

Philippine Tropical Forest Conservation Foundation, Inc.

Connecting Forests, People and Development

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Philippine Tropical Forest Conservation Foundation, Inc.

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Philippine Tropical Forest Conservation Foundation, Inc.

Connecting Forests, People and Development

Lessons and Insights
from 10 years of the
Tropical Forest Conservation Fund
in the Philippines

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List of Acronyms

		CDOHP	Cagayan de Oro Handmade Paper, Inc.
		CENRO	City Environment and Natural Resources Officer
		CIDA	Canada International Development Agency
ADSDPP	Ancestral Domain Sustainable Development Protection Plan	CPDG	Conservation Planning and Development Grant
ANR	assisted natural regeneration	CRM	coastal resource management
ASFFIL	Association of Small Fisherfolks in Libjo	CSO	civil society organization
BBFO	Barangay Buluan Fisherfolk Organization	CWTS	Civic Welfare Training Service
BFAR	Bureau of Fisheries and Aquatic Resources	DAR	Department of Agrarian Reform
BK	Bantay Kalasan	DENR	Department of Environment and Natural Resources
BLGU	barangay local government unit	DENRO	District Environment and Natural Resources Office
BNP	Bataan National Park	DepEd	Department of Education
BOT	Board of Trustees	DILG	Department of the Interior and Local Government
CARBON-SINK	Coalition of Fisherfolk Associations for the Restoration of Sibuguey Bay's Overexploited Mangroves and Natural Resources in Siay, Naga and Kabasalan	DOLE	Department of Labor and Employment
		FLUP	forest land use plan
		FMB	Forest Management Bureau
		FPE	Foundation for the Philippine Environment
CADT	certificate of ancestral domain title	FO	Fisherfolk Organization
CBFM	community-based forest management	FRENDS	Friends of the Environment for Development and Sustainability, Inc.
CBMSF	Center for BioMolecular Science Foundation	GIS	Global Information System
CCPD	Caraga Center for Peace and Development	ICRM	Integrated Coastal Resource Management
		IEC	information, education and communication

IP	indigenous peoples	MILF	Moro Islamic Liberation Front
IPAS	Integrated Protected Areas System	MPA	Marine Protected Area
IPR	individual property rights	NAMRIA	National Mapping and Resource Information Authority
IPRA	Indigenous Peoples Rights Act		
IRMP	Integrated Resource Management Plan	NAQP	National Aquasilviculture Program
ISO	Institute of Social Order	NCIP	National Commission of Indigenous People
KAGAMANA	Kapunungan sa mga Gagmay'ng Mangingisda sa Nazareth	NewCAPP	New Conservation Areas in the Philippines Project
KBA	key biodiversity area	NGO	non-government organization
KGMC	Kapunungan sa Gagmay'ng Mangingisda sa Concepcion	NGP	National Greening Program
KNRA	Kanawan Negritos Reservation Area	PAMB	Protected Area Management Board
LCA	local conservation areas	PAWB	Protected Areas and Wildlife Bureau
LFPI	Landcare Foundation of the Philippines, Inc.	PIBCFI	Polilio Island Biodiversity Conservation Foundation, Inc.
LGU	local government unit	PDG	Project Development Grant
LTER	long-term ecological research	PENRO	Provincial Environment and Natural Resources Office
MAKAUFA	Magapuy-Kalanguya Upland Farmers Association	PES	payment for ecosystems services
MAKILAS	Makilas Small Fishermen Association	PNRPS	Philippine National REDD Plus Strategy
MAMACILA	Mat-i and Man-ibay; Civoleg and Langguyod	PO	people's organization
MENRO	municipal environment and natural resources office	PPP	public-private partnership
MFARMC	Municipal Fisheries and Aquatic Resources Management Council	PPSTA	Pakatan Pag-asa ng Samahan ng Tamulaya-Anibong
MIHITRICO	Minalwang Higaonon Tribal Council		

