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CONTRACT COMPLETION REPORT

Biodiversity and Watersheds Improved for Stronger Economy and Ecosystem Resilience (B+WISER) Program



25 January 2019

This publication was produced for review by the United States Agency for International Development. It was prepared by Chemonics International Inc.

Contract Completion Report

Philippines Biodiversity and Watersheds Improved for Stronger Economy and Ecosystem Resilience (B+WISER) Program

Implemented with:

**Department of Environment and Natural Resources
Other National Government Agencies
Local Government Units and Agencies**

Supported by:

**United States Agency for International Development
Contract No.: AID-492-C-13-00002**

Managed by:

Chemonics International Inc.

Cover photo:

Marisa Naputo, a DENR forest patroller in CENRO Catbalogan in the province of Samar, records observations during a Lawin patrol.

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ACRONYMS

B+WISER	Biodiversity and Watersheds Improved for Stronger Economy and Ecosystem Resilience
BMB	Biodiversity Management Bureau
CENRO	Community Environment and Natural Resources Office
CLUP	Comprehensive Land Use Plan
DENR	Department of Environment and Natural Resources
Digis	USAID's Digital Development Awards
DSWD	Department of Social Welfare and Development
EDC	Energy Development Corporation
ELE	Environmental Law Enforcement
FCAP	Forest Conservation Area Plan
FLUP	Forest Land Use Plan
FMB	Forest Management Bureau
GHG	Greenhouse Gas
GPH	Government of the Philippines
GSA	Guided Self-Assessment on the State of Local Environmental Governance
HCVA	High Conservation Value Area
IP	Indigenous People
IPAF	Integrated Protected Area Fund
Lawin	Lawin Forest and Biodiversity Protection System
LGU	Local Government Unit
MBFDP	Mangrove and Beach Forest Development Program
METT	Management Effectiveness Tracking Tool
MRV	Monitoring Reporting and Verification
NGO	Non-Governmental Organization
NGP	National Greening Program
NPC	National Power Corporation
PA	Protected Area
PAMB	Protected Area Management Board
PhP	Philippine Peso
PDP	Philippine Development Plan
PES	Payment for Ecosystem Services
REDD+	Reduce Emissions from Deforestation and Forest Degradation Plus
SMART	Spatial Monitoring and Reporting Tool
TOC	Theory of Change
USAID	United States Agency for International Development
USD	United States Dollar
USFS	United States Forest Service

EXECUTIVE SUMMARY

The U.S. Agency for International Development (USAID) Philippines Biodiversity and Watersheds Improved for Stronger Economy and Ecosystem Resilience (B+WISER) Program was implemented in partnership with the Department of Environment and Natural Resources (DENR) to conserve biodiversity and reduce forest degradation, together with actions to support low emissions development and disaster risk reduction. The Program was implemented between December 2012 and December 2018 and led to substantial accomplishments, including transformations in how the Philippine government manages forests at both national and local levels.

B+WISER used a landscape approach to develop its interventions, encompassing management of watershed areas that cut across political jurisdictions. The Program adopted a theory of change approach as called for in USAID's Biodiversity Policy, which specifically connects proposed interventions with changes in problems identified, consistent with fulfilling Program objectives. Adaptive management was an important element of contract implementation, adjusting elements ranging from work plan priorities to the contract duration to support important shifts in opportunities and DENR priorities. B+WISER also adopted a science- and evidence-based approach to planning and the design of enhancements to DENR's forest and biodiversity management framework. Technology-assisted management tools and multi-stakeholder partnerships were also a hallmark of Program implementation.

The Program began working in seven target landscapes across the country. Following the theory of change, work areas included: strengthening the forest and biodiversity protection system, capacity development, preparing/enhancing resource management plans, strengthening policy and governance, conservation financing, and communications. A foundational element for the Program was a series of baseline assessments across the seven sites. Ecological assessments characterized presence of plant and animal species, forest cover, specific habitat types, and carbon stocks, as well as site-specific pressures on natural forests. The Program also conducted socio-economic surveys of each site. Other tools were used to assess governance performance related to natural resource management, for both local government units and protected areas. These assessments together with ongoing evaluation of gaps in performance and capacity informed Program activities over the life of the B+WISER contract. Gender mainstreaming and inclusion of marginalized groups, primarily indigenous people, were integrated across interventions, leading to enhanced capacity, involvement, and economic opportunities for these groups.

DENR with the support of B+WISER saw a wide range of enhancements, leading to more than 90 percent of the country's forests under improved management and over 10 million tons in carbon dioxide equivalent reduced or sequestered in those forests. The Program supported forest—including mangrove—restoration with Program grants for active reforestation and recommendations for improved maintenance and protection under the existing Philippines' National Greening Program, as well as planning and implementation support in response to natural disasters such as Typhoon Haiyan (Yolanda). A significant result in the Program's support to natural resource planning was better integration and alignment with conservation and management objectives of the responsible government authorities. B+WISER helped develop evidence-based forest conservation area plans, which informed relevant aspects of improved protected area management plans. These, together with other Program outputs like climate vulnerability assessments, were used to improve forest and comprehensive land use planning. Assessments also informed support to policy and governance initiatives which helped put in place capacity and policy

instruments and plans covering environmental law enforcement, national protected area management planning, conflict mitigation, and sustainable financing and partnerships. The Program with DENR dedicated substantial effort to the area of conservation finance, helping design an especially successful payment for ecosystem services scheme, and then helping DENR foster its replication elsewhere. Private sector investment and initiatives for local fee collection and retention also provided additional financing for conservation and these and related activities provided economic opportunities locally. Nearly 30,000 people received increased economic benefit from B+WISER-supported initiatives, including a substantial number of women and indigenous people. Finally, communications activities had wide ranging impact, raising awareness and building constituencies for forest and biodiversity protection at the site level, and building DENR's internal capacity and reaching wider audiences through strategic use of social media and other tools.

As the Program adapted to DENR needs, a clear priority emerged in the Lawin Forest and Biodiversity Protection System (Lawin), a comprehensive, science-based management framework incorporating technology applications. Lawin includes four basic elements: science-based planning to prioritize high conservation value areas and set conservation targets, patrolling on the ground to address threats and use technology to accurately record observations, analysis of patrol data for timely and informed decisions nationally and locally, and responses during patrols and after data analysis to reduce threats in line with conservation targets. Lawin began as useful ideas for DENR, and with pilots in the seven sites and continuous improvement, became the new framework for DENR to adopt nationally for forest management and biodiversity conservation.

By the end of B+WISER, the Lawin system had the legal basis, as a department administrative order, for long-term budget support and sustainability. With the Program's assistance, DENR established a new Lawin unit, built capacity at all levels of government and with other public and private partners, institutionalized a long-term capacity building program, developed a series of implementation tools, and leveraged nearly \$60 million in funding for the system and related management needs.

Lawin coming on line with other B+WISER accomplishments meant that more than 90 percent of Philippine forests were under improved management, and more than 700,000 hectares of degraded forests were under restoration initiatives. These are very clear indications of the Program's impact on reducing forest degradation together with conserving biodiversity. Experience in achieving these results provides a series of lessons to inform future projects. These include the importance of flexibility in implementation in a changing Program environment, the benefits of strong, clear partnerships and champions for achieving success, and the wide range of parameters needing to be addressed for full, long-term sustainability of new initiatives like Lawin, among others.

INTRODUCTION

The B+WISER Program was designed by the DENR Technical Working Group in collaboration with USAID. Its objectives were four-fold: conserve biodiversity in forest areas; reduce forest degradation in priority watersheds; build capacity to conserve biodiversity, manage forests, and support low emissions development; and contribute to disaster risk reduction at the subnational level. The Program's contract was implemented by Chemonics International, Inc. from December 28, 2012 through a contract extension which ended December 27, 2018.

The B+WISER Program contributed to the Government of the Philippines - U.S. Partnership for Growth and the USAID Country Development Cooperation Strategy for the Philippines by focusing on inclusive and broad-based economic growth and sustainable ecosystem services. The Program contributed to the development objectives included in Chapter 10 of the Philippine Development Plan (PDP) 2011-2016, "Conservation, Protection & Rehabilitation of the Environment & Natural Resources", and was envisioned to contribute to the development objectives set in the new 2017-2022 PDP. More specifically, the Program contributed to the expected outcomes described in Chapter 20 of the new PDP, "Ensuring Ecological Integrity, Clean and Healthy Environment." The Program's performance indicators and targets were aligned with the DENR Major Final Outputs.

One of the Program's key successes was tied to the development of the Lawin Forest and Biodiversity Protection System (Lawin). A 2016 Program expansion supported the scale-up and national roll-out of Lawin, expanding the Program geographic scope to all 16 DENR regions in the Philippines. In November 2017, USAID approved a one-year extension of the Program to further support the institutionalization of Lawin within the DENR, fostering sustained implementation beyond the Program's existence.

