPs
Based on the PMPs, develop crop-specific field reference guides or posters for farmers to anticipate and manage pests	Not applicable	Field reference guides and/or posters developed for dry crops – community resilience expert, field adaptation specialist Sahel Eco facilitators used the same module to train producers	MCCAA community resilience specialist and field adaptation specialist (environmental compliance focal point) developed these PMPs
Developed training curricula for relevant Activity staff, partners, and beneficiaries based on training program	Training program	Sahel Eco facilitators used module to train producers	MCCAA community resilience specialist and field adaptation specialist (environmental compliance focal point) developed a training guide for staff, partners, and beneficiaries based in the MCCAA EMMP and PERSUAP; this is in the MCCAA files
Provided training to relevant Activity staff, partners, and beneficiaries	Training program	Training program – field adaptation specialist	Sahel Eco facilitators continued to train producers between October 2019 and April 2020 in various sites across the Mopti Region
Require and enforce PMP implementation in demonstration sites and other situations where MCCAA has direct control over pesticide use	List of demonstration sites	Technical assistance to target farmers, and monitoring of PMP adoption and implementation – field adaptation specialist, community resilience expert	Enforcement of implementation in demonstration farmer sites in the 31 communes was monitored by our community resilience expert and field adaptation specialist, community resilience specialist (environmental compliance focal point), and field agents from partner Sahel Eco

To the greatest degree practicable, projects must require use and assure maintenance of appropriate PPE and application equipment — as well as safe pesticide purchase, handling, storage and disposal practices

MITIGATION MEASURES	INITIAL COMPLIANCE STATUS (IF NOT KNOWN OR NOT APPLICABLE, SO INDICATE)	ACTIONS PLANNED TO ACHIEVE AND MAINTAIN COMPLIANCE (WITH DEADLINES AND RESPONSIBLE PARTY)	STATUS OF COMPLIANCE ACTIONS AS OF OCTOBER 28, 2020
Assure and require well-maintained sprayers and proper post-spray hygiene and facilities for pesticide use in demonstration sites and other sites under direct MCCAAC control	Training program	Trained target farmers and monitored demonstration sites and other target areas – field adaptation specialist, community resilience expert	Sahel Eco facilitators continued to train producers between October 2019 and April 2020 in various sites across the Mopti Region
Promote safe post-spray clothing and equipment washing, and proper disposal of wastes	Training program for extension staff and farmers	Regular field monitoring during life of Activity – field adaptation specialist, community resilience expert Quarterly reporting	Field monitoring took place quarterly in FY 2020 by the community resilience expert and field adaptation specialist (environmental compliance focal point)
Ensure provision and appropriate use and care of PPE in demonstration sites and other situations under MCCAAC direct control; encourage the same where MCCAAC does not have direct control over pesticide procurement and use	Training program at demonstration sites.	Trained target farmers and monitored demonstration sites and other target areas – field adaptation specialist, community resilience expert October 2019 to February 2020	Sahel Eco facilitators continued to train producers between October 2019 and April 2020 in various sites across the Mopti Region
Extension activities, promote and support to appropriate PPE use and good handling, storage, clean-up and disposal practices to the greatest degree practicable.	Training program for extension staff and farmers	Trained target farmers and monitored demonstration sites and other target areas – field adaptation specialist, community resilience expert October 2019 to February 2020	Sahel Eco facilitators continued to train producers between October 2019 and April 2020 in various sites across the Mopti Region
Encourage and support the use of Global GAP best practices with pesticide storage, use and disposal, whether or not certification is sought for any support to commercial farms	Training program for extension staff and farmers	Trained target farmers and monitored demonstration sites and other target areas – field adaptation specialist, community resilience expert October 2019 to February 2020	Sahel Eco facilitators continued to train producers between October 2019 and April 2020 in various sites across the Mopti Region

MITIGATION MEASURES	INITIAL COMPLIANCE STATUS (IF NOT KNOWN OR NOT APPLICABLE, SO INDICATE)	ACTIONS PLANNED TO ACHIEVE AND MAINTAIN COMPLIANCE (WITH DEADLINES AND RESPONSIBLE PARTY)	STATUS OF COMPLIANCE ACTIONS AS OF OCTOBER 28, 2020
Projects must be systematic in their pesticide related record-keeping and monitoring			
<p>The following must be tracked and reported:</p> <p><i>Human poisonings and any incidences of chronic health issues; farm animal and livestock deaths; incidences of water pollution; Fish, bird, wildlife or honeybee kills; and any evidence of pesticide resistance development</i></p>	Develop or adapt existing record keeping and monitoring program	Monitoring ongoing – field adaptation specialist, community resilience expert	Nothing to report
Flow-down requirements			
Prime contractors must write pesticide compliance requirements as set out above into each grant or subcontract that will involve support for pesticide use	Sub-contract documents	Integration of environmental compliance requirements, including PERSUAP's, with the relevant environmental provisions, procedures and guidelines into all its subcontracts and grants	This was done for subcontract with Sahel Eco

EXHIBIT C-2. EMMR FORM FY2020

INTERVENTIONS	MITIGATION MEASURES	RESPONSIBLE PARTIES	MONITORING SCHEME			EST. COST	MONITORING LOG		
			INDICATORS	DATA SOURCE/METHOD	HOW OFTEN		DATE	RESULTS	FOLLOW-UP ACTIONS
<p>*Assistance to local NGOs to carry out MCCAAs activities</p> <p>*Local NGOs support vulnerable populations, and foster the adoption and expansions of adaptive practices</p>	With NGOs, develop mitigation measures for implemented activities	FAS, CRE	Mitigation measured defined by NGOs	<ul style="list-style-type: none"> Activity records NGO mitigation plans 	Annually		October 2019 to April 2020	Sahel Eco is following MCCAAs EMMP field adaptation specialist and community resilience expert monitor	Field monitoring
<p>3.1.5: Training of village committees, farmers associations, and community organizations and institutions in climate change adaptation practices and principles</p> <p>3.1.6: Identification and use of model farmers for the promotion of climate change adapted agricultural practices</p>	<ul style="list-style-type: none"> All promotion, procurement and use of chemically treated seed comply with the conditions and guidance of the PERSUAP All relevant partners receive copies of the PERSUAP or relevant sections and are trained accordingly Ensure that fertilizers factsheet from ENCAPAFRICA is made available in appropriate language and farmers are guided accordingly; ensure 	CRE, FAS	Training report and AFR fact sheet	Training report	Annually		October 2019 to April 2020	<p>Demonstration farmers received copies of the relevant elements of the MCCAAs PERSUAP and the fertilizer fact sheet</p> <p>The PERSUAP and fact sheet was then discussed with each of the focal points during supervision missions</p>	N/A

	appropriate PPE are available to handle pre-treated seed, chemical fertilizer, and pesticides; handling and storage of seeds and fertilizers are per manufacturer's recommendations and dosage to avoid surface water or groundwater contamination								
RNA	Ensure compliance with good environmental practices and Malian environmental regulations	FAS-CRE-Sahel Eco	ANR training modules Law 1No. 0-028 dated 12 July 2010, which determines Mali's national forestry sector's management principles	Training report			October 2019 to April 2020	Throughout the training, mitigation measures were well respected	N/A.
Pit or open-air composting	<ul style="list-style-type: none"> Select sites for compost production plots where destruction of natural vegetation and ecosystems, watercourses, swamps and forests will not occur (plot location must correspond to a site where production is already in progress); choose low slope sites (0.3-5%) to manage runoff Divert clean water flowing upstream from the composting site 	FAS-CRE-Sahel Eco	Training modules	Training report			October 2019 to February 2020	Throughout the training, mitigation measures were well respected	N/A

<ul style="list-style-type: none"> • Ensure that the surface of the composting site is sufficiently watertight to minimize leaching of runoff and seepage from compost • Choose a site not close to wells, other water sources, or agricultural drains • Choose sites on non-light (sandy) soil • For permanent composting sites, follow site selection requirements similar to those for manure storage facilities with respect to neighbors, wells, water, etc. • Erect walls with clay bricks to prevent dripping or seepage during reversal periods • Provide suitable sites for drying and storing mature compost • Incorporate environmental management practices into training, such as water and soil conservation, soil fertility management, and other environmental protection measures • Disseminate Malian environmental laws and regulations during training sessions • Train beneficiaries on provisions relating to the use of fertilizers according to the standards outlined in 								
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	the USAID / AFR Fertilizer Factsheet								
3.2.2: Support to and participation in public events on environmental protection and climate change:	Ensure that promoted or supported events, fairs, exhibits, shows, etc. set example in good practices, including waste management (i.e., are consistent with the relevant good-practice guidance of USAID's Environmental Guidelines for Small-Scale Activities in Africa)	CRE, FAS, GVPS	Reports on and pictures or videos of the events, fairs, exhibits, and shows, showing good practices and cleanness of the areas	Review of USAID technical and financial support for the celebration of International Day of Rural Women	Whenever such events are organized		October 29, 2019	A discussion was conducted with the participants on the key points outlined by MCCA to see their understanding of better integration of women into rural Mali development activities	N/A.

ANNEX D. SECURITY ANALYSIS: MOPTI REGIONAL DEVELOPMENTS: 2015 TO 2020

INTRODUCTION

In the mid-2000s, an estimated 100,000 tourists transited through Mopti town — the so-called “Venice” of Mali — en route to the Niger inner delta and the Bandiagara escarpment. According to Malian government figures, tourism generated an estimated \$40 million in yearly revenues and accounted for approximately 25 percent of the region’s total economic activity.³ However, a decade later, central Mali had become an epicenter of terrorism and intercommunal violence, leading to the internal displacement of 86,000 people as of February 2020.⁴ Jihadist groups including Katiba Macina, JNIM, and the Islamic State in the Greater Sahara (ISGS) perpetrated more than 400 attacks between January 2015 and March 2020, killing more than 1,000 people; intercommunal militias were reportedly involved in more than 450 incidents, leading to the death of more than 1,350 people during the same time period. This research will examine the evolution of the security environment in Mopti Region from 2015 to 2020, provide background on the major actors involved, analyze factors contributing to the deterioration of the security situation in central Mali, and highlight major trends in reported security incidents.