PROTECT	Participatory Rehabilitation of Overexploited Mangroves Through Environment-Friendly, Community Driven and Technically Sound Strategies of Sibuguey Bay	TFCA	Tropical Forest Conservation Act
	Philippine Tropical Forest Conservation Foundation, Inc.	TLA	Timber License Agreements (TLAs)
PTFCF		WMCIP	Western Mindanao Community Initiative Project
PUFA	Paitan Upland Farmers Association	XAES	Xavier Agricultural Extension Services
REDEEM	Rehabilitation and Enhancement of Denuded and Exploited Mangrove Resources		
SALT	Sloping Agricultural Land Technology		
SCDI	Socio-Cultural Development Index		
SMILE	Sustaining the Mangrove Initiatives and Livelihood Enhancement		
SMK	Samahan ng Magbukún sa Kanawan		
SMMSI	Samahan ng mga Maliliit na Mangingisda ng Sibulan, Inc.		
SMMSR	Samahan ng mga Maliliit na Mangingisda ng San Rafael		
SUCs	State state universities and colleges		
TESDA	Technical Education and Skills Development Authority (TESDA)		

Glossary

alimango	mud crabs
andamyo	gangplank
Bantay Dagat	sea watch
Bantay Kalasan	forest guard
barangay	smallest political unit in the Philippines equivalent to a village
bibingka	rice cake
bubu	breeding cage of crabs
budyong	helmet shell used as a horn
datu	chieftain
gasak/gahak	type of swidden agriculture that involves clearing grassland areas without cutting down and burning trees
Higaonons	an ethnic group found in Northeastern Mindanao; literally means mountain dwellers
hinabol	hand-woven textile
itik	duck
kaingin	slash-and-burn agriculture
lakatan	a variety of banana
lambanog	local wine
raha	fuel wood
sihi	sea snails
sikaran	a “no hunting area” in the forest traditionally set aside by the Higaonons to preserve animal species
tinagak	abaca fiber rope

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Lessons and Insights
from 10 years of the
Tropical Forest Conservation Fund
in the Philippines



message



Board of Trustees
Philippine Tropical Forest Conservation
Foundation

Ladies and Gentlemen:

In 2002, the United States of America and the Republic of the Philippines signed two agreements to create an \$8.25 million fund dedicated to preserving and restoring the Philippines' tropical forests. Through those agreements, we also created a unique management structure – the Philippine Tropical Forest Conservation Foundation – allowing our governments to collaborate with independent experts, civil society, and the private sector to manage and utilize the funds. Now, more than ten years later, the PTFCF has become a model for effective, exemplary forest conservation. Since beginning operations, the PTFCF has supported 257 projects with over \$4.5 million in grants. These projects have improved the management of 1.3 million hectares of forest lands, restored over 3,400 hectares of forests through the re-introduction of native trees, and established over 40 community-based conservation areas.

Natural forests play a vital role in environmental and climate resilience. Healthy forests have the unique ability to reduce emissions, capture carbon, reduce the vulnerability of people and ecosystems to climate change, and provide sustainable livelihoods. We are deeply

encouraged by the example being set by PTFCF in making forest conservation a key priority in the global fight against climate change.

But climate change cannot be solved by one foundation – or by one nation – alone. The strategic partnership made possible by PTFCF is an example that can pave the way for better management of forest lands here and elsewhere. It is a great source of inspiration how the PTFCF has been a catalyst for civil society, government units, scientific institutions, and the private sector to work together to improve the state of Philippine forests.

As we reflect upon and celebrate the PTFCF's first decade, let us apply the lessons we have learned to the future. Let us move forward with the same sense of responsibility to achieve even more for our forests, our nations, and future generations. The U.S. government is proud to stand with the Philippines in this endeavor.

Congratulations!

With best wishes, I remain.

Sincerely,

Harry K. Thomas, Jr.
U.S. Ambassador to the Philippines

message



Greetings!

This Department has been fortunate to have been at the forefront of the creation of PTFCF. Over the years, we have seen the growth and development of PTFCF in adhering to and delivering its mandate – towards grant financing tropical forest conservation – while working in close collaboration with governmental and non-governmental partners.

The emphasis on financing sustainable action for the environment and forests is even more pronounced now given climate risks. As an entity established purposely for financing domestic tropical forest conservation, PTFCF holds a key role in ensuring that the investments out of the Tropical Forest Conservation Fund contribute towards the vision of ensuring “lush and biologically diverse forests.”