APPROACH TO THE WORK

B+WISER worked at the national and local levels and used an integrated ecosystems management approach that called for collaboration across multiple administrative jurisdictions, originally in seven landscapes, expanding nationally with the country-wide implementation of Lawin. A hallmark of the Program was its close partnership with DENR and the nature of that partnership. The Program advised and supported DENR and other stakeholders in their implementation of forest management and biodiversity conservation initiatives and evolving priorities, rather than the Program implementing a fixed scope of work and reporting periodically to government counterparts. Partners leading to the success of the Program went beyond DENR to include local government units (LGUs) and other government institutions, local communities, the private sector, and research institutions.

Following the start of the Program, B+WISER adopted the Theory of Change (TOC) model for project planning and implementation. This model incorporated, through a series of results chains, the original four components of the B+WISER Program structured around its main objectives.

Through the Program's adaptive management, results chains under the TOC approach and the associated work evolved, in part tied to DENR's integration of Lawin in its national forest protection strategy. The final TOC, reflecting heavy emphasis on the integrated Lawin system as the Program proceeded, included activities under six strategic approaches:

- Capacity development
- Enhancement of natural resources management plans
- Policy and governance
- Conservation financing
- Technology development
- Information, education, and communication

The Program also conducted cross-cutting activities to support national programs to reduce emissions from deforestation and forest degradation (REDD+), develop a greenhouse gas (GHG) emissions inventory, and mainstream gender and inclusion of indigenous peoples.

B+WISER was by many definitions a data- and information-driven project. A foundational element in the first year of the Program was objective and rigorous analysis of existing conditions on both technical and governance fronts. Technical assessments created a sound baseline for elements like forest cover, species abundance, and vulnerability to climate change while the Program also examined socio-economic factors affecting the sector and environmental governance in LGUs as well as management effectiveness for protected areas.

Analysis and assessment informed interventions across the board: capacity building, improved policy and planning, creation of management approaches and technical tools, options for additional financing, and communication and awareness raising. Throughout the Program, the team supported needs at all levels of government. Initially the site-level work was focused at seven locations across the country at Northern Sierra Madre Natural Park, Upper Marikina River Basin Protected Landscape, Naujan Lake National Park and Sub-watersheds, Quinali "A" Watershed, Bago River Watershed Forest Reserve, Mount Kitanglad Range Natural Park, and Mount Apo Natural Park. As the Program progressed and in close collaboration with the Forest Management Bureau (FMB), support focused increasingly on the framework and tools for improved forest management on the ground in efforts to preserve forest cover and habitats, especially

for high conservation value areas (HCVA). The seven sites, with work informed by the assessments the Program supported in early stages, became locations to develop and pilot the science-driven and technology-assisted Lawin Forest and Biodiversity Protection System. Success of these pilots as well as various refinements led to the national roll-out of Lawin, along with elements to make it sustainable, including technical development, capacity building, policy and governance, and sustainable finance.

PROGRAM ACCOMPLISHMENTS

Through B+WISER's close partnership with DENR, the Program was able to facilitate substantial enhancements in the Philippine government's management of its natural forests and conservation of biodiversity, with measurable impact against indicators demonstrating both biophysical improvements on the ground and shifts and commitments in policy, governance, and management that will sustain and deepen those improvements. Some of those metrics of B+WISER successes are in the box below. The discussion that follows describes the accomplishments of the Program by technical area.

B+WISER by the Numbers

- 6.3 million hectares of forest (92 percent of all forest cover in the Philippines) showing improved natural resource management
- 709,000 hectares of degraded forest under forest restoration initiatives
- 616,000 hectares of forest showing improved biophysical condition, including regeneration
- 10.3 million metric tons of carbon dioxide equivalent reduced and/or sequestered due to forest and biodiversity protection activities
- \$58.7 million in public and private investment leveraged for forest and biodiversity protection
- 30,000 people with increased economic benefit from natural resource management and conservation
- 13,000 people trained in natural resource management and sustainable landscapes

Strengthening Forest and Biodiversity Protection

Baseline assessments and analysis

The goals and starting point of B+WISER tied in to a recent move in the Philippines toward a watershed-based/integrated ecosystem management approach, and included comprehensive baseline assessments to inform evidence- and science-based planning and decision-making in each of the seven original Program sites. The B+WISER team conducted surveys to generate robust ecological baseline data using standardized methodologies. The team identified HCVA's and conservation hotspots based on recorded presence of plant and animal species, forest cover, and specific habitat types. Accompanying these assessments, the Program characterized forest cover change between 2003 and 2010, when key data were available, carbon stocks, and site-specific pressures on natural forests, including slash and burn farming, illegal cutting of trees for timber, charcoal production and fuel wood collection, residential and commercial development, forest fires, waste management, and hunting. The Program also conducted socio-economic surveys of each site. These baselines informed B+WISER's collaborative work with DENR from then on, including but not limited to enhancements to: protected area management plans, forest conservation area plans, environmental law enforcement, forest and comprehensive land use plans, and data collection including patrolling efforts, much of which ultimately fell within the Lawin management framework.

Introduction of the Lawin system

Through its work, B+WISER successfully contributed to transforming the way the Philippine government implements forest and biodiversity protection, helping it address challenges in prioritizing management efforts given strained budgets and inadequate information to make timely and appropriate decisions. B+WISER introduced a practical approach with a focus on science-based conservation targets that used forest cover change and other assessments in forest conservation area planning. It coupled this approach with purpose-driven patrolling and improved response to threats based on simple written protocols; a data-driven system to better allocate resources and determine effective responses; and a template for forging partnerships with the private sector, local communities — including indigenous peoples groups — and other governments to leverage investments in forest protection, including mangroves. Fostering ownership, the Program enhanced the capacities of government forest protection staff involved in planning, patrolling, responding to threats, managing data, and working with various outside groups to reduce pressures on the forests.

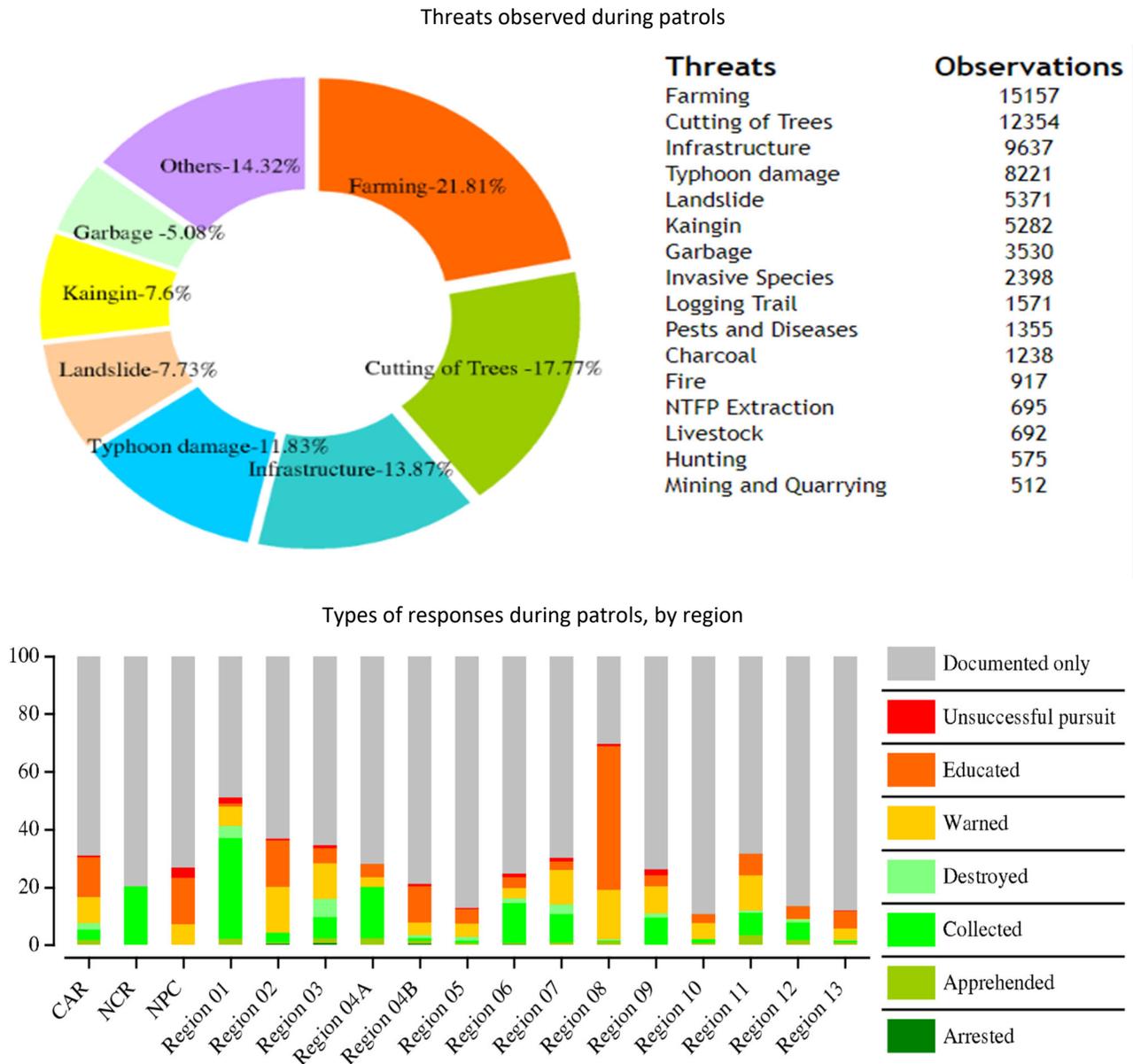
This integrated approach, the Lawin Forest and Biodiversity Protection System (Lawin), helped shore up the once underappreciated forest protection system, complementing the government's active forest restoration approach under its National Greening Program (NGP).