This research report finds that a relationship does exist in central Mali among criminal activity, operations by jihadist groups, and increasing levels of intercommunal violence. Jihadist groups have managed to establish strongholds in Mopti Region by leveraging intercommunal tension and existing grievances against the Malian government. Illicit revenues from criminal activity and smuggling to, from, and through Mali have further destabilized the region, providing armed groups and jihadist networks with supplies and revenue and fomenting escalating violence. Finally, attacks on civilians by ethnically aligned militias in Mopti (originally created to defend communities against attacks by militant groups and bandits) have grown in frequency and violence, leading to a spiraling cycle of retaliatory clashes.

³ Thiam, A., (2017), Centre du Mali: Enjeux et dangers d’une crise négligée. *Centre pour le Dialogue Humanitaire*.

⁴ Lognoné, B., (2020) Food vouchers bring hope to displaced families in Mopti. *World Food Program Insights*.

LEVERAGING GRIEVANCES – THE RISE OF JIHADIST GROUPS

Islam — brought to the Sahel by Berber and Tuareg merchants in the 10th century and later spread by the Malian Empire between the 13th and 17th centuries — has long played a role in Malian political and social life, with the cities of Timbuktu, Gao, and Djenné becoming international centers of Islamic culture and learning. In the 19th and early 20th centuries, Islam continued to grow, often as an outlet for activism against French colonialism. In the north of Mali, Islamization blended with local grievances, particularly in Tuareg and Arab communities. Later, growing foreign aid from Saudi Arabia and Pakistan in the 1990s fostered the spread of more orthodox schools of Islam. Tablighi Jama'at (known locally as *Dawa* or proselytism), a strict Hanafi Islamic missionary movement spread throughout Kidal and Gao, built a strong following among the Ifogha Tuareg elite — including the leader of the People's Movement for the Liberation of Azawad (MLPA), Iyad Ag Ghaly.

During the Algerian Civil War (1991 to 2002), the Al-Qaeda-backed Salafist Group for Preaching and Combat (GSPC) established contacts with Berabiche Arab smugglers in northern Mali, setting up logistical bases in Mali. Following the war, many GSPC leaders, including Mokhtar Belmokhtar and Nabil Abou Alqama, fled to Mali, where they became active in kidnap-for-ransom. In 2007, the GSPC formally pledged allegiance to Al-Qaeda, becoming Al-Qaeda in the Islamic Maghreb (AQIM), continuing a prolific — and lucrative — campaign of kidnappings in Mali. In Mopti Region, AQIM kidnapped two French geologists from a hotel in Hombori (Douentza Cercle) in November 2011.

Following the collapse of Colonel Muammar Gaddafi's regime in Libya in 2011, weapons looted from Libyan weapons caches were smuggled into Mali, subsequently falling into the hands of jihadist cells and secular Tuareg militias alike. In January 2012, the National Movement for the Liberation of Azawad (MNLA) formed an opportunistic alliance with Iyad Ag Ghaly's newly formed Ansar Dine, AQIM, and the Movement for Oneness and Jihad in West Africa (MUJAO).

In 2012, a number of young, unemployed Fulanis in Mopti and southern Tombouctou joined MUJAO and Ansar Dine for money, protection, or ideology. In early-to-mid 2012, the rapidly advancing MNLA took control of many towns in Douentza Cercle, capturing Douentza itself in September. In June, hostilities began between jihadist groups and the MNLA, with MUJAO and Ansar Dine seizing most of northern Mali by November 2012. After the MNLA abandoned Douentza, a Songhaï and Fulani militia called Ganda Izo briefly ruled the town before MUJAO took over in September. On January 9, 2013, former Fulani preacher turned jihadist Amadou Kouffa led a joint AQIM, Ansar Dine, and MUJAO offensive from the Gourma-Rhaous Cercle on Konna, a town located 52 km (32 mi) north of Sévaré, prompting France to enter into the conflict and officially launching operation Serval on January 11. After seizing Konna, jihadist groups moved toward Sévaré and Mopti on January 11 but were pushed back by a Malian counterattack supported by French airstrikes. In the following days, Malian and French forces recaptured Konna, Douentza, and later Hombori, before moving further north.

Following the Malian Armed Forces (FAMa) and French forces' retaking of central and northern Mali, many jihadist fighters disbanded and returned to their homes in Kidal, Gao, Tombouctou, and Menaka. Within Mopti Region, fighters returned to largely Fulani-majority areas in Douentza, Youwarou, and Tenekou Cercles. Subsequently, multiple Ansar Dine commanders defected to form the more moderate Islamic Movement of Azawad that would seek to negotiate with the state for a peaceful resolution of the conflict. The period spanning from February 2013 to January 2015 saw fewer attacks occur in northern Mali and no reported attacks conducted by jihadist groups in Mopti⁵. Initial analysis posited that Ansar Dine had been dealt a significant blow both by French forces and internal defections and therefore was weakened to the point of inaction.

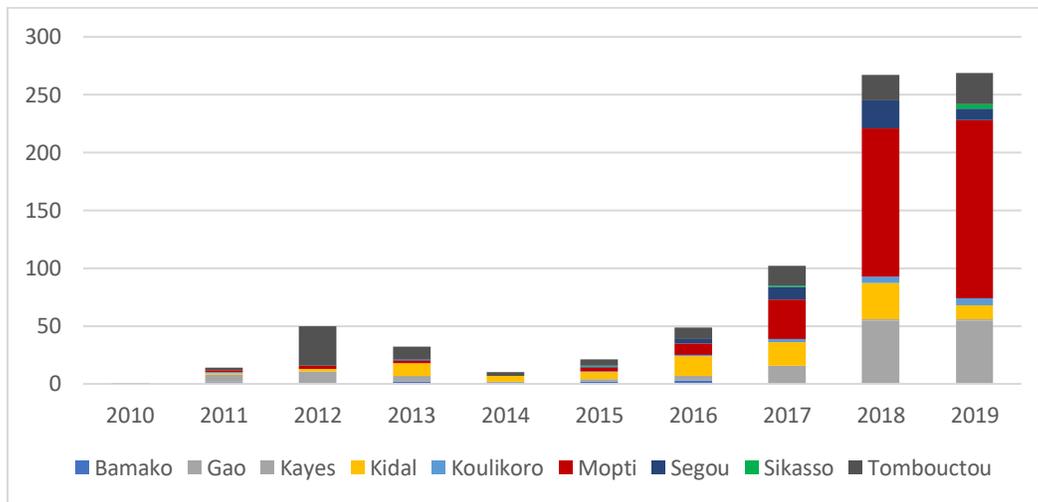


Figure 1: Attacks perpetrated by jihadist militant groups in Mali by region, 2010-2019. Data from the Armed Conflict Location & Event Data Project (ACLED)

⁵ Armed Conflict Location and Event Data Project (ACLED)

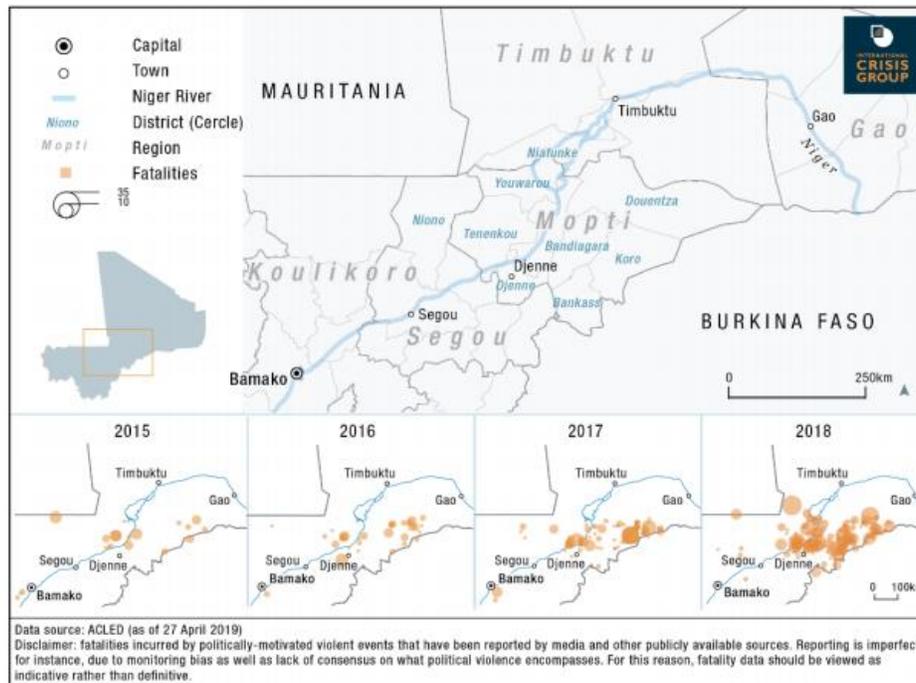


Figure 2: Evolution in violence in Central Mali (2015-2018). Source: Crisis Group

Nevertheless, according to residents in Kidal, Ansar Dine leaders indicated in 2013 and 2014 that they intended to maintain a low profile⁶. It is likely that jihadist groups in Mali at the time turned to the concept of *Sabr*, referring both to patience and resilience, a key component in Islamic theology and a strategy most recently attempted by the Islamic State following its territorial losses in Iraq and Syria⁷. *Sabr*, when employed by jihadist militant groups, is often accompanied by a gradual, albeit non-violent, increase in territorial footprint as the groups extend their networks in rural areas, rebuild their strength, and avoid confrontation with security forces.

“You have to be kind to them and make room for compassion and for leniency. Try to win them over through the conveniences of life and by taking care of their daily needs like food, electricity and water. Providing these necessities will have a great effect on people and will make them sympathize with us and feel that their fate is tied to ours. This is what we have observed during our short experience. [...] We advise you not to be dragged into a prolonged war. Hold on to your previous bases in the mountains, forests and deserts and prepare other refuges for the worst-case scenario. This is what we came to realize after our withdrawal.”

Figure 3: A letter from Abu Basir al-Tartusi, Emir of al-Qaeda in the Arabian Peninsula to Abdelmalek Droukdel, Emir of AQIM in 2012, and later recovered from a safehouse in Tombouctou. Source: *The Al-Qaeda Papers*, AP⁸

⁶ <https://www.theguardian.com/world/2014/mar/11/mali-jihadists-return-after-france-mission>

⁷ <https://www.thedefensepost.com/2019/02/06/patience-islamic-state-new-focus-sabr/>

⁸ <https://www.longwarjournal.org/images/al-qaida-papers-how-to-run-a-state.pdf>

In early 2015, two new groups gained public attention in central Mali: Katiba Khaled Ibn Walid and Katiba Macina. Katiba Khaled Ibn Walid, founded by the former Senegalese Ansar Dine fighter Souleymane Keïta, has been referred to locally as Ansar Dine South, given Souleymane Keïta's ties to Iyad Ag Ghaly and his group's operations in Mopti, Segou, and Sikasso. Nevertheless, Keïta saw limited success, with several of his camps destroyed by the FAMA before his eventual arrest in Segou near the Mauritanian border in March 2016.