Having supported over 257 conservation projects nationwide with disbursements of more than US\$ 4.5 million in grants, PTFCF has been instrumental in the improved management of approximately 1.3 million hectares of forest

lands and the restoration of over 3,400 hectares of forests with appropriate native species of trees. These accomplishments by PTFCF have contributed to the granting of a Second Tropical Forest Conservation Fund by the United States Government under the U.S. Tropical Forest Conservation Act to the country that will allow scaling-up of support to conserve, maintain, and restore key forests in priority areas and at the same time achieve climate change mitigation objectives.

Together with the entire Department of Finance, I congratulate all our partners and I look forward to our continuing display of good governance as we work towards improving our “forests for the people” and for the country's economic growth and sustainable development.

Hon. Cesar V. Purisima
Secretary
Department of Finance

message



Biodiversity protection and conservation is too big a job for any government, by itself, to undertake. The enormity of the task demands alliances with key stakeholders such as the academe, the business sector, and civil society organizations (CSOs). It is in response to this need that the Philippine Tropical Forest Conservation Foundation (PTFCF) was conceived: embodied as a catalyst to foster community participation, its role is vital in the sustainable development of our forests.

The first decade of PTFCF, its learning and fruitful experiences, is marked in this book, “Connecting Forests, People and Development.” A story of trials and triumphs, it highlights what it needs to be done to have an effective and sustainable forest protection and management.

The PTFCF grants program enabled the DENR to partner with over 150 CSOs and individuals, stepping up the Department’s efforts on forest protection and restoration, forest community development, and coastal forest

management. Such partnership with various CSOs also made the goals of our country’s flagship reforestation program be realized. It has capacitated the National Greening Program’s (NGP) community coordination, engagement, and resource mobilization efforts.

In this PTFCF’s 10th anniversary, the DENR gives assurance of its continued full support, stronger collaboration, bigger and bolder actions with its CSO partners. For through this, our single goal of sustainable forests can be achieved. Happy 10th Anniversary PTFCF!

Mabuhay!

Ramon J. Paje
Secretary
Department of Environment and Natural Resources

message



On behalf of the Board of Trustees, the Executive Director and staff of PTFCF, I am honored to present this 10th anniversary report to all our partners from the government, business sector and civil society organizations. This report represents a crossroad in the journey of PTFCF. While we look back to what we have accomplished in the past, we also look forward to what more can be done in forest conservation.

From 2005 to 2012, PTFCF has provided approximately Php182 million (US\$ 4.53M) in grants in support of the 257 projects nationwide. These projects have not only resulted in restored and improved management of more than 1.3 million hectares of forestlands, they have also provided community members with sustainable livelihood opportunities.

The year 2011 was a milestone for PTFCF, not because I, along with other new members took oath as Board of Trustees, but because new strategies were employed to further the works of the Foundation. Fund sustainability, operational and management efficiency, and increased impact of PTFCF projects became the new Board’s primary concerns.

In addition, more strategic partnerships were forged to promote the advocacies of PTFCF. In 2012, we partnered with the DENR and FPE for the NGP, which allowed us to not only take more active role in the government’s

reforestation program but also popularize the use of native trees. Similarly, our partnership with Concepcion Durables, Inc. gave us the chance to draw public support, and link the business sector with community-led conservation efforts. We have also worked more strongly with the academe in mainstreaming rainforestation and other conservation methods. All these have complemented the efforts of our community partners and enabled us to achieve greater impacts.

PTFCF is proud of its accomplishments; and yet we know that future challenges require more strategic approaches and stronger collaborative efforts. Hence, as PTFCF celebrates its 10th year, we renew our commitment to our partners in pursuing new opportunities and better ways of doing things. Rest assured that we continue to stand in solidarity with you in all efforts to improve our forests, for our people and the country’s development.

Thank you for your dedication and tireless cooperation. This publication is for you.

Dr. Paciencia P. Milan
Chairperson, Board of Trustees
PTFCF



Strengthening
Partnerships for
**FOREST
CONSERVATION**

The 1998 U.S. Tropical Forest Conservation Act (TFCA) provided the Philippines with a unique opportunity to address the multifarious issues concerning the Philippine tropical forests. The TFCA enables the U.S. government and developing countries with forests, like the Philippines, to negotiate for debt relief and establish a forest conservation fund.