Lawin was piloted at the seven original B+WISER program sites with a natural forest cover of about 380,000 hectares. The practicality and simplicity of a system that incorporates a science-based approach, innovative use of open-source technologies, and partnerships for more effective implementation and response, convinced DENR in 2016 to make Lawin an integral part of the national forest and biodiversity protection strategy. DENR equipped and trained personnel throughout the country, allocated financial resources, and issued a policy to roll out the system nationwide except in the autonomous region of Muslim Mindanao, covering 6.5 million hectares of the country's natural forests.

In Lawin, patrollers record observations about forest conditions and threats using open-source software installed in either a smartphone or tablet computer. Threat types recorded by patrols to date are in Figure I. Responses during patrols can involve law enforcement and awareness-raising activities, though as expected people committing the offense are often not present during the patrol such that observations (e.g., illegally cut trees) are documented for later response following data analysis (see Figure I). Responses after patrol data analysis may draw on a broader set of actions that includes policy formulation as well as project development in areas such as alternative livelihoods.

The Program succeeded in a range of additional interventions linked directly to Lawin that supported sustainable, resilient management of forested areas and watersheds. B+WISER leveraged several conservation finance options, engaged local community groups in active reforestation efforts and advanced passive restoration programs, improved environmental law enforcement and protected area management, and enhanced local governments' use of partnerships for more effective natural resource management.

FIGURE I. LAWIN PATROL RESULTS: THREATS AND RESPONSES DURING THE PATROLS



Supporting Forest Restoration and Resilience

Forest restoration

B+WISER support to forest restoration ranged from planning to actual implementation. The Program promoted the forest landscape restoration approach, aiming to restore ecosystem functions for forests, including mangroves. Areas may be prioritized for various site-specific reasons such as to restore habitats for endemic or endangered species, or to reduce vulnerability of forest communities and human

settlements to erosion, landslides, or typhoons. The Program formulated a series of landscape restoration strategies at the seven target sites, with consideration of aspects such as forest conditions and location of HCVA, and the results of climate vulnerability assessments which showed areas prone to landslides and flooding. This work informed communities, indigenous peoples (IP) groups, and government agencies in preparing management plans. Identified capacity gaps led to training in areas including seedling nursery operations, planting and maintenance of seedlings, and bioengineering techniques as a cost-effective way to protect and stabilize riverbanks prone to erosion.

The Program took several approaches to achieve active restoration results on the ground. First, B+WISER supported two local groups through grants and technical assistance to restore 150 hectares of degraded forest, establishing best practices for active restoration planning, implementation, and monitoring. B+WISER also linked to the country's NGP to enhance longer-term maintenance and continued protection of areas planted under the NGP. This was done in partnership with Department of Social Welfare and Development (DSWD) and DENR and mobilized beneficiaries of a DSWD sustainable livelihoods program (Pantawid Pamilya Pilipino Program) that provides cash to poor families, to carry out maintenance work, such as ring weeding and mulching, in reforestation sites. This innovative approach provided a model that can be expanded to other areas to jointly address poverty and environmental issues.



Recovery from Typhoon Haiyan and mangrove and beach forest restoration

In 2013, in the aftermath of the devastation from Typhoon Haiyan (Yolanda), the Program responded to a Philippine government request to conduct a rapid assessment of damage and recovery of mangrove and

beach forests in and around Tacloban, an area severely impacted by the storm. The assessment determined the nature and degree of damage to various beach-mangrove species, capacity of beach-mangrove species to recover, changes in land form and gradient, and qualitative impact on coastal mangrove ecosystems, including a set of recommendations for coastal rehabilitation. Assessment findings were used to prompt the Philippine Congress to allocate additional funding of PhP 1 billion for mangrove and beach forest rehabilitation in typhoon-prone areas, under the Mangrove and Beach Forest Development Project (MBFDP) overseen by DENR. DSWD also used the information in the report as baseline data for its cash-for-work program in Haiyan-affected locations to collect debris from beach-mangrove areas. The Program also carried out a rapid assessment of the mangrove forest cover condition and structures along the Verde Island Passage in Mindoro Oriental; Siargao Island in Surigao del Norte; and Camarines Norte, including potential sites for rehabilitation.

Connected with these initiatives and renewed focus on the importance of mangrove and beach forests in mitigating the impacts of storms, among other functions, the Program helped DENR with its efforts to enhance mangrove restoration. B+WISER specialists helped draft five technical bulletins on topics including establishing seedling nurseries, and establishing and maintaining mangrove plantations and beach forests, all to be used as guides by DENR staff implementing the national MBFDP covering 50,000 hectares of forest. Also as part of the MBFDP, B+WISER's mangrove specialists assisted in validating suitability of sites for mangrove and beach forest plantations and species that would thrive at each site. The Program developed a system using the open source CyberTracker app that was also used in Lawin to monitor seedling survival rates and come up with adaptive measures to ensure the success of restoration projects. To enhance best practices in mangrove restoration, the Program fostered collaboration between the Province of Quezon, DENR, academia, and the private sector to rehabilitate a mangrove experimental forest, one of the most diverse in the Philippines, for demonstration purposes.

Lawin and restoration

As the Lawin approach came on line and progressively expanded, it played a key role in passive forest restoration. Fundamental to Lawin work was definition of priorities, starting in part with results of the Program's baseline assessments and land cover information with emphasis on areas located in or adjacent to HCVA's. Lawin patrols and the identification and reduction of threats led to measurable changes in forest condition. Of 166 forest conservation areas included in patrols, 130 showed a downward trend in observed threats and 88 showed an upward trend in observed natural regeneration. Seventy-six forest conservation areas showed both a downward trend in observed threats and an upward trend in regeneration covering slightly more than three million hectares.

Resource Management Planning

Forest conservation area plans and protected area management plans

A key element of FMB's improved forest management as supported by B+WISER was to better align forest management with conservation priorities. With joint FMB and B+WISER assistance, FCAPs were developed by the Community Environment and Natural Resources Offices (CENRO) of DENR to improve this planning and management, describing the natural forests within their respective areas, defining conservation objectives and targets, and establishing the desired future forest condition and appropriate management interventions to achieve the objectives. This planning was in part informed by the baseline

assessments conducted by the Program, and as Lawin was progressively expanded and then adopted nationally, the FCAPs included implementation of Lawin. FCAPs, which target forested areas both within and outside protected areas (PA), were also incorporated where relevant in PA management plans at the original B+WISER sites. Further, the Program with DENR helped protected area management boards (PAMB) to further update their PA management plans incorporating varied enhancements such as “allowable use” within IP sacred grounds and updated maps of protected area zones.

Forest land use plans and comprehensive land use plans

Forest land use plans (FLUP) aim to address threats to forest resources, watersheds, and biodiversity in public forest lands, support generation of revenues from resource use fees, conserve biodiversity and ecosystem values, and help devise local adaptation strategies to climate and other vulnerabilities. They define the rights, roles, and responsibilities of government and other tenure holders in management and use of these lands. The Program coached personnel in the analysis and presentation of technical and socio-economic data for preparation of FLUPs including formulation of different proposed land use classifications and forest management strategies. Technical data, also integrated into comprehensive land use plans (CLUP), include elements from the Program’s integrated baseline assessments such as defined HCVA, which could overlap with proposed development projects and delineation of protected area management zones. The Program further supported three LGUs to incorporate results of the Program’s climate vulnerability assessments into their respective FLUPs and CLUPs.



Policy and Governance

Local forest governance

One of the central themes of B+WISER was improved governance of forested areas and protected areas by the responsible authorities. LGUs play a central role for watershed management and the Program evaluated environmental governance capacity through Guided Self Assessments (GSA) in 37 of the 56 LGUs within the seven Program sites. The GSA measured their performance in four areas across the landscape: forest and forestland management, aquatic resources management, urban environmental management, and LGU internal management practices. More than two thirds of the LGUs developed action plans to address areas of improvement identified during the assessments. From this initial assessment and action planning phase, the Program identified interventions that could support improvements in LGU environmental governance, and the effect of LGU investment was measured through a subsequent round of GSAs. Twenty-four of the 26 LGUs that decided to conduct a second GSA increased their scores by virtue of meaningful changes in management including: establishing offices dedicated to forest management, formulating policies to conserve specific endangered species, and mobilizing community forest guards for forest protection. Ultimately toward the end of the program GSAs were repeated for 31 LGUs and all registered improvements compared to the baseline assessments. Twenty-eight out of 31 LGUs improved their forest management scores to a high performing level, including results and practices such as passage of a local forest management ordinance, adoption of a forest management plan, effective enforcement of laws and regulations, and transparency in policy formulation and enforcement.