Amadou Kouffa, a Fulani preacher born in Niafunké, grew close to Iyad ag Ghaly, who became his mentor sometime in the 2000s. In 2012, Amadou Kouffa joined Ansar Dine, receiving training in Tombouctou and later leading the joint Ansar Dine, AQIM, and MUJAO offensive on Konna in January 2013. Following the town's capture, Kouffa was named Emir of Konna, but this was short-lived; French and Malian troops recaptured the town days later. Following the joint French-Malian offensive, it was long thought that Kouffa was among the estimated 100 fighters killed in and around Konna.⁹

However, Kouffa reemerged in early 2015, founding Katiba Macina (whose name echoes the 19th century Massina Empire, which spanned from Timbuktu to Segou). Leveraging resentment against the Malian government, Kouffa drew grassroots support, promising to address social and economic grievances, pledging to restore the region's golden age, and providing communities with justice and public services. The extent of local populations' distrust of official sources of authority — namely political authorities and security forces — was shown by a field study conducted by the Stockholm International Peace Research Institute (SIPRI) across Mopti Region in 2020. Some 60 percent of interviewees claimed that they preferred to consult traditional authorities for minor conflict resolution.¹⁰ Family and other community members were cited in second and third place respectively, followed by religious authorities in fourth place. By contrast, only 5 percent and 3 percent of survey respondents indicated that they would trust security forces and political authorities, respectively, in resolving communal disputes.¹¹ Even in the case of serious crimes, customary authorities remain the most common choice (for 53 percent of respondents), ahead of state authorities such as the police (23 percent) or political authorities (9 percent).¹²

⁹ <https://www.jeuneafrique.com/mag/280602/politique/mali-keita-kouffa-linquietant-duo-terroriste-sud/>

¹⁰ Ibid. p.7.

¹¹ Ibid. p.7.

¹² Ibid. p.7.

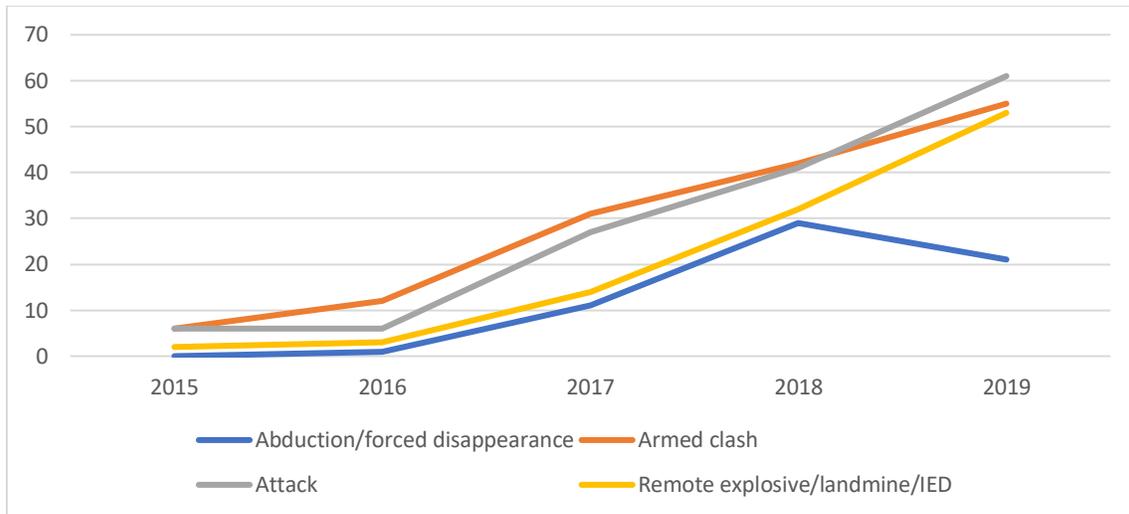


Figure 5: Actions of jihadist militant groups in Mopti (2015-2019) by action type

2015 also saw the first uses of landmines and IEDs in Mopti Region. In 2015, the region reported three IED/landmine attacks, with three attacks again reported in 2016, 17 in 2018, and 66 in 2019. As existing stocks of landmines (including Belgian-made PRB M3 mines looted from Libyan arms depots and scavenged from the Aouzou Strip minefield along the Chad-Libyan border¹⁵) and captured military-grade explosives such as SEMTEX¹⁶ dwindled, militants turned to smuggled explosives used in artisanal gold mining and homemade explosive — in contrast to repurposed ordinance, which is more commonly used in the Middle East.

¹⁵ https://www.conflictarm.com/download-file/?report_id=2433&file_id=2434

¹⁶ <http://www.smallarmssurvey.org/fileadmin/docs/A-Yearbook/2015/eng/Small-Arms-Survey-2015-Chapter-06-EN.pdf>

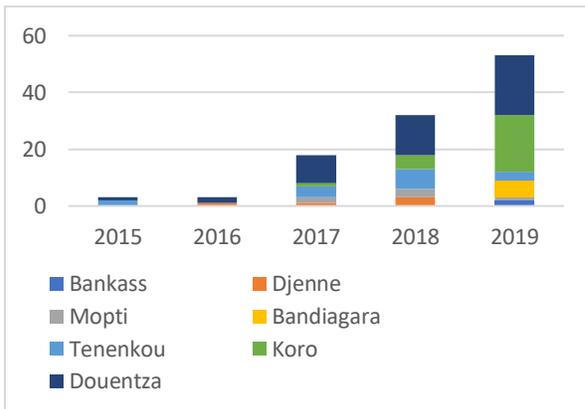


Figure 6: IED and landmine attacks in Mopti by cercle (2015-2019). Data: ACLED

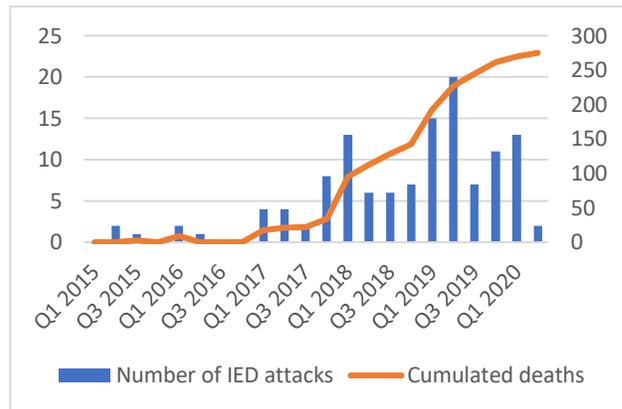


Figure 7: IEDs attacks in Mopti Region and cumulated deaths by quarter (2015-2020)

In March 2017, Ansar Dine, Katiba Macina, Katiba al-Mourabitoun, and the Sahara factions of AQIM merged to form JNIM, pledging allegiance to AQIM, Al-Qaeda central, and the Taliban. The formation of JNIM in March 2017 was in part triggered by the February 2017 creation of the G5 Sahel Joint Force, a military operational mechanism allowing Mali, Burkina Faso, Niger, Mauritania, and Chad to deploy joint patrols along the countries’ porous borders. The jihadist merger allowed the groups to pool resources, combine forces, and extend their operational reach. JNIM soon became the region’s largest and most active group, with operations extending from Mali into Burkina Faso, Niger, Mauritania, Chad, and Algeria. In Mali, JNIM’s Katiba Macina faction was present in Mopti, Segou, and Sikasso’ AQIM’s Katiba Sahara and al-Mourabitoun both operated in the Gao, Menaka, and Kidal regions; and Ansar Dine retained its strongholds in Kidal.

Following the merger, JNIM’s constituent groups experienced another ideological shift. According to Tim Jan Roetman, Marie Migeon, and Véronique Dudouet at the Berghof Foundation’s Conflict Transformation Research Programme, “the main ideological change seems to be the shift from an organization that challenges the state to one that rejects the Weberian state model [...]. The group is now rejecting (through violence) the state and the international system, whereas it simply challenged them before (through both violence and activism).” While continuing to target Malian security forces, French Barkhane forces, and MINUSMA peacekeepers, JNIM also began to increasingly target civilians working for or representing the state apparatus — civil servants, administrators, government representatives, judges, and engineers and construction workers. In 2016, the year preceding the JNIM’s formation, the groups that would later coalesce perpetrated three attacks against civilians throughout Mali. In 2017, that number would grow to 15 before reaching 79 in 2018 and 80 in 2019.