Context and Background

On 19 September 2002, the U.S. and Philippine governments signed two bilateral agreements under the TFCA that established the Philippine Tropical Forest Conservation Foundation (PTFCF) to manage the US\$8.2 million conservation fund to provide for forest conservation activities in the country from 2002 to 2016. PTFCF was organized through a consultative process that involved the civil society and government agencies. The strong collaborative efforts among the Philippines and U.S. governments and the civil society sector resulted in the creation of the PTFCF.

The Foundation became operational in early 2005. Prominent and experienced NGO leaders

agreed to join its founding board to nurture the organization during its start-up years. The founding Board of Trustees (BOT) was chaired by Mr. Jose Ma. Lorenzo Tan, while Maria Paz G. Luna served as the first Executive Director. The founding BOT quickly worked to establish its governance system, develop a strategic plan and announce its first “Call for Proposals.” They set the areas of focus for the Fund’s grant-making program, namely: Dipterocarp and upland forests; coastal mangrove forests; protected areas; and prioritized grants to small people’s organizations (POs). These priorities have remained relevant to date. As it matured in experience and knowledge, the Foundation has gradually developed several new modalities for making grants and achieving the Fund objectives.

The administration of the tropical forest conservation fund is currently under the direction of an NGO-led BOT with two representatives each for the Philippine and the U.S. governments, five individuals from NGOs and an Executive Director. The BOT is comprised of the following: *Dr. Paciencia P. Milan (Chairperson), DENR Secretary Ramon J. P. Paje (Vice-Chair), Mr. Jaime I. Ayala (Treasurer), Dr. Rowena R. Boquiren, (Secretary), DOF Secretary Cesar V. Purisima, Mr. Joseph Foltz (USAID), Mr. Heath Bailey (U.S. Embassy) Dr. Proserpina Gomez-Roxas, and Mr. Federico Lopez. Executive Director Atty. Jose Andres Canivel leads the seven-person staff of PTFCF.*



Some members of PTFCF’s Board of Trustees (current and past) at the Fellowship and Recognition Night held on September 18, 2013 to mark the 10th year of the TFCA. U.S. Ambassador Harry K. Thomas, Jr. graced the event, along with DENR Usec. Demetrio Ignacio, Jr.

Right: Some participants in one of the grassroots consultations on TFCA prior to the establishment of PTFCF.



PTFCF “envisions biologically diverse Philippine forests that are sustainably managed and equitably accessible to responsible stakeholders.”

Its mission is to “protect and restore Philippine forests by working with communities, catalyzing local and national actions for their sustainable management.”



PTFCF Objectives

The seven objectives of PTFCF underscore the interconnectedness of forests, people and development (Figure 1). Tropical forests are prioritized through protection and management activities. People, specifically forest dwellers, are recognized as key players in forest conservation and are, thus, given precedence through capability-building activities and provision of alternative livelihood.

Development is ensured through activities that focus on sustainable use of tropical forests. Research and identification of medicinal uses of tropical forest plant life to treat human diseases, illnesses and health-related concerns also contribute to overall human development. The overall thematic focus of conservation efforts supported by PTFCF centers on forest formations, particularly dipterocarp forests and mangrove forests.