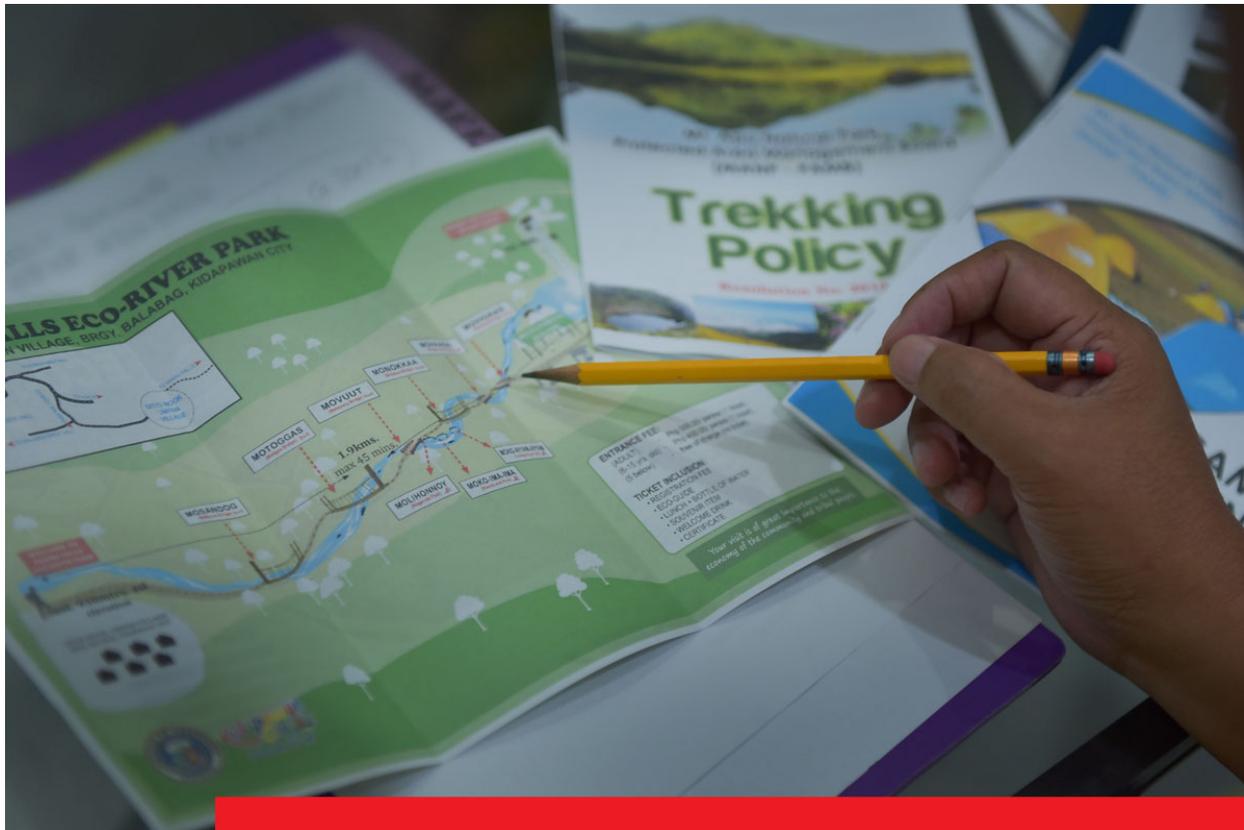
Protected area management effectiveness

To assess the management effectiveness in protected areas the program adopted the Management Effectiveness Tracking Tool (METT) and supported PAMBs in 10 PAs across the seven sites to define baselines at the start of the Program. The six elements assessed were context, planning, inputs, process, outputs, and outcomes and based on the initial findings the Program helped with detailed action planning to help enhance long-term management plans, annual action plans, and operations manuals, among others. Later in the Program, five out of six PAMBs that performed repeat assessments improved their METT scores. The improvement was a result of improving the PA resource management plans, building capacity on the use of Lawin, and DENR allocating funds for forest protection and forest patrolling in the PAs. The sixth PAMB sustained its initial METT score but did not show improvement. This can be attributed to new LGU personnel who are not yet up to speed on their roles and responsibilities as PAMB members. The PA managers prepared another action plan for adaptive management in order to strengthen their management effectiveness. Near the end of the project METT assessments were completed in all ten PAs and all showed improved scores. This reflected overall Program support in policy development, management plan formulation, conflict management, climate change related vulnerability assessment, environmental law enforcement, identification of sustainable livelihoods, forest and biodiversity protection (through Lawin), establishing partnerships and linkages with other sectors, education and awareness raising, fire suppression and management, and development and set-up of sustainable financing mechanisms.



Specific policy and governance instruments

The Program helped develop a series of instruments to enhance the governance and management of forests and PAs, with other linked areas such as disaster vulnerability. For DENR's Biodiversity Management Bureau (BMB), B+WISER supported several initiatives to improve PA management. First, the Program provided technical assistance for completion of the National PA Master Plan, which complements the Philippine Biodiversity Strategic Action Plan to provide the direction needed to achieve the country's contributions towards the Convention of Biodiversity Aichi targets. Work went on to include updating a guide for preparing operations manuals for PAMBs on their duties and responsibilities in accordance with existing laws, rules, and regulations. The key elements updated included addition of sections on good governance principles, on the functional relationship between PAMBs and DENR units, on separate processes for annual work and financial planning as well as PA management planning, and on performance evaluation of PA staff that is separate from monitoring and evaluation. The Program then helped PAMBs to update their respective operations manuals using the guide. The Program also helped BMB prepare a Handbook on Law Enforcement in Protected Areas to provide guidelines, procedures, and protocols for environmental law enforcement in all categories and ecosystem types of PAs in the Philippines, helping ensure effective response to violations of environmental laws, complementing response protocols developed under Lawin patrolling. Work on the handbook followed on broader support to formulation and implementation of a National Framework for Strengthening Environmental Law Enforcement (ELE), also including capacity building, strengthening interagency partnerships in the sites, and development of standard training modules and manuals.



As part of efforts to improve responsible management and use of parks, the Program helped Mt. Apo Natural Park adopt and implement a common trekking policy to be used by all LGUs around the park. The policy standardized fees and regulated the number of climbers during the dry months to prevent the occurrence of forest fires. Evaluation of the policy two years after adoption showed substantial increase in fees collected for park management as well as increases in incomes of porters and guides and contribution to IP communities holding claims to areas through which trekking occurs. Augmenting this and in collaboration with the US Forest Service (USFS), B+WISER helped assess and develop trail and camp standards for the park. Trails were classified according to level of development and attributes (traffic flow, trail width, constructed features, signs, level of difficulty, etc.) while camps were classified according to number of campers and camp amenities (fixtures for washing, comfort, and tents, and cooking and vending areas). These classifications became the basis for a trail and camp management master plan for the park.

The Program's efforts in forest restoration included drafting the monitoring and evaluation framework and the forestry component of the Ecosystem Restoration Action Plan of the Philippine Biodiversity Strategy and Action Plan. The Ecosystem Restoration Action Plan outlines the strategy for the restoration of approximately 500,000 hectares of degraded forests based on the ecosystem services they provide.

The Program helped develop a series of other interventions that were formally adopted through local government policy changes. Surrounding efforts to enhance climate resilience, B+WISER helped develop a riverbank monitoring system to be used by the community to monitor riverbank conditions in six target LGUs. Data will help LGUs formulate disaster-risk-reduction strategies along riverbanks which will improve communities' resilience in disaster prone areas. Legislative councils at the local level passed

executive orders to formally adopt use of the system for management. B+WISER also piloted the State of the Local Watershed Governance Reporting, a tool designed by the Program in collaboration with the local DENR, Provincial Government of Albay Environment Office and members of the Quinali 'A' Watershed Management Council for improving watershed governance by promoting transparency, accountability, and public participation. Work resulted in preparation of a formal action plan with specific activities, roles and responsibilities, timeframe, and resources required to address major issues in watershed condition and governance. B+WISER's highly successful work with payment for ecosystem services in Bago included the city's adoption of a local ordinance specifying among other things the fee collection and benefit sharing elements of the scheme.