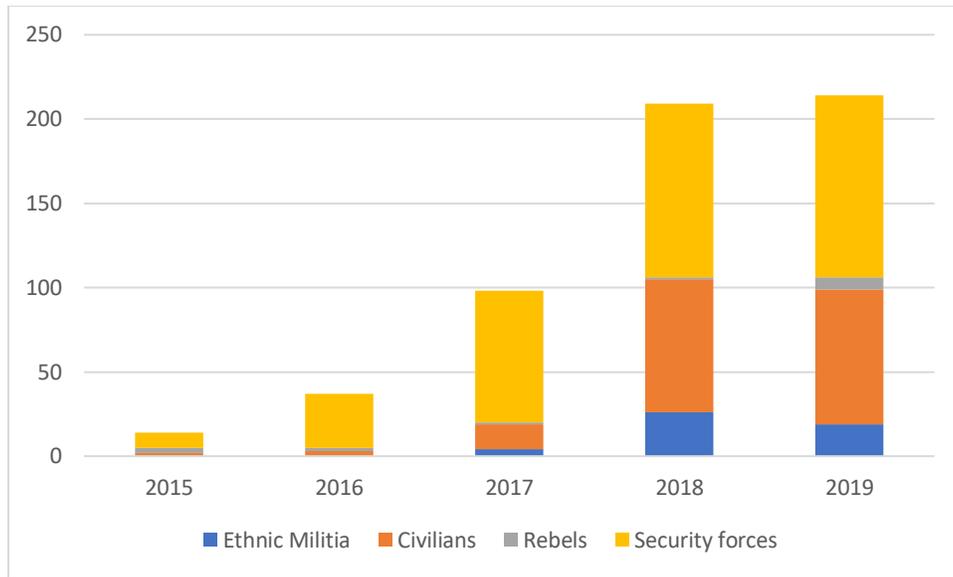


Figure 8: Attacks by JNIM and its constituent groups by type of target (2015-2019). Data; ACLED

Attacks by JNIM and its constituent groups also shifted from the country’s northern regions (Kidal, Gao, Tombouctou, and Menaka) to the country’s center (Mopti and Segou). Although the net number of attacks increased in nearly all regions, Mopti saw the greatest year-on-year evolution, with 21 percent of attacks occurring in the region in 2015, 25 percent in 2016, 34 percent in 2017, 55 percent in 2018, and 65 percent in 2019. The increasing concentration of attacks in central Mali could have been prompted by jihadists’ desire to open a new front away from Kidal with the goal of further stretching an already weak Malian military. This would be accomplished by launching operations in a poorly defended region, one where U.N. peacekeepers and French forces had a lesser presence. JNIM’s shift to the center of Mali could also be explained by a pull factor, with long-neglected fragile institutions, rampant existing grievances, and lesser presence of security forces offering attractive opportunities for expansion. Finally, it is likely that Amadou Kouffa’s success in establishing a stronghold in Mopti Region from 2014 to 2017, and Katiba Macina becoming one of the most powerful groups within JNIM, allowed Kouffa to exert increasing authority within JNIM, shaping the group’s strategy in shifting operations south. Increasing attacks in Mali’s center further destabilized the Malian state, fostering local recruitment among fragile communities, attracting fighters from other regions, and allowing jihadist groups to secure lucrative smuggling routes.¹⁷

¹⁷ https://www.sipri.org/sites/default/files/2018-02/sipriinsight_1713_mali_3_eng.pdf

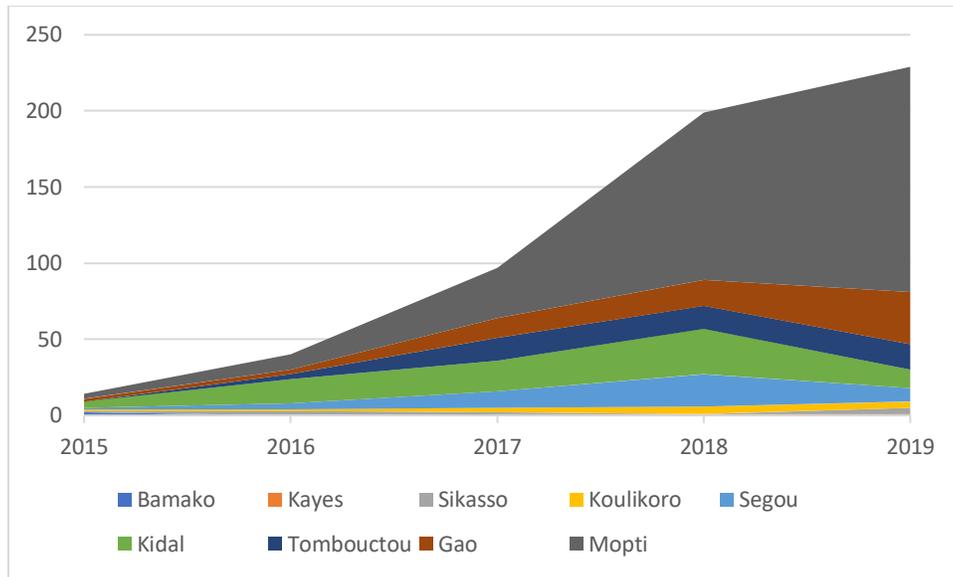


Figure 9: Attacks by JNIM and its constituent groups (2015-2019) by region. Data: ACLED

In 2017 and 2018, as jihadist groups expanded their reach, particularly in rural areas, Mopti Region saw a sharp increase in abductions and forced disappearances of village leaders, government workers, and suspected collaborators (increasing by 950 percent between 2017 and 2018); attacks against military positions (increasing by 428 percent from 2016 to 2018); and IED attacks against security patrols (increasing by 244 percent over the same period)¹⁸. According to Ferdaous Bouhlel, a scholar in peace and security in Mali at the Berghof Foundation, Iyad Ag Ghaly even asked Amadou Kouffa in 2017 to limit the targeted killings of civilians.¹⁹ Nevertheless, Amadou Kouffa continued to expand his territory, intimidating and targeting non-compliant villages. The share of civilian fatalities associated with JNIM attacks increased from 7 percent in 2017 to 33 percent in 2018, before growing to 41 percent in 2019.

According to academic Alex Thurston, “Once Kouffa’s forces have sway in a village, they reconfigure the management of pastures, collect *zakat* (mandatory alms for Muslims), close schools and sometimes hospitals, ban celebrations of major holidays and lavish marriages, and punish those who cooperate with state.”²⁰ In 2017, the U.N.

¹⁸ ACLED

¹⁹

[https://chemonics.sharepoint.com/sites/bu311003/WorkingDocuments/Projects%20\(By%20Country\)/WCA/FH/Mali/Projects/CCAA/Mali%20security%20report/Readings/Done%202019_SJAG_CaseStudy_AnsarDine.pdf#search=mathieu%20guidere](https://chemonics.sharepoint.com/sites/bu311003/WorkingDocuments/Projects%20(By%20Country)/WCA/FH/Mali/Projects/CCAA/Mali%20security%20report/Readings/Done%202019_SJAG_CaseStudy_AnsarDine.pdf#search=mathieu%20guidere)

²⁰ http://rosalux.sn/wp-content/uploads/2019/05/RLS_DAKAR_PC_01_2018-3-alex-thosten.pdf

reported 41 attacks against educational establishments in Gao, Mopti, Timbuktu, and Kidal.²¹ By December 2017, 654 schools had closed throughout Mali, including 277 schools in Mopti Region, with some 2,700 teachers not at their posts due to insecurity and threats from jihadist groups.²²

As Katiba Macina extended its operations throughout central Mali, the government's grasp on territory in Mopti waned. The Malian state's management of these areas revolved around "controlling regional capitals (or making deals with the de facto administrative authorities there), and accepting that state authority progressively diminishes as one leaves the regional capitals and moves into the surrounding areas."²³ Struggling to contain the growing violence, the FAMA increased its targeting of Fulani communities, with many falsely accused of supporting jihadist armed groups. Cases of extortion and abuse have been reported; security forces allegedly arrested Fulani citizens on an arbitrary basis and requested they pay between XOF 500,000 and 2,500,000 to be released. In September 2017, Human Rights Watch accused the Malian military of arbitrary arrests, torture, summary executions, and forced disappearances of civilians in Mopti.²⁴ In April 2016, Malian soldiers were accused of killing eight Fulani civilians and severely injuring multiple others in the village of Boni (Douentza Cercle). In December 2016, Malian forces detained five Fulani men in Isseye near Mondoro (Douentza Cercle), and their bodies were later found in a mass grave near the village. From 2013 through March 2020, ACLED reported 85 security events involving security forces against civilians, resulting in 315 fatalities. Such actions further increased a cycle of violence, pushed communities away from the state, and spurred recruitment for jihadist groups.

Within the region, Douentza, Koro, Bandiagara, and Tenekou Cercles experienced the most dramatic increase in jihadist-associated violence. In Douentza, fatalities associated with the actions of jihadist groups increased from 15 in 2015 to 236 in 2019, a nearly 1,500 percent rise. Koro experienced a 4,525 percent rise, with fatalities increasing from four in 2015 to 185 in 2019²⁵. In Bandiagara, the same number grew from zero in 2015 to 113 in 2019. Between January 2019 and March 2020, the worst hit areas have been Douentza, Koro, and Bandiagara, which have respectively suffered 27, 25, and 24 percent of fatalities through Mopti.

²¹ <https://www.refworld.org/docid/5be9430813.html>

²² <https://www.refworld.org/docid/5be9430813.html>

²³ http://rosalux.sn/wp-content/uploads/2019/05/RLS_DAKAR_PC_01_2018-3-alex-thosten.pdf

²⁴ <https://www.hrw.org/news/2017/09/08/mali-unchecked-abuses-military-operations>

²⁵ ACLED

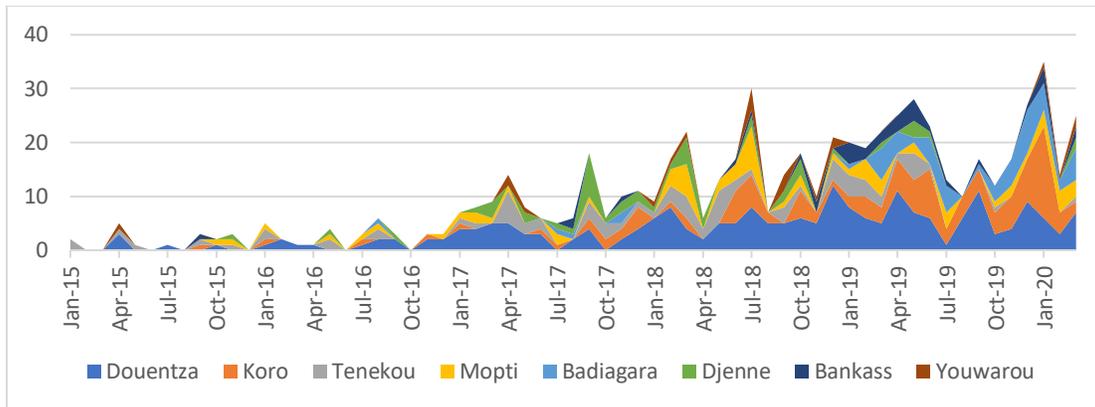


Figure 10: Security incidents associated with jihadist groups in Mopti by cercle (2015 to March 2020)