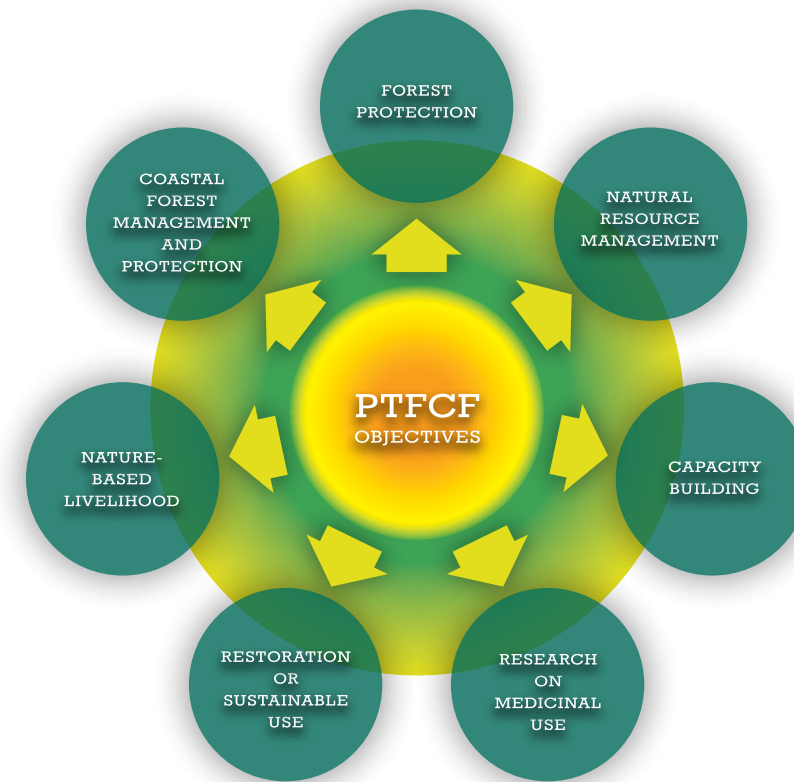


Figure 1. The PTFCF Objectives

Forest Protection

To establish, restore, protect and maintain parks, protected areas and reserves.

Natural Resource Management

To develop and implement scientifically sound systems of natural resource management, including land and ecosystem management practices.

Capacity Building

To increase scientific, technical and managerial capacities of individuals and organisations involved in forest conservation efforts.

Research on Medicinal Use

To conduct research and identification of medicinal uses of tropical forest plant life to treat human diseases, illnesses, and health-related concerns.

Restoration or Sustainable Use

To restore, protect or sustain use of diverse animal and plant species.

Nature-based Livelihood of Forest Dwellers

To support livelihoods of individuals living in or near a tropical forest in a manner consistent with protecting such a forest.

Coastal Forest Resource Management and Protection

To combat illegal logging and develop sustainable community-based enterprises.



Investing in Forest Conservation

The selection of projects for PTFCF funding involves a competitive process, which starts with the issuance of the annual Call for Proposals. The types of conservation projects that are eligible to receive grants include: the establishment, maintenance, and restoration of parks, protected areas, and the plant and animal life within them; the conduct of training programs to increase the capacity of personnel to manage conservation parks; the development of and support for communities residing near or within tropical forests; the development of sustainable ecosystem and land management systems; and the conduct of research to identify the medicinal uses of tropical forest plants and their products.

Only Philippine-based institutions are eligible to submit concept proposals including: civil society organizations (CSOs), NGOs, indigenous peoples' organizations and other such community-based organizations engaged in forest conservation; private economic, scientific or academic institutions, as well as social and professional organizations; and individuals (for short-term research projects). Government agencies, local government units (LGUs) and other government instrumentalities, as well as state universities and colleges (SUCs) are not eligible. The business sector (such as corporate foundations, chambers of commerce or specific industry chambers) is invited to engage in partnerships with NGO and PO proponents instead of directly applying for grants. Moreover, large NGOs or federations with national coverage are encouraged to take the lead in submitting grant proposals to capacitate their local partners.

Grants for forest conservation are extended under any of six types. Area grants, with a maximum grant amount of Php2 million (US\$48,553) per year, are earmarked for projects implemented in PTFCF priority areas for a maximum of three years. Small grants, ranging from Php100,001 (US\$2,428) to Php500,000 (US\$12,138), support eligible activities within the priority areas but give emphasis on a particular component of a larger forest conservation project. They typically have a shorter duration of implementation and a strong partnership component. Meanwhile, project proposals for immediate implementation within a limited time period and amount not beyond Php100,000 (US\$2,428) are funded under the micro grants. Moreover, research proposals

PTFCF advocates for the use of native trees, particularly dipterocarps in forest restoration.

from scientific organizations/institutions and individuals are considered under the applied research grants. Research can be multiyear (at most three years) with support that shall not exceed Php1 million (US\$24,277) per year. The expected output of a research grant is a peer-reviewed published paper.