Lawin policy and governance

To fully institutionalize Lawin within DENR, the department established a dedicated Lawin unit to oversee implementation at the national level. This unit is composed of technical staff that serve to ensure high-quality data and data analysis and provide field offices with technical support. The agency also designated Lawin points of contact in all DENR regional offices to coordinate Lawin activities. In March 2016, DENR's FMB and BMB signed a Joint Technical Bulletin, titled "Enhancing Forest Protection through Application of the Lawin Forest and Biodiversity Protection System." This policy document paved the way for capacity development activities and the use of government funds to equip DENR's field personnel for Lawin's implementation. In October 2018, DENR approved a department administrative order adopting Lawin as the national strategy for forest and biodiversity protection — an action that ensures long-term budget support will be in place for Lawin's implementation.

Conservation Finance and Partnerships

Government budget support

While sustainable financing for conservation initiatives should come through multiple sources and mechanisms, adequate and timely government budget support for crucial programs is important. For B+WISER initiatives, DENR believed strongly in its lead implementation role, routinely allocating budget for its involvement in Program activities. With the national adoption of Lawin, DENR was able to justify and obtain \$40 million from 2016 to 2018 to properly resource this initiative in national, regional, and local offices.

User fees and retention of own-sourced revenues

LGUs and entities like protected areas can increase budgets for forest and biodiversity conservation by either generating additional or retaining existing sources of own-sourced revenues. To support this, B+WISER worked with various PAMBs to develop comprehensive user fee systems for individual parks to generate revenues. PAMBs adopted the new user fee models as ways to collect funds from economic and recreational activities conducted in the PAs, such as tourism or existing and new commercial activities (e.g. filming and photography, telco towers). The Program helped to develop these models by assessing which fees are applicable in each PA (entrance fee, development fee, research fees etc.), developing a formula to determine rates (e.g. the development fee), and formulating guidelines on how to proceed with actually charging a fee. The newly adopted user fee models became approved, legally-binding policies for the PAs governed by the PAMBs, and enables the target PAs to generate more than PhP 1 million (\$20,000) to support conservation activities. B+WISER's support to a common trekking policy at Mt. Apo Natural

Park in Mindanao also increased incomes to the park as well as to guides, porters, local indigenous communities, and others. B+WISER also helped the Fuyot Spring Natural Park renew their co-management agreement with the City of Ilagan such that 15 percent of park entrance fees were channeled to the Integrated Protected Area Fund (IPAF) of the park, to be used for conservation. New legislation also allows income-generating PAs to retain 75 percent of the IPAF for PA use while remitting 25 percent to the National Treasury. B+WISER provided assistance to DENR to draft the implementing regulations for this, establishing a systematic, transparent, and accountable mechanism for managing the collection, disbursement, and accounting of funds under the IPAF.

Payment for ecosystem services

To support sustainable financing for forest management at the local level, the Program developed a payment for ecosystem services (PES) model for Bago City in the Province of Negros Occidental. Under a local ordinance developed with technical assistance of the Program, the Bago City government collects an environmental protection fee from water users through agreements with more than 40 collection agents (e.g., rice and sugar farmer's associations/cooperatives, water district entities) to fund protection efforts that address forest threats such as illegal tree cutting and charcoal making. To disburse the funds, which are collected in line with defined environmental protection activities under the Forest Conservation Area Plan and administered through a local trust fund, the city government partners with people's organizations from targeted forest communities, the direct beneficiaries of the funds. The communities support forest protection either directly through patrolling or indirectly through livelihood activities. Since the enactment of the PES ordinance in Bago City two years ago, fee collection has exceeded more than PHP 3 million (\$60,000). The amount is now being used to support forest protection activities and other pressure-reduction strategies such as the production of 'green charcoal' with wood materials sourced from a woodlot outside the natural forest.



The PES scheme in Bago City attracted the attention of FMB and other LGUs, with interest in replicating the model elsewhere. Replication will also provide experience for the government in setting up the PES

mechanism, including development of a toolkit and possibly a national policy on PES. Working with FMB, B+WISER contributed to furthering the PES agenda for LGUs in several ways, including support to the municipalities of Bagac and Mariveles in Bataan province with willingness to pay surveys and drafting their own PES ordinances, and learning visits for various government officials to build capacity to support to PES schemes in different LGUs. B+WISER also worked with FMB in a pioneering effort to expand PES models to special economic zones, such as the Authority of the Freeport Area of Bataan. The Program assisted the authority to formulate a work and financial plan to protect, reforest, and conserve the forest and watershed in an area they co-manage with DENR that supplies water to local households and industries.

Public and private sector partnerships

The Program helped develop key partnerships with public and private institutions with interests in preserving forests and healthy watersheds in order to broaden sustainable forest and biodiversity protection, particularly under the Lawin system. The most prominent partnerships involved two hydro and geothermal power generation companies, the National Power Corporation (NPC) and Energy Development Corporation (EDC). These partnerships leveraged \$1.2 million (PhP 66 million), which included training and equipping their personnel to implement the Lawin system in 15 forest conservation areas covering more than 230,000 hectares of forest in their respective jurisdictions. The training activities included how to formulate forest conservation area plans, how to use Lawin-based technology during patrolling and for data management to inform actions to respond to threats, and protocols for how to respond to specific threats. The Program worked with FMB's Lawin unit in conducting a trainers' training for both EDC and NPC to build a critical mass of Lawin coaches in their respective central offices. Together with FMB, the Program also worked to improve site-level collaboration between the field offices of EDC and NPC and the concerned DENR offices for harmonization of the forest conservation area plans, complementarity of patrol efforts, and collaboration in responses. Patrol data of NPC is now accessible on line to DENR.

The partnership with EDC was expanded to cover the development of a high conservation value project and to explore the feasibility of using internationally-recognized standards—including the Climate Community and Biodiversity standard and the Verified Carbon standard—to certify and improve conservation initiatives of the company.

In collaboration with FMB, the Program also initiated a pilot of the Carbon Accounting, Verification, and Certification System, a local registry developed with USAID assistance, which aims to support investments and activities that will reduce emissions from deforestation and forest degradation and/or enhance forest carbon stock through forest protection, reforestation, and other forest restoration activities. Under the system, the DENR could provide local certification for private sector-supported projects that contribute to the protection or enhancement of carbon stocks. The Program assisted the international cement company Holcim in drafting a Forest Carbon Project Plan to describe a proposed carbon project and how it would achieve a target carbon benefit. FMB efforts to continue planning the project with Holcim were to continue after the close of B+WISER.

The Program also partnered with other private companies, such as the Team Energy Foundation, Inc. that donated portable solar panels and power banks to support extended forest patrols and Hedcor, Inc. that provided equipment and allowances for additional forest patrollers in Mt. Apo Natural Park.

Other partnerships and funding sources

The Program forged a partnership with DENR and DSWD to restore and protect forests in the Province of Oriental Mindoro. The partnership is a convergence of the Philippine government's reforestation program, the National Greening Program led by DENR, and DSWD's sustainable livelihood program. It allowed the agencies to share resources to protect more than 800 hectares of watersheds and mangroves, while providing economic benefits of about PhP 6 million to approximately 1,300 members of the Mangyan community, an IP group that participated in activities under the partnership. The partnership, the first of its kind in the region, served as a model for inter-agency collaboration and improved the economic situation DSWD program beneficiaries, while ensuring the maintenance of areas under DENR's National Greening Program and its Mangrove and Beach Forest Development Program.

Supporting enhanced climate adaptation and resilience, the Program helped seven LGUs of Bukidnon Province to prepare and submit a total of \$4.3 million in proposals for climate adaptation projects to the People's Survival Fund of the Philippine Climate Change Commission. Projects included a broad range of adaptation and conservation activities such as forest protection (through the Lawin system); agroforestry; capacity-building; information, education, and communication; and institutional development initiatives for the LGU, among others. As of the B+WISER closing, proposals were still under evaluation.

Capacity Development

Integration with overall improved management

Capacity development is multi-faceted and can include institutional frameworks and operating parameters, human resources, infrastructure and tools, partnerships, technical and financial resources, and other aspects. Each of these was included in at least some of B+WISER's work, and especially with the national adoption of Lawin, implementation of which involves a complex array of national to local institutions and partnerships, and included standing up new units, and defining new roles and responsibilities and new infrastructure. Here we describe representative Program work in training to build the human capacity to support Lawin and other B+WISER initiatives.

Training permeated virtually all Program areas. The format varied based on the audience and capacity development need, and included classroom trainings, technical lectures, day-to-day on-the-job coaching and mentoring, and training of trainers. Many of the trainings were institutionalized with DENR and integrated with existing programs and curricula for staff.

Training began with the baseline assessments and analyses performed by the Program in the first year, building greater capacity for DENR to engage in the B+WISER assessments themselves and continue this work afterwards. Example topics included: carbon stock assessment, carbon and forest cover mapping, analysis of species-habitat relationships and ecological modelling, METT, and GSA. Other topics were linked to enhancing DENR's forest and biodiversity conservation management efforts and were based on the results of needs assessments, including a Learning Needs Assessment for regional DENR and PAMB staff, and other frameworks such as a Protected Area Competency Standard for PA staff. Still other training needs were identified during the action planning that followed results of METT and GSA baseline assessments. Topics for this training included land classification and integrated land use planning, environmental law enforcement, forest restoration, greenhouse gas emissions inventories, and remote sensing and mapping and other applications of geo-spatial data.