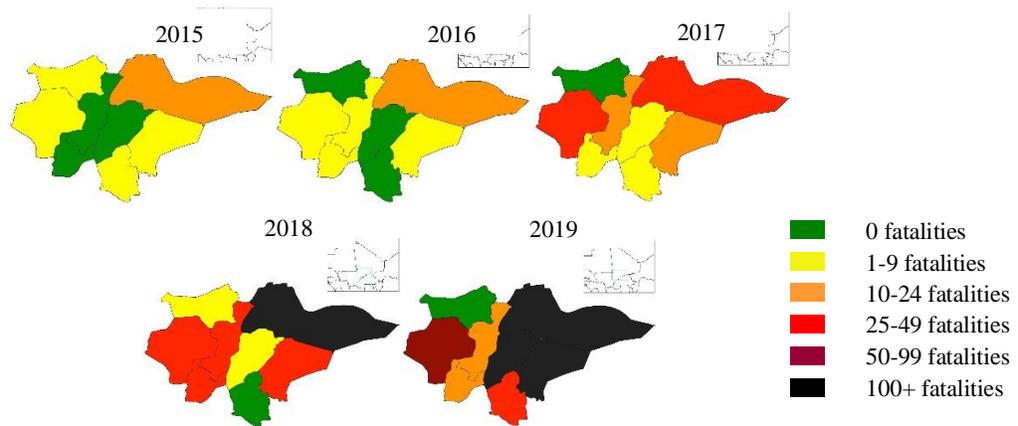


Figure 11: Fatalities in Mopti Region associated with actions by jihadist groups per year. Data: ACLED

In 2019, jihadist groups in Mali, Burkina Faso, and Niger conducted a series of complex attacks against military bases, capturing large numbers of vehicles and seizing important arsenals of light and heavy weapons. Examples include the ISGS/Islamic State West Africa Province (ISWAP) attack on Koutougou in Burkina Faso (August 2019, 24 killed); the JNIM attacks on the FAMA Mondoro and Boulikessi bases in Mopti (September and October 2019, 40 to 85 killed); the ISGS/ISWAP attack on the Indelimane camp in Niger, which saw the use of vehicle-borne improvised explosive devices (November 2019, 71 killed); and the ISGS/ISWAP attack on a Nigerien camp in Chinégodar (January 2020, 89 killed). These attacks have “enabled terrorist groups to accumulate large stockpiles of ammunition and weapons, becoming the main source of

supply, offsetting the decline in flows from Libya and other former conflict zones.”²⁶ In addition, the complexity of recent attacks using mortars, vehicle-borne IEDs, and sophisticated tactics illustrate the growing capacities of jihadist groups, namely ISGS/ISWAP, in the region. Indeed, in January 2015 during a G5 Summit in Pau, French President Emmanuel Macron declared that ISGS was the greatest security threat in the Sahel.²⁷

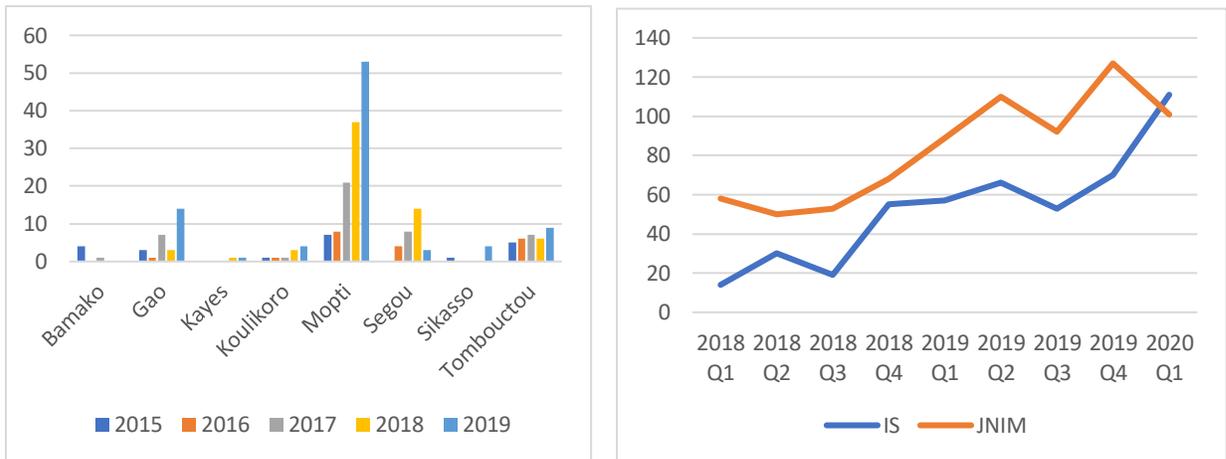


Figure 12: Attacks by jihadist groups against military assets by region (2015-2019). Data: ACLED

Figure 13: Attacks by JNIM and IS-linked groups in Mali, Burkina Faso, and Niger (2018-March 2020)

²⁶ <https://issafrica.org/iss-today/where-do-sahel-terrorists-get-their-heavy-weapons>

²⁷ 27

Adnan Abu Walid al-Sahraoui, MUJAO spokesperson and later a senior al-Mourabitoun leader, founded ISGS in 2015 when he split off with some of his loyal fighters, pledging allegiance to Caliph of the Islamic State Abu Bakr al-Baghdadi. ISGS would gain notoriety for the October 2017 Tongo Tongo Ambush in Niger, in which four U.S. Special Forces operators and four Nigerien soldiers were killed. Sahraoui’s pledge to Baghdadi nevertheless appeared to be a unilateral oath. IS made few, if any, mentions to ISGS until April 2019, when Baghdadi acknowledged and praised Sahraoui, calling for an increase in operations in the Sahel. Since Baghdadi’s announcement, attacks perpetrated by Sahraoui’s fighters have nevertheless been attributed by IS to ISWAP, de jure folding ISGS under the larger Nigeria-based group. Since April 2019, ISGS activity greatly increased in Mali, Burkina Faso, and Niger, suggesting deepening ties with IS²⁸ and likely the movements of resources and fighters to the region. Following years of peaceful coexistence (if not tacit cooperation) between ISGS and JNIM, hostilities broke out between the groups in Mopti in early 2020, allegedly over ISGS fighters collecting *zakat* in areas controlled by JNIM²⁹ and following growing tensions after important defections from JNIM to ISGS.³⁰ Suspected defectors from Katiba Macina, drawn to ISGS following promises that they would be allowed to keep any plunder seized during operations,³¹ threatened the town of Konna in February 2019. It is also possible that the opening of discussions between JNIM and the Malian state played a role in growing JNIM–ISGS tensions. In its May 7th weekly newsletter, IS, officially acknowledging the recent fighting with JNIM for the first time, claimed that the latter “accepted the apostate government’s call to negotiate and installed themselves as loyal border guards.”³²



Figure 14: Images published by jihadist groups following attacks on military bases. From left to right: Mondoro (Mopti, October 2019), and Dioungani (Mopti, January 2020)

²⁸ <https://www.thedefensepost.com/2019/05/30/islamic-state-greater-sahara-west-africa/>

²⁹ <http://bamada.net/mali-dissensions-entre-groupes-terroristes-quand-les-masques-tombent>

³⁰ <https://www.trackingterrorism.org/chat/barkane-forces-claim-operation-killing-isgs-leader-kampala-miqdad-aka-abou-mahmoud-under-jni>

³¹ <http://bamada.net/dans-le-centre-du-mali-les-combats-entre-groupes-armes-sintensifient>

³² Al-Nabaa May 7th issue 223

ILLICIT ACTIVITY: A MAJOR FACTOR IN THE DESTABILIZATION OF CENTRAL AND NORTHERN MALI

There is a relationship between transnational criminal organizations and jihadist groups, with the latter being a major beneficiary of illicit trade, and in some cases even an actor. Proceeds from smuggling play a role in the continued destabilization of central and northern Mali, providing jihadist groups with supplies and revenue and fomenting escalating violence. In addition, insecurity (or at least perception of insecurity) connected to crime has risen sharply in central Mali since 2012 and particularly since 2015. With state security forces losing control over parts of rural Mopti, attacks against traders, merchants, and herders have become more common. The benefit for violent extremist groups is two-fold, because they gain financially from the illicit activities they perpetrate or allow and also leverage insecurity to position themselves as providers of justice and security.

Mali is a key node in trans-Saharan criminal organizations' smuggling networks. A variety of contraband — cocaine, fuel, pharmaceuticals, gold from artisanal and small-scale mining, cigarettes, and trafficked persons — transit through Mali, generating significant revenues for transnational organized crime groups, as well as for the local armed groups and government authorities on which they rely. According to the United Nations Office on Drugs and Crime, 25 percent of Europe's annual cocaine consumption could transit through West Africa and the Sahel,³³ including through territory controlled by jihadist groups.³⁴ According to estimates, some 80 to 100 tons could transit through West Africa and the Sahel.³⁵ Historically, one of the most important trafficking routes spanned from the Gulf of Guinea to Mauritania and along the Route de l'Espoir, the N3 highway from Nouakchott to Kiffa, Néma, and into Mali, via Segou, Mopti, or Tomboutou toward Gao and Kidal.³⁶

Additional scrutiny over airspace following the outbreak of war within Mali in 2012, and the French intervention in early 2013, made illicit smuggling by plane more difficult. Instead, criminal organizations resorted to trans-Saharan land routes to smuggle other forms of contraband. Illicit cigarettes flow from ports along West Africa's coast through the Sahel to North Africa and Europe.

Smuggling is believed to be a major source of revenue for criminal and armed groups in the region. According to a U.N. Security Council report, "By avoiding taxes, a

³³ United Nations Office on Drugs and Crime (2011). The Transatlantic Cocaine Market. *Studies and Threat Analysis Section*.

³⁴ Ouallet A. (2019). Territorialisations de l'islam dans l'espace d'organisation Sahel-Sahara-Méditerranée. *L'Information géographique*, Armand Colin.

³⁵ Diarra, O. (2018) insecurity and instability in Africa: assessing the effectiveness of regional security cooperation in the Sahel. *Naval Post-Graduate School*.