Some of the training was at the overview level while others went further in depth based on job responsibilities. Timber inventory training covered various inventory techniques, forest sampling, tree measurement, biomass estimation, and carbon assessment based on the data collected from field plots in the three sites where the training activities were conducted. Trainees were the ones who carried out timber inventory assessments in these sites. Enforcement training educated DENR staff on environmental laws and the proper conduct for arrest, search, confiscation, detention, evidence gathering and preservation, photo-documentation, and preparation of judicial affidavits for environmental crimes across all program sites. Those trained constituted the core group of enforcers mobilized to address observed threats during forest patrolling. Following specialized alternative dispute resolution training the participants implemented plans they formulated during the training to address conflicts in PAs and watersheds. Under the Program's scope to build capacity for disaster management in highly vulnerable areas, training focused on climate-smart protected area management planning and included impacts of climate change on biodiversity and watersheds and tools to assess vulnerabilities and the use of multi-criteria analysis to prioritize mitigation measures.

Multi-agency partnerships to share best practices

Training tapped other Philippine as well as US partner organizations as necessary to bring specialized expertise. In collaboration with the Philippine National Police, US Department of the Interior-International Assistance Program, and the US International Crime Investigative Training Assistance Program, B+WISER

conducted a 25-day Environmental Crime Investigation Course and an Instructor Development Course. These courses focused on environmental laws, the criminal justice system in the Philippines, and advanced environmental crimes investigation techniques such as evidence gathering, crime-specific crime scene investigation, and procedural matters such as protocols for searches, arrests, detention, criminal prosecution and administrative adjudication. These trainings also supported inter-agency collaboration to effectively respond to environmental violations observed during forest patrols. With the USFS, B+WISER helped train DENR and Bureau of Fire Protection officials in forest fire management in the Philippine context and to meet the specific needs of DENR. Through a combination of presentations, simulations, and role play, the training helped key personnel in both agencies in wildland fire preparedness including planning for and responding to forest fires, and recovery of damaged areas. The training was conceived by the DENR in response to a series of forest fires that broke out in Mt. Apo, Mt. Kanlaon, and Mt. Kitanglad. Peer-to-peer exchanges were also quite effective. Within the Philippines B+WISER brought officials from Bago City to Tanay to learn the processes and requirements to produce environmentally friendly charcoal in efforts to reduce the associated threat to forests. Top DENR officials met with USFS counterparts in Washington, DC to share strategies for forest landscape restoration, forest monitoring and conservation, carbon accounting, and public-private partnerships.

Lawin training

For Lawin specifically, the Program worked with all institutions and actors with responsibility for its implementation. This started with Lawin piloting at a discreet number of sites and expanded to national coverage. B+WISER worked at all levels, from senior leadership in Manila, to staff and patrollers at the regional and local levels, and out to community members. Lawin adoption entailed establishing a new management unit within DENR, and identifying needs and building capacity for all job functions to support the national program. These included patrol team members, data managers, law enforcers, resource managers, legal staff, and planning and budgeting officers across 166 local, 80 provincial, and 16 regional offices, along with units at the DENR central office. The Program's approach focused on ensuring the government was fully prepared to lead and implement this new program when B+WISER ended. As Lawin was jointly developed with DENR, department staff became training resources and coaches in the field. Field personnel who were trained in turn coached their colleagues. DENR officials included the costs of implementing their capacity building plan in their budget, which enabled DENR field offices to access equipment and organize training and coaching activities. In all, B+WISER trained more than 5,000 DENR field personnel, non-governmental organization (NGO) workers, LGU staff, indigenous community members, and private sector representatives.

To sustain the gains and enhance nationwide Lawin implementation beyond B+WISER, the Program helped DENR develop a medium-term capacity-building framework to meet the needs of national and local implementors of the system. The framework was informed by a capacity gap assessment to evaluate staff technical capacity, institutional systems and processes, and policy/legal issues. It was accompanied by a staff training curriculum and training module syllabi which were presented to DENR's human resources department.



Communications

Raising awareness for forest protection and biodiversity conservation

As part of B+WISER’s overall communication goal of building a constituency for better watershed management and biodiversity conservation, the Program conducted a series of trainings on biodiversity conservation and watershed management. One activity targeted a total of 55 public high school students, called Eco Rangers and a total of 54 science teachers, called Eco Guardians at two selected sites, Northern Sierra Madre Natural Park and Naujan Lake National Park, to help raise awareness and lead environment-related activities within their localities. Following the trainings, the Eco Guardians and Eco Rangers implemented more than 100 environment-related activities such as clean-up drives, tree plantings, and a biodiversity symposium in their respective schools and communities in coordination with DENR, LGUs, and others. The trainings were also envisioned to develop the participants into environment advocates who will write and publish stories about the environment to increase public awareness on biodiversity conservation and related issues. The Program also familiarized journalists at the two sites with biodiversity conservation and watershed management, allowing them to more accurately write about the Program’s work and conservation issues. Eco Rangers in Oriental Mindoro and Isabela spoke at major events about the conservation projects they developed as a result of the training, reaching at least 7,800 other individuals.

B+WISER also worked with the Wild Bird Photographers of the Philippines and launched two online photo contests, and also compiled photos of bird species into a photo story with audio, considered additional informative material that the Program used for awareness raising.



Social media is known to be the most popular and widely used platform of communication in urban areas and the Program maximized this platform to reach a wider audience locally and globally. B+WISER launched and maintained substantial presence on Facebook, Twitter, and YouTube as part of its social media strategy to widen the Program's reach and inform a wide range of audiences (i.e. DENR and other partners, students, conservation groups) on topics including what USAID, through B+WISER, was doing to help the Philippines conserve its biodiversity and watersheds. This included a variety of focused activities including a series of successful hashtag campaigns, such as #iSupportLawin, #ProtectWatersheds, #Sign4Climate, #SheSupportsLawin, #WeAreIndigenous, and #100BWISERStories. B+WISER also launched a web page housed with DENR's FMB website (<https://forestry.denr.gov.ph/b+wiser/>) as a mechanism to make key partners, like the FMB, better informed of the Program's activities.

The Program saw various public events as targets of opportunity to raise awareness of the Program, DENR's efforts, and sustainable forest and watershed management and biodiversity conservation. Some of the wide ranging events included:

- The Mangrove Family Fun Run with the Philippine Tropical Forest Conservation Foundation (now called Forest Foundation Philippines) and the U.S. Embassy in Manila in 2014, with 500 runners and volunteers and emphasizing the importance of mangroves to people's lives.
- The Multi-Sectoral Forum on Watershed Management in Quezon City in 2014, highlighting B+WISER approaches to sustainable watershed management attended by 200 participants from various organizations.
- International, national, and local community awareness activities, including celebrations and events for Earth Day, International Day for Biological Biodiversity, International Day of Forest, International Day of Climate Action, World Environmental Health Day, World Water Monitoring Day, and National Environmental Awareness Month, to raise awareness of B+WISER's and DENR's work, and to promote a series of technical topics such as technology innovations for conservation.

Collaboration with DENR to augment internal and external communications

B+WISER worked collaboratively with DENR and other partners to refine capacity for planning and implementing communications initiatives and to contribute enhanced communications materials and mechanisms in line with the project's scope. To complement the Program's work with Eco Ranger and Eco Guardians, B+WISER specialists trained information offices of DENR and LGUs in Oriental Mindoro and Isabela on social marketing and behavior change communications. A campaign mascot in Oriental Mindoro, called "papan", the local name of the endemic and threatened Philippine duck, was created as a focal point for local campaigns and events to induce community action for the protection and conservation of the Philippine Duck and its habitat. The Program also helped formulate communication plans for the Northern Sierra Madre Natural Park and Naujan Lake Natural Park which were integrated into the communication plans of DENR Regional public affairs offices.

When needed as integral to the Program's work, B+WISER supported DENR with other communications capacity building. As the Lawin system gained initial success and DENR wanted to further raise awareness, the Program trained DENR staff from several regional offices on basic newswriting and photography to enhance their reporting and documentation capability for news, publicity, event coverage, and field or patrol reports.

Finally, B+WISER worked with DENR to provide a wide variety of materials—technical reports, presentations, videos, photo galleries, printed materials, infographics—to support its internal and external communications needs.

Raising the visibility of B+WISER activities and accomplishments

Other communications work was in many cases tightly linked to overall awareness raising and support to DENR and other stakeholders as discussed above, but also included materials developed for USAID and related audiences about the work of the B+WISER. These included factsheets and one-page briefers, infographics, videos, and capsule summaries of the Program's work and accomplishments. Just a few of the varied products the Program supported include:

- A video on USAID's partnership with the local government of Bago City to provide environment-friendly and sustainable livelihoods to its local communities. It features the story of William Sanico, a 51-year old green charcoal farmer in Barangay Mahilum who plants Madre de Cacao, which his family eventually "harvests" and converts into green charcoal.
- "Rain's Calling" that tells the story of a 17-year old girl who, trained through B+WISER's Eco Rangers program, now leads youth and community projects geared toward environmental protection. This story appeared on USAID's Exposure page on its website.
- The story of Bago City's experience with conservation financing through the collection of an environmental protection fee and how this is used in forest protection.
- Several videos on Lawin, including a documentary that appeared on ABS-CBN's ANC channel, and a video for USAID's Digital Development (Digi) Award that the Program received, shown at a ceremony in Washington, DC.



- “In the Heart of the Forest”, a book of stories, including photographs and quotations, of some of the work supported through B+WISER in forest protection and biodiversity conservation, as told by people within and outside DENR.
- “Wisdom Keepers of Mt Kitanglad”, a story about the program’s engagement with the IP community in Bukidnon for improved natural resource management, with a corresponding infographic.

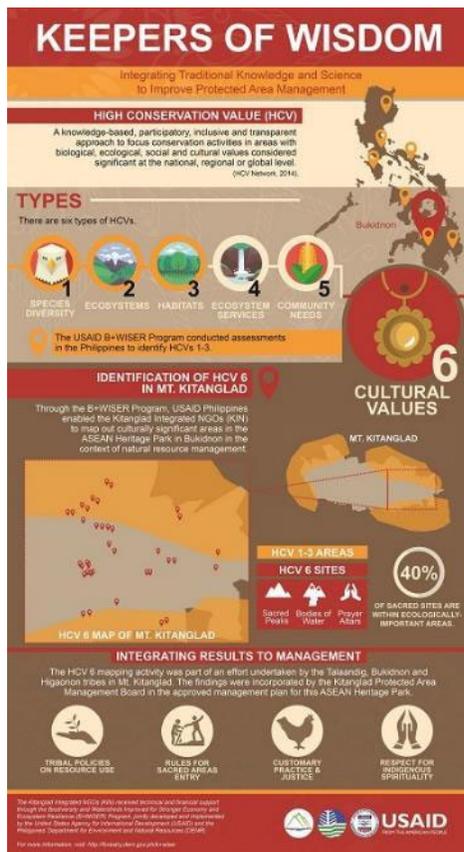
Gender and Inclusion

Integration in planning, governance, and capacity building

Gender and inclusion considerations were integrated in B+WISER’s work from the beginning, informed by a Gender Action Plan in the first year and partnership with the Gender and Development unit at DENR. Overall the Program adopted several strategies to integrate gender and inclusion:

- Implementing activities targeting women and IPs, including assessments, trainings, governance initiatives (e.g., PAMB meetings), and plan development
- Making women and IP voices heard, supporting them as decision-makers and policy makers
- Working with like-minded partners, ensuring subcontractors and private sector partners operate with a gender and inclusion lens
- Promoting the appointment of women and IPs in leadership roles, ranging from facilitators and speakers to committee membership
- Facilitating access of women and IPs to new employment and livelihoods, with associated trainings and tools
- Responding to factors limiting women and IP participation, filling specific knowledge gaps and re-assigning them to roles suitable to special constraints (e.g., parental responsibilities)

From the outset B+WISER addressed inclusion in baseline assessment tools such as METT and the baseline socio-economic survey. Gender and inclusion were also included in the course content for various training activities. In the training for PAMB and watershed management council officials, the Program also obtained data on perceptions, assessments, and recommendations regarding gender and IP roles and equitable participation in forest resource use, biodiversity conservation, and PA/watershed management to inform B+WISER activities and trainings. Through the Program's continued work with PAMBs, five out of seven PAMBs in the original sites subsequently adopted resolutions to have seats reserved for women and IPs as direct PAMB members, allowing them to actively shape resource management policy and governance. One PAMB also passed an order to reserve seats for women and IP representatives in technical working groups to oversee the implementation of PAMB activities.



The Program also provided gender inputs to key plans, including the Philippine Biodiversity Strategy and Action Plan of BMB. The inputs consisted of suggestions for mainstreaming gender in planned activities, identifying gender indicators, and defining the components of a Gender Action Plan that BMB could continue to develop. The Program also built a close partnership with the National Commission on Indigenous Peoples to address Free, Prior, and Informed Consent and other issues for engaging IPs in B+WISER work, culminating in direct agreements with several IP groups to work with them on the Program.

B+WISER had specific interventions to support opportunities for women. In Mount Apo National Park the Program helped provide access to economic opportunities by training women as porters and eco-guides. To further involve women in forest management, the Program trained women's organizations in the Marikina watershed to obtain grants for a communal nursery project and a forest protection project. For the new Lawin program, 24 percent of the 5,000 forest patrollers, data managers, and resource managers trained were women. The Program promoted the assignment of patrollers who are mothers, especially those who are pregnant, lactating, or taking care of very young children to office-based tasks such as data management. In Region 7 female patrollers are assigned to coastal/mangrove areas and other more accessible patrol routes if terrains are too physically challenging.

Forest management with indigenous peoples groups

The Program's overall approach to forest protection recognized the crucial role of communities, including IP groups in management. Mt. Kitanglad Range Natural Park, one of the Philippines' eight ASEAN Heritage Parks, is a model of successful resource management driven by inclusive partnership. Three indigenous tribes, the Talaandig, Bukidnon, and Higaonon, work together with government and civil society to apply indigenous practices and modern technology to protect their natural forest. Tribal chieftains, elders, and ritualists have their voices heard as longstanding members in government bodies managing the park's resources. Traditionally, indigenous norms and practices have been passed on orally from one generation

to the next. One tribal chieftain, Datu Makapukaw Adolino Saway, believed that documenting and thus preserving tribal customs and traditions was tremendously important. B+WISER supported this effort to document customs, traditions and practices related to natural resource management of the three tribes residing on Mt. Kitanglad, among other things helping to map cultural high conservation value areas, such as sacred sites. These aspects were in turn included in conservation planning, including patrol plans and the design of eco-tourism activities. The cultural profiling report was published in the book, “The Wisdom Keepers of Mt. Kitanglad”, in both English and the local language.



B+WISER also reinforced with DENR and LGU stakeholders the importance involving IPs in management activities, including patrolling, and hundreds of IP patrollers were trained under the Program’s partnership with DENR. The Program emphasized the need to either provide financial incentives (e.g. allowances) or hire Forest Protection Officers from IP groups residing in the PAs. As a result, more than 40 Lawin-trained IPs in Mt. Apo were hired by DENR under a monthly salary and more than 120 trained IPs now receive a regular or increased monthly honorarium for their patrolling work in Mt. Apo and Mt. Kitanglad. Their work in these sites also helps to protect and conserve the critically endangered Philippine eagle that lives in the wild. Other actions taken by the Program included: engaging women and IP tour guides and female

IP forest guards as patrollers, training women and IP ELE volunteers and supporting them to obtain required legal documents to be deputized for enforcement actions, and additional training tailored for IP Lawin patrollers to close the knowledge gap and language barriers to handle Lawin’s underlying technology and the English commands on tablet computers. The Program provided an avenue for IP communities to have a dialogue with LGUs and DENR on forest protection, as well as consideration of customary laws and ancestral domains. IPs were also urged to take a more active role in environmental protection and send tribal representatives to meetings, seminars, and trainings in order to achieve goals for the protection and conservation of important customary areas.



Other Cross-cutting Interventions

Research for evidence-based forest management and biodiversity conservation

Linked to B+WISER’s overall evidence- and science-based approach and its technical objectives, the Program examined needs and priorities to enhance applied research that supports better forest management and biodiversity conservation in the Philippines. In collaboration with FMB, BMB, DENR’s Ecosystems Research and Development Bureau, and other government and university research institutions, the Program outlined a research framework, including priority research areas at the national level, and ways to address specific gaps at the seven target sites. Subsequent to this, the Program coordinated with DENR to lead or support research and technical analysis crucial for meeting B+WISER objectives. This work covered topics including: approaches for defining high conservation value areas; considerations for restoring forest ecosystem functions; methods and guidelines for forest monitoring and carbon density

assessment; application of geospatial techniques to REDD+, forest biomass estimation using radar data, land use assessment, and monitoring and mapping of mangrove areas; climate vulnerability assessment focused on target watersheds; and species distribution modeling to inform forest restoration planning.

Support to carbon emissions reduction and low emissions development

B+WISER collaborated with DENR and other institutions, including USFS, for a series of interventions supporting national efforts toward low emissions development. Initial activities addressed needs under the National REDD+ Strategy, and others responded to evolving priorities ranging from international reporting to national carbon emissions reduction strategies. Determining baseline emissions (reference emissions level) is essential to reporting progress against international commitments and B+WISER analyzed different baselines for carbon emissions using best available data from field plots, defining next steps for submitting a Forest Reference Emission Level to the United Nations Framework Convention on Climate Change. To characterize greenhouse gas emissions in the forestry sector, the Program advised on topics including what data to collect and where to obtain it, data quality, assessment of uncertainty, and institutional arrangements needed for data collection and analysis. The Program also defined potential projects at three of the B+WISER sites under the existing international REDD+ framework and provided expertise to define next steps for the Philippines to establish its own voluntary carbon offset mechanism focusing on biodiversity and natural forest conservation.