³⁶ Julien. S. (2011). Le Sahel comme espace de transit des stupéfiants. Acteurs et conséquences politiques. *Hérodote issue 142*.

regular shipment of 10,000 boxes [of cigarettes] would generate about \$18 million, which, minus transport costs (estimated at \$1 per pack), still leaves over \$13 million of revenue along the trading chain.”³⁷ Armed groups, including the Platform (GATIA, MAA, FPA, Mouvement pour la défense de la patrie, MSA), CMA, MNLA, and HCUA, and also violent extremist groups levy illicit taxes on contraband passing through territory they control and charge smugglers fees for escort, protection, or transportation services through their areas of influence.³⁸ Jihadist groups such as AQIM allegedly levy *zakat* (a religious obligation or tax) of 10 percent on each drug convoy crossing through its territory. According to the EU Institute for Security Studies, “AQIM representatives explained in an interview in October 2013 that they were ready to accept money from drug trafficking because drugs are sent to Europe, and are hence considered as a weapon against the West.”³⁹

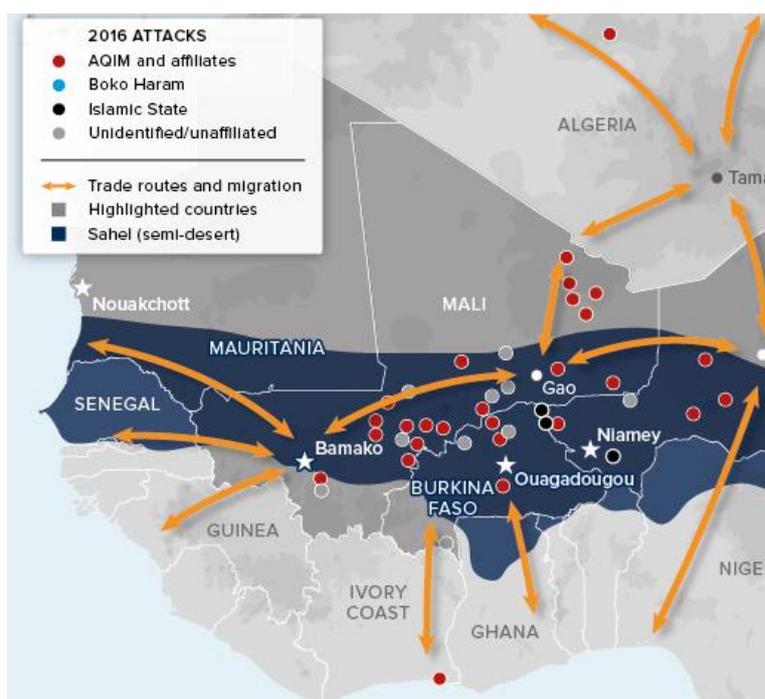


Figure 15: Trade/smuggling routes and attacks by violent extremist groups in 2016. Source: Oxford Analytica⁴⁰

Illicit activities are essential to the survival of jihadist groups, allowing them to generate revenue via the imposition of duties and fees; finance operations, preaching,

³⁷ De Koning, J. (2019) Letter dated 21 February 2019 from the Panel of Experts established pursuant to resolution 2374 (2017) on Mali addressed to the President of the Security Council. *United Nations Security Council S/2019/137*

³⁸ Ibid.

³⁹ Barrios, C., and Koepf, (2014). T. Re-mapping the Sahel: transnational security challenges and international responses. *EU Institute for Security Studies Report 19*.

⁴⁰ Oxford Analytica (2017). Sahel-Sahara governance is key to migratory flows. *Oxford Analytica Daily Brief*

and recruitment efforts; and procure food, medicine, weapons and ammunition, fuel, vehicles, and motorcycles. Increasing revenues from illicit activities are therefore a factor in increasing levels of violence throughout the region, with criminal and jihadist groups benefiting from the erosion of government authority, the breakdown in law and order, and the weakening of state security forces. In addition, the considerable revenues associated with the protection of contraband convoys and the provision of escort services make it more difficult to convince armed groups to participate in disarmament, demobilization, and reintegration programs. Similarly, given the relationships between illicit revenues and armed groups, policies to combat illicit trade in the region have the potential to antagonize armed groups financially reliant on illicit trade, which could jeopardize ongoing negotiations and peace accords.

Growing insecurity in northern and central Mali also led to an increase in violent crime and banditry. According to the Center for Humanitarian Dialogue, cases of motorcycle theft, car jackings, and cattle theft have increased within central Mali since 2012, and particularly since 2015,⁴¹ in areas of Mopti such as Konna, Sendegué, Moura, Ténenkou, Kareri, and Youwarou.⁴² Razzias, or raids, perpetrated by *coupeurs de route* — bandits — or *bandits de grand chemin* — highwaymen — have become increasingly common in the region. A limited government presence has allowed these bandits to operate with relative impunity, through frequent attacks and ambushes targeting herders, traders, villagers, and aid workers. Particularly, raids by *Terere* (cattle thieves) have increased in both frequency and intensity since 2012 and are now a transnational trade in the Sahel. Stolen cattle are often brought to neighboring countries, such as Mauritania, where they are sold at markets. Throughout 2018, at least 1,500 cows, sheep, goats, and camels were stolen around Mondoro in Douentza, and 12,000 cows were stolen in the Oudalan and Soum provinces of Burkina Faso between January and July 2019.⁴³

According to a former member of MUJAO interviewed by the Institute for Security Studies, “All the armed groups in the area are involved in cattle rustling; their survival depends on it.”⁴⁴ Although the nature of relationships between bandits and jihadist groups is likely variable, it is thought that bandit groups often operate under the protection or authorization of armed groups. Jihadist groups have also allegedly charged herders a fee for their protection. According to a herder from Niger, “The jihadists impose the *zakat* on herds in exchange for protection from cattle rustling. We

⁴¹ Thiam, A. (2017). Centre du Mali: Enjeux et dangers d'une crise négligée. *Centre pour le Dialogue Humanitaire, Institut du Macina*.

⁴² Ibid.

⁴³ Assanvo, W., Dakono, B., Thérroux-Bénoni, A., and Maïga, I. (2019). Violent extremism, organised crime and local conflicts in Liptako-Gourma. *Institute for Security Studies West Africa Report 26*

⁴⁴ Ibid.

don't have a choice.”⁴⁵ A herder from Gao testified that jihadist groups asked his village to pay XOM 800,000 as *zakat* for a herd of 100 cattle. The levying of *zakat* recently became a point of contention; groups linked to ISGS/ISWAP collecting fees in JNIM-controlled areas led to the outbreak of fighting between both factions in Mopti in early 2020.⁴⁶

The presence of jihadist groups in Mopti Region has, in some *cercles*, led to a decrease in insecurity since 2015. Although data is scant, Tenekou and Youwarou Cercles — strongholds of Amadou Kouffa's Katiba Macina — have seen a decrease in crime and banditry with the imposition of Shariah law, and more importantly, the establishment of a monopoly on violence by Katiba Macina replacing that of the Malian state. In areas under its control, Katiba Macina has been alleged to cut off bandits' hands.⁴⁷ Hence, a dual pattern emerges, with violent extremist groups allowing, if not benefiting from, banditry in contested areas but imposing strict control and imposing justice over their areas of influence.

Throughout Mopti, citizens' concern about crime has increased dramatically over the past years. In 2014, 24 percent of respondents to a Malian National Institute of Statistics survey stated they were not at all concerned with criminality, and 16 percent stated they were really concerned. In 2019, just 10 percent of respondents stated they were not at all concerned with criminality, and 46 percent stated they were really concerned. According to data collected by ACLED and the Aid Worker Security Database, it is estimated that 21 percent of security incidents involving INGO and aid workers in 2017 took place in Mopti Region; in 2018, this number grew to 50 percent and then to 67 percent in 2019. According to the U.N. Office for the Coordination of Humanitarian Affairs, “Relief actors experienced at least 133 security incidents [throughout Mali] in 2017, a 96 percent increase compared to the 68 incidents recorded in 2016. [...] Overall, carjacking and theft were the most common incidents, comprising nearly 70 percent.”

⁴⁵ Ibid

⁴⁶ Bare, M. (2020). Mali: dissensions entre groupes terroristes, quand les masques tombent. *Bamenda Net*.

⁴⁷ Human Rights Watch (2017). Mali: Islamist Armed Group Abuses, Banditry Surge.

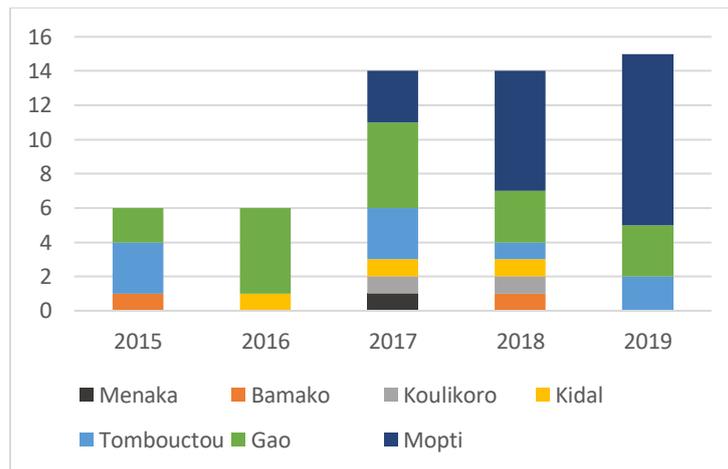


Figure 16: Security incidents against INGO and aid workers by region (2015-2019) by region.⁴⁸

TACKLING INSECURITY? THE RISE OF COMMUNAL MILITIAS

Significant increases in attacks by jihadist groups and a rise in banditry fostered the development and growth of ethnically aligned militias seeking to defend their communities. Leveraging existing tensions, particularly those pitting the Fulani communities against the Dogon and Bambara, and benefiting from large influxes of arms to the regions, self-defense militias became a major actor in central Mali’s security environment, often replacing the state as the providers of local security. Violence between communities has increased since 2012 and shot up dramatically since mid-2018. Mopti Region is home to a myriad of ethnic groups, including the Fulani, Dogon, Bozo, Bambara, Songhaï, and Soninke. Within Mopti, the Bozo live along the Bani and Niger Rivers and have traditionally been fishermen, whereas the Fulani are pastoralist — one of the largest nomadic herder communities in the region. Dogon and Bambara communities have, on the other hand, relied on farming as their primary source of income and food. Although larger Fulani settlements exist throughout Mopti, in the Pays Dogon — the traditional home of the Dogon in an area spanning the *cercles* of Bandiagara, Bankass, and Koro — nomadic Fulani communities set up hamlets around larger Dogon settlements.