A National Forest Monitoring System is important for FMB's role in the Philippines' low carbon development, including a measurement, reporting, and verification (MRV) system to comply with international forest carbon project funding and reporting requirements under mechanisms such as REDD+. This system will also serve other forest management and monitoring needs, including the National Greening Program. B+WISER, in collaboration with experts from USFS, provided expertise to assess the needs and options for design and implementation of an MRV strategy for the Philippines and harmonization with a National Forest Monitoring System. Subsequent USFS support enhanced FMB capacity in important areas such as data analysis for forest resource assessment, biomass estimation, forest carbon stock measurement, modelling greenhouse gas emissions, and advanced forest cover mapping.

ACCOMPLISHMENTS AGAINST PERFORMANCE INDICATORS

The Program's work and accomplishments were measured against 12 performance indicators. Targets for these indicators changed somewhat over the period of the B+WISER contract as the work and priorities evolved, and most significantly with the development and national adoption of Lawin. Table I below lists the Program's indicators with their targets and accomplishments over the six-year contract.

TABLE I. PROGRAM INDICATOR ACCOMPLISHMENTS

#	Indicator	Life of Project Target	Total Achieved	Percent of Target Achieved
1	Number of hectares under improved natural resources management	5,000,000	6,283,187	126%
2	Number of hectares showing improved biophysical conditions	584,000	616,470	106%
3	Number of laws, policies, strategies, plans, agreements, or regulations addressing biodiversity conservation proposed, adopted or implemented	59	101	171%
4	Number of biodiversity conservation and watershed-related research publications and technical papers produced	10	10	100%
5	Number of hectares of supported forest restoration initiatives	678,000	709,027	105%
6	Amount of carbon dioxide equivalent reduced and/or sequestered in metric tons	8,778,000	10,288,404	117%
7	Amount in USD of investments leveraged from public and private sources for biodiversity conservation	48,000,000	58,728,745	122%
8	Number of people with increased economic benefits derived from natural resource management and conservation as a result of US government assistance	29,000	29,955	103%
9 a	Number of PAMBs with increases in METT scores	10	10	100%
9 b	Number of LGUs with increases in GSA scores	29	31	107%
10	Number of person hours of training in natural resource management and climate change	166,000	216,744	130%
11	Number of days of technical assistance in natural resource management and climate change	4,420	4,552	103%
12	Number of institutions with improved capacity for disaster management in highly vulnerable areas	20	20	100%

LESSONS LEARNED AND RECOMMENDATIONS

Throughout implementation of B+WISER, the team experienced successes as well as some challenges. The following themes can inform other work:

- **Clear roles and ownership were both in place and cited as major contributors to the Program's success.** The B+WISER team worked to create a close partnership with the main government counterpart, DENR. When work initially focused at seven target sites, this included partnership with DENR, primarily FMB, at the national level as well as relationships with regional and local DENR offices. Senior officials at DENR provided and reinforced a clear vision for the partnership. DENR and its staff were the implementers of forest protection work and owners of that mandate. The Program provided advisors, mentors, access to new ideas and experience from other settings, and the resources to pilot new approaches such as Lawin. This clear role for DENR as the implementer sent a message to DENR staff about their responsibility to adopt and implement Lawin and supported FMB's overall ownership of it. Meetings between the Program and DENR reflected the partnership and evolved to be more efficient and less formal, peer-to-peer discussions—as equals jointly addressing a need—rather than more formal presentations at larger working group meetings. At the same time, the B+WISER team was able to listen to DENR and be responsive to needs and priorities rather than prescribing solutions. Ensuring the usefulness of Lawin and associated aspects such as financing options to DENR contributed greatly to DENR's ownership.
- **Having the right champions can lead to big transformations.** Champions can play an essential role in the ability of a project to achieve its objectives, and in the case of B+WISER, help DENR transform its work in forest management. The former director of FMB—who was in that role during the inception of Lawin—had a vital role in the success of the project. He was a key decision-maker with an appropriate level of authority and brought a clear vision and sincere commitment to the mission and making enhancements to DENR's work. He understood the risks with Lawin and worked to mitigate them, including working through what started as a “good idea”, soliciting perspectives from his staff and tapping the Program for pilots and “proof of concept”. He also understood important political factors such as higher level interest in using technology to help in DENR's work. His active involvement, including an open line of communication with B+WISER and holding the Program accountable for results, and similar involvement of his successor, were crucial to the Program's success. Other champions leading regional and local DENR offices, willing to embrace a new and innovative system, helped Lawin succeed. They actively oversaw implementation and improvement of Lawin in their own jurisdictions, and their success both proved what was possible to other, sometimes lagging, regional and local offices, and fostered competition, spurring others toward greater performance.
- **Adaptive management is most effective when it happens continuously, versus only at specific milestones such as quarterly reviews or annual work planning.** DENR representatives emphasized that flexibility and adapting the approach of B+WISER was very important for success. For example, some emphasis shifted (e.g., policy reform) to building the full capacity necessary for the entirely new Lawin system, as this emerged as a priority for DENR. Lawin itself was never envisioned or called for in the original Program design but the Program was able to adapt to

changes as DENR's needs and priorities shifted. DENR noted that given the close partnership with the Program, adaptation was continuous through regular peer-to-peer discussions and troubleshooting, rather than only at milestones like more formal presentations or annual work planning. There was also flexibility to take on larger changes when needed, and USAID's flexibility in allowing contract modifications was specifically cited.

- **“Science-based” approaches need to be well calibrated to realities and needs on the ground.** Baseline, science-based assessments under the Program informed many activities, from policy and governance to forest patrol data collection. However, making these assessments thorough at seven locations took longer than anticipated. Assessment design needs to carefully consider the purpose of the assessment beyond filling existing data and information gaps, and target the specific approach and information needs to support that purpose.
- **Effective integration of a USAID project with the government counterpart is aided by early joint discussions and planning.** Government counterparts are in a better position to engage in projects when they know early on, starting with design and before contract award, what the priorities and staffing and other resource needs will be. DENR officials very much wanted the department's involvement to be effective, and it was, but they pointed out that budgets are always tight and existing staff already have full time jobs, so early involvement maximizes their ability to plan for the right resources to be available.
- **Understanding the true needs of counterparts at all levels can make the difference.** Projects can often bring excellent ideas and proven approaches. DENR officials emphasized the importance of involving staff at all levels so that the Program, and especially Lawin, was well suited to DENR's needs. Lawin fundamentally addressed some key needs of DENR. It provided a way to prioritize DENR's effort and tie it to focused conservation targets, crucial for operating with budget limitations, and it generated the tools and data for defensible, evidence-based decision-making. And it yielded benefits for staff at all levels. For senior officials, Lawin provided a concise dashboard with information useful to make management decisions on priorities and budget and resource allocations, and they could see feedback and improvements on the ground to reinforce decisions. For patrollers, Lawin gave many a greater sense of purpose in their jobs as well as additional skills in technology application, fueling their motivation to be involved and to do high quality work.
- **Even with wide ranging technical, policy, and institutional support there is unfinished business for sustainability.** B+WISER made great strides toward sustainability of its interventions and particularly for Lawin, including a department administrative order to better secure funding and resource needs and a long-term capacity building plan. Still, operationalizing all of this will take more time and effort. A new DENR unit supporting Lawin will still have a range of needs, such as making temporary employees permanent and ensuring long-term capacity in light of inevitable staff turnover. Having the right staff available in specialized areas such as information technology, especially at the local level, will continue to be a challenge in replacing expertise that B+WISER provided. DENR also sees a need to continue increasing the level of community involvement and number of patrollers around the country. As community and other partnerships expand, there will be further needs such as capacity development, data sharing, response coordination, and overall quality control. Finally, monitoring Lawin performance as patrolling increases and more threat response experience accumulates will be crucial to continuous improvement of the entire system.

- ***Capturing opportunities to launch financing solutions needs to be balanced with detailed planning and analysis.*** The Program had significant success helping counterparts arrange conservation financing solutions, including PES and collection of user fees. It capitalized on an identified need and the necessary political will to begin. These were opportunities important to support when they arose; they represented significant starting points at a minimum. At the same time, local decisions did not fully consider what the collected fees would be used for and if they would be sufficient. As Lawin was adopted for example, there was no analysis of the cost of implementing the system and the adequacy of the fees for this purpose. While decisions on fee amounts and structures can be highly politicized, decision-makers should be furnished with clear analysis of target program costs to inform their policies.

The above themes may not be totally new to the experienced development project implementer but highlight some of the reasons B+WISER was able to achieve a great deal, and provide reminders of challenges many projects face and how they can achieve even more.