⁴⁸ Armed Conflict Location and Event Data Project (ACLED) and Aid Worker Security Database

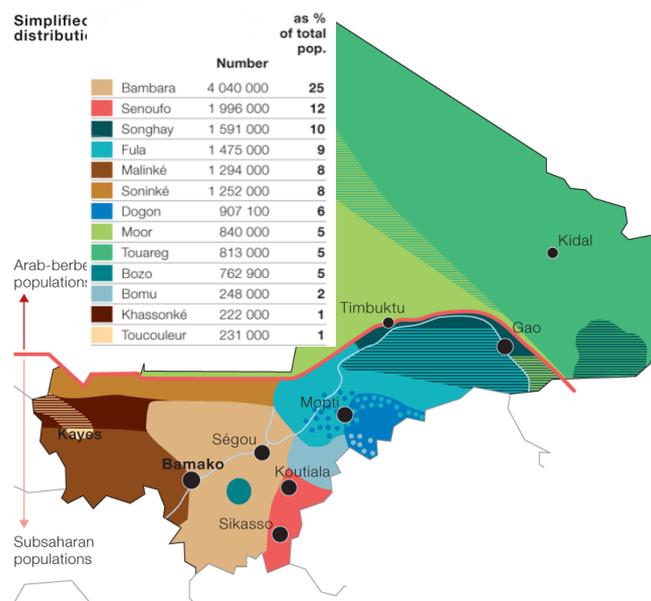


Figure 17: Ethnic distributions within Mali⁴⁹

With high levels of population growth (the country growing from 5.2 million inhabitants in 1960 to 19 million in 2018), increasing desertification (with rainfall dropping by 30 percent since 1998⁵⁰), and a shift toward intensive agricultural practices, conflict over land use has become a frequent occurrence. Traditional conflict reconciliation mechanisms historically provided an outlet for the resolution of land disputes. Nevertheless, with growing insecurity and crime, the marginalization of Fulani communities, growing food shortages, an increase in internally displaced populations, the breakdown of both traditional and state justice mechanisms, and a growing proliferation of firearms, conflicts between farmer and herder communities have grown in both frequency and intensity over the past eight years. Additionally, there have been reports of jihadist militants provoking communal tensions, either by exacerbating existing grievances or masquerading as a certain ethnic group to attack members of another. This is viewed as an attempt by jihadist groups to further destabilize the region and to increase recruitment from marginalized Fulani communities.

As groups like Katiba Macina leveraged existing grievances against the state and recruited heavily among the unemployed Fulani youth, other communities began to associate the Fulani with and then blame them for increasing attacks by armed groups. Although the Fulani reportedly constitute sizeable portions of armed groups' recruits,

⁴⁹

https://www.clingendael.org/pub/2015/the_roots_of_malis_conflict/2_rebellion_and_fragmentation_in_northern_mali/

⁵⁰ <https://www.reuters.com/article/us-climatechange-mali-conflict/drought-expanding-deserts-and-food-for-jihad-drive-malis-conflict-idUSKBN0NI16M20150427>

Fulani communities have often been the first victims of the jihadist groups that established themselves in the region, with Katiba Macina frequently targeting non-compliant Fulani villages, leaders, inhabitants, and livelihoods.

With the withdrawal of state authorities and the Malian armed forces from large parts of rural Mopti in 2012, self-defense militias began to form, taking it upon themselves to defend communities from armed groups and bandits. Existing militias and self-defense structures also became increasingly militarized due to the proliferation of military weapons in the regions. In Mopti, these militias include the Songhai Ganda Izo; cross-ethnic Dozo hunting societies; later militias; the Dogon Dan Na Ambassagou; the Fulani Alliance pour le Salut du Sahel; the Fulani nationalist Mouvement pour la défense de la patrie; and myriad decentralized village-based, self-defense groups. Malian authorities who are losing control of portions of Mopti have been accused of outsourcing rural security to these networks of ethnic militias and self-defense groups. According to allegations by activists, local authorities may have played a role in arming militias such as Dan Na Ambassagou. According to Human Rights Watch, although there is “no proof of formal collaboration between Mali’s government and militias, [...] there appear to be understandings that allow fighters to openly man checkpoints and defy bans on motorcycles.”⁵¹ From 2015 onwards, with the Malian government either turning a blind eye to or even supporting certain self-defense groups, communal militias coalesced to form larger networks. According to a report by Human Rights Watch, the “refusal or inability of the Malian government to address the mounting Islamist threat in central Mali had forced [the militias] to reinforce and reorganize the longstanding village-based structure, get training, and take on national defense tasks in support of not only their village but the surrounding area.”⁵²

The mobilization of one community nevertheless led to a countervailing reaction from other communities that have overlapping interests and compete for resources. The reliance of local inhabitants on community militias was fully exposed in a SIPRI survey conducted between 2015 and 2019, which showed that one-quarter of all respondents had turned to non-state groups for safety purposes in Bankass, Djenné, and Koro Cercles in Mopti.⁵³ From 2013 and 2020, ACLED counted 28 different community and ethnic militias operating in central and northern Mali.

In 2017, small-scale clashes between Fulani and Dogon communities escalated into violence, mainly in Koro Cercle, and to a smaller extent in Tenekou. In June 2017, suspected Fulanis killed a prominent Dogon leader of a Dozo hunting guild, prompting violent reprisals by Dogon militiamen who attacked several villages in Dioungani commune, leaving at least 34 Fulani villagers dead and forcing thousands

⁵¹ <https://www.reuters.com/article/us-mali-security-militia/mali-struggles-to-disarm-ethnic-militia-suspected-of-massacre-idUSKCN1RV0T2>

⁵² We Used to Be Brothers: Self-Defense Group Abuses in Central Mali

⁵³ M. Bodian, A. Tobie, and M. Marending, No.2020/4, March 2020, “*The Challenges of Governance, Development, and Security in the Central Regions of Mali*”, Stockholm International Peace Research Institute (SIPRI), p.13.

more to flee. Multiple clashes were reported over the next months, triggered by the killing of Dogons by bandits, cattle thieves, jihadist militants, or Fulani militiamen and thereby prompting violent reprisals by Dogon self-defense groups against Fulani communities (often wrongly) accused of complicity.

In early 2018, with ethnic tensions mounting, reports emerged of Dogon and Fulani communities placing what appeared to be sanctions on each other. In retaliation for the killings of Dogon leaders, Fulani villagers in Koro Cercle were reportedly forbidden from buying or selling goods at markets in the often-larger Dogon villages, with Dogon militias erecting checkpoints along roads and around markets. In the Fulani-majority areas of Douentza and Tenekou, Dogon farmers were reportedly prevented from planting crops and farming their fields. Intimidations, mutual embargoes, growing banditry along rural roads, and large-scale cattle raids provoked severe food shortages and malnutrition among communities already suffering from acute food insecurity, creating further animosity between communities.

In mid-2018, violent tit-for-tat attacks erupted in Mopti Region, beginning in Koro and spreading to Djenné Cercle. In June 2018, in response to an ambush by unidentified armed men against a band of Dozo near Koumaga in Djenné Cercle, a Dozo militia attacked a nearby settlement, killing at least 32 Fulani villagers. In early July, Dogon militias attacked a Fulani village in the Madougou area of Koro, killing 16 people; a few days later, Dogon militiamen rounded up 17 Fulani males from Dougoutene in Koro Cercle and were subsequently accused of executing them. Between the end of June and mid-September, violence left at least 118 people dead in Djenné and Koro.

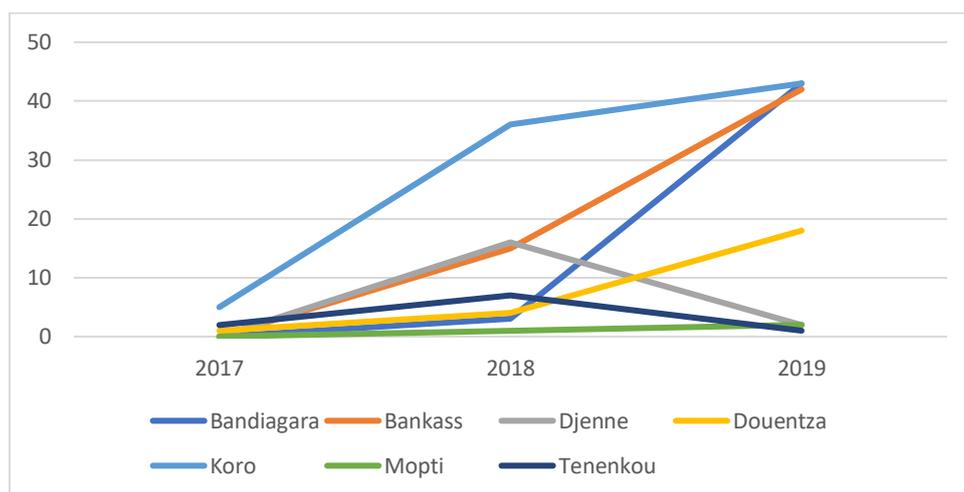


Figure 18: Instances of intercommunal violence in Mopti by cercle (2017-2019)

In late 2018 and early 2019, clashes spread to Bandiagara and Bankass, where violence reached unprecedented levels. Dan Na Ambassagou, an umbrella group of Dogon militias formed in 2016 in Koro, Bandiagara, and Bankass, is suspected to be behind attacks in Lessagou Habbe in Bankass, which left 15 people dead on December 5; an attack in Baye in Bankass, where 12 Fulani villagers were killed on December 12; and in Kou logon in Bankass, which left 39 Fulani civilians dead on January 1, 2019. As of mid-2019, large numbers of Fulani residents in Bankass Cercle

had been displaced by the violence, with Fulanis in Bandiagara beginning to flee the area.

On the morning of March 23, 2019, after Malian soldiers reportedly left a nearby camp, Dan Na Ambassagou fighters attacked the village of Ogossagou-Peulh, located a few miles east of the town of Bankass. The attack lasted several hours and began with Dan Na Ambassagou fighters exchanging fire with the village’s Fulani self-defense group, resulting in 164 Fulani men, women, and children killed in Ogossagou and 10 more in the nearby village of Welingara. According to testimonies, Dogon militias accused the village of supporting jihadist groups. Ogossagou had recently been selected as the site of a UN-sponsored DDR camp aimed at reintegrating some 400 former jihadist fighters⁵⁴.

The Ogossagou attack prompted a wave of demonstrations in Mopti and throughout Bamako, accusing the Malian government and MINUSMA peacekeepers of inaction in the face of mounting ethnic violence. President Ibrahim Boubacar Keïta fired two military leaders and pushed Prime Minister Soumeylou Boubeye Maiga to resign along with his cabinet. Although the government ordered the dissolution and disarming of Dan Na Ambassagou, the militia continued conducting operations and attacks and circumventing bans on the use of pick-up trucks and motorcycle to travel between villages.

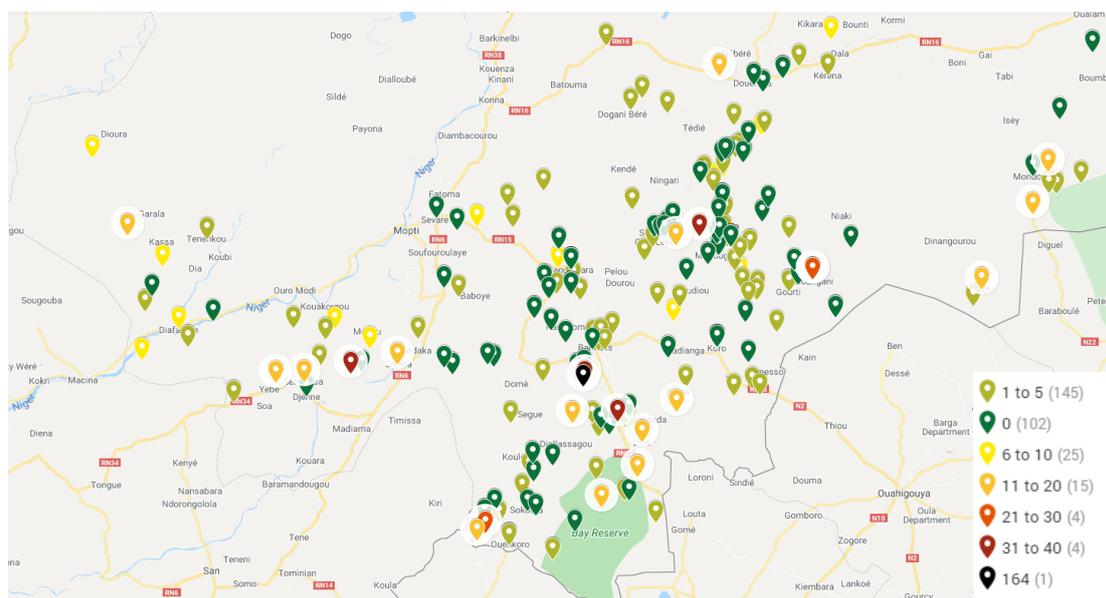


Figure 19: Map of instances of intercommunal violence in Mopti Region by number of associated fatalities 2017-March 2020 (legend on the bottom right)

Throughout the rest of 2019 (April to December), 84 incidents of intercommunal violence were reported throughout Mopti Region, leaving 224 people dead, including 58 in Bankass, 59 in Bandiagara, 45 in Douentza, and 43 in Koro Cercles. According

⁵⁴ https://www.lepoint.fr/afrique/mali-la-guerre-dans-un-imbroglio-de-milices-28-03-2019-2304521_3826.php

to ACLED data, from 2018 to 2019, Dan Na Ambassagou was the main actor in 54 incidents, resulting in 345 fatalities. Fulani militias were the main actor in 109 incidents, resulting in 214 deaths, and Dozo and Dogon militias were responsible for 45 and 26 incidents respectively, resulting in 198 and 92 fatalities. Although Fulani militias have thus been the primary actor in most cases of intercommunal violence, attacks by Dan Na Ambassagou have been the most fatal. This can be explained, in part, by the different structures between Fulani militias and Dan Na Ambassagou. Although umbrella organizations of Fulani militias, such as the Alliance pour le Salut du Sahel exist, they have often failed to incorporate many village-based self-defense groups, due in part to lack of funding. On the other hand, Dan Na Ambassagou has reportedly become a major network of units, structured as a strict military-style hierarchy and employing relatively sophisticated combat tactics. According to Human Rights Watch, a villager from Koro Cercle explained that in 2018, Dan Na Ambassagou “started using tactics as if they’d benefitted from military training: during the attack one group advances, while another brings water, and another takes the wounded.”⁵⁵ According to members of Dan Na Ambassagou, Dogon militiamen who had been part of armed groups in northern Mali and had gained mercenary experience in neighboring countries provided military training.⁵⁶

In the first three months of 2020, intercommunal violence continued to increase in frequency throughout Mopti, notably in Douentza, Bankass, Bandiagara, and Koro. February and March 2020 saw the highest frequency of intercommunal violence than the same months in 2019, 2018, or 2017. On February 14, 2020, suspected Dogon militiamen attacked the village of Ogosaggou — the scene of the March 2019 massacre that killed at least 31 Fulani villagers. On March 5 and March 9, Fulani militias attacked the villages of Tolle, Weyla, and Kourkanda (Bankass Cercle), leaving at least 30 Dogon civilians dead.

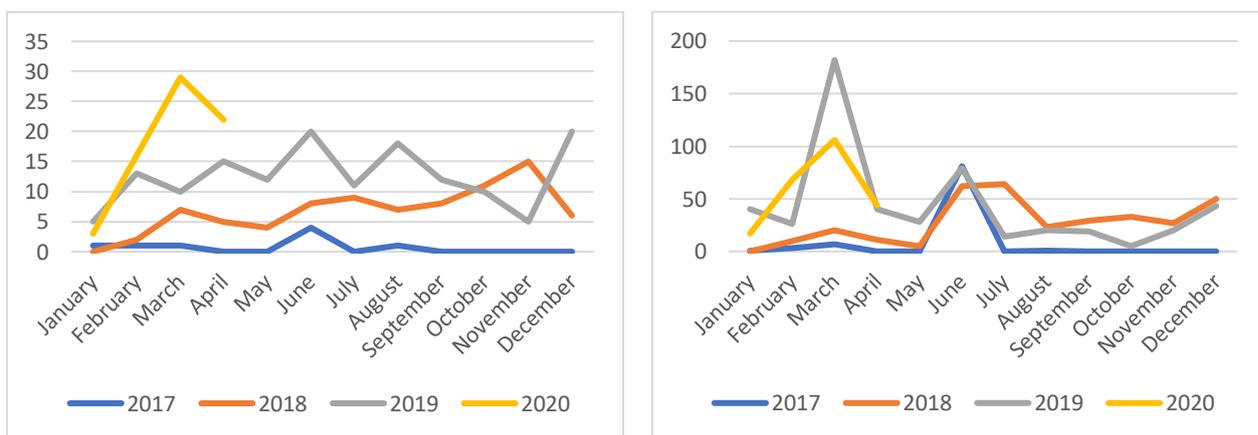


Figure 20: Instances of intercommunal violence (left) and associated fatalities (right) by month in Mopti (2017-2019)

⁵⁵ We Used to Be Brothers: Self-Defense Group Abuses in Central Mali

⁵⁶ We Used to Be Brothers: Self-Defense Group Abuses in Central Mali

An analysis of yearly trends reveals that intercommunal clashes traditionally tend to peak in June, around planting season (as conflicts over land use tend to increase) and before the rainy season (July through September), which renders movement around rural Mopti difficult. Nevertheless, since 2018, with the growth of communal militias and a spiraling cycle of retaliatory clashes, violence began to spread throughout the year, but it was not overwhelmingly tied to the planting season. June was the deadliest month of 2017, registering 87 percent of annual fatalities associated with intercommunal violence. June 2018 was the second deadliest month of the year, with 19 percent of associated fatalities, and June 2019, with 15 percent of yearly fatalities, was the second deadliest month.

CONCLUSION

The security situation in central Mali has deteriorated since 2012 and even more considerably since 2015. From 2015 to 2019, violent incidents and associated fatalities reported by ACLED increased by more than 1,550 percent — particularly, civilian casualties increased by 3,100 percent over the same time period. Weakened institutions, thinly stretched security forces, a lack of provision of justice and government services, and grievances against the state have all contributed to the growth and proliferation of violent non-state actors. Non-state actors, including jihadist groups, leveraged existing tensions between ethnic communities and grievances against the state to establish strongholds in Mopti Region, leading to a large increase in frequency of attacks against the Malian government, symbols of the state, and civilians accused of complicity with state authorities. With an expanding footprint throughout central and northern Mali, jihadist groups have increasingly benefited from illicit activities. Smuggling, extortion, and cattle theft have provided armed groups with revenues and resources, strengthening them and fostering further violence.

With existing tensions between major ethnic groups compounded by growing insecurity, central Mali has seen a proliferation of decentralized self-defense militias over the past five years, which has led to an increasingly violent spiral of retaliatory attacks. These militias have grown in influence, often replacing the state as providers of local security. Targeted killings of prominent Dogon leaders by jihadist groups and Fulani gunmen in Koro Cercle in 2017 sparked violent retaliatory attacks by Dogon militias on Fulani communities accused of supporting terrorists. Subsequent retaliatory clashes between Dogon and Fulani communities reached unprecedented levels of violence in 2018 and 2019, spreading to Djenné and, later, Bandiagara and Bankass Cercles.

Attacks by jihadist groups, after a lull from 2013 through 2015, experienced an uptick in central Mali with Katiba Macina's creation in 2015. Following JNIM's formation in 2017, the focal point of attacks shifted from Tombouctou, Menaka, Kidal, and Gao to Mopti and Segou. Although less than a quarter of attacks in Mali in 2015 occurred in Mopti, the region subsequently experienced two-thirds of attacks in 2019. With ISGS expanding its operations in Mali in 2019, levels of violence again increased in Mopti. Over the past five years, attacks by jihadist groups have also grown in sophistication, with IED attacks and complex assaults on military positions becoming commonplace. Leveraging existing grievances and tensions, jihadist groups have extended their reach within Mopti, establishing strongholds in Youwarou, Tenekou,

and parts of Douentza Cercles and conducting frequent attacks in Mopti, Koro, Bankass, Bandiagara, Djenné, and Douentza Cercles.

Within Mopti Region, the time period from 2017 to 2020 has seen several causes of insecurity that have compounded one another — conflicts over land use, the breakdown of traditional reconciliation mechanisms, spread of small arms, proliferation of self-defense militias, expansion of jihadist groups, and revenue from illicit activities. The developments examined in this report, and the current dynamics at play in Mopti Region, indicate that intercommunal violence could continue to spread into new *cercles* throughout 2020 and that the overall security situation in Mopti is highly unlikely to improve in the next year.



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