The conservation planning and development grant (CPDG) supports conservation actions in areas without active POs/representations/existing plans. Eligible proposals include: information on the proponent's capacity, resources and readiness; status of the area and needed interventions consistent with PTFCF mandate; and proposed activities and budget. Funding for CPDG ranges from Php100,000 (US\$2,428) to Php400,000 (US\$9,711), and has a timeframe of one year. A project development grant (PDG) was created to respond to promising concept proposals. The output of a PDG is a project proposal to be submitted to PTFCF for possible funding. Activities under this grant include planning and project development, and capacity building in PTFCF's prioritized areas, among others. Support ranges from Php100,000 (US\$2,428) to Php200,000 (US\$4,855) within a year.

Proposal Evaluation and Approval

PTFCF evaluates projects in phases, initially, at concept proposal phase and then at a full proposal phase. Proponents are asked to first submit a concept proposal, which provides for the objectives, strategies and an indicative budget of the proposed project. The concept proposal is evaluated by the staff and a



sub-committee of the BOT. Those who submitted proposals that are evaluated favorably are then asked to prepare a full blown proposal which, in addition to the objective and strategies, provides details on activities and budgets that are required to meet the objectives of the project. A program committee evaluates these full proposals, with final approval by the BOT.

Milestones and Impacts

Projects supported by PTFCF since 2005 (Figure 2) have resulted in significant outcomes: improved the management of approximately 1.3 million ha of forest lands; restored approximately 3,400 ha of forests through the reintroduction of appropriate native tree species; established over 40 community-conserved areas in key biodiversity areas and critical watersheds; institutionalized over 52 community-level sustainable enterprises that provide additional income to community members; and increased the level of awareness on forest conservation issues, particularly the ecosystem services provided by forests.

Forest Restoration

A critical feature of forest restoration projects supported by PTFCF is the use of native species of trees and mangroves to circumvent the problems of past reforestation efforts that relied almost exclusively on exotic species.

PTFCF advocates for rainforestation, or keystone species approach in the restoration



Figure 2. Geographical distribution of PTFCF projects (2005-2012)

of forests. In this approach, pioneering local species (sun-requiring trees) are planted first, and then the climax forest tree species (shade-loving trees, or dipterocarps) are planted under the established pioneers. While it is both time and resource consuming, it has higher chances of success, better approximates of natural forest growth and ensures full ecosystem services provided by such forests.



Mangrove conservation is one of the priorities of the Foundation. PTFCF introduced three key pioneering practices in mangrove reforestation. First, instead of planting just one species for the entire area to be rehabilitated, reforestation followed the natural growth of the mangrove area. Thus, the appropriate species of mangroves were planted depending on whether an area was muddy, sandy or rocky. Second, the planting of mangroves was done landward, that is, planting started from the sea and moved towards the land. Third, the Foundation prioritized abandoned fishponds and transformed them into reforested mangrove areas.



In 2012 alone, the PTFCF-supported projects rehabilitated some 105 ha of abandoned fishponds and mangrove areas, and sustained the protection and management of 845 ha of old-growth and restored mangrove forests with counterpart support from respective LGUs and communities.

The establishment of various nurseries (for native/indigenous forest, fruit tree seedlings and mangroves) is a key component of PTFCF's reforestation strategy. Starting 2007, PTFCF worked to increase the supply and availability of seedlings and wildlings of Philippine tree species through the establishment of community-based



nurseries. These nurseries do not only ensure the availability of planting materials and the appropriate matching of species to the project area, but also provide livelihood to the participating organizations and communities, and increase the level of participation of women and the youth.

Law Enforcement and Forest Monitoring

PTFCF prioritizes the protection of the remaining old growth tropical forest blocks of the country by supporting action to curb illegal logging. The protection of these

remaining forest blocks – such as in the Sierra Madre Mountain Ranges, the island province of Palawan and Eastern Mindanao (Caraga Region) – is vital not only because they serve as living models of forest restoration efforts but because they provide the source of materials for reforestation efforts.

From 2008 to 2011, PTFCF supported a partnership between Tanggol Kalikasan, a public interest legal organization, and the Isabela Province Anti-illegal Logging Task Force to expand law enforcement activities and curb illegal logging in the Northern Sierra Madre Natural Park (NSMP). By establishing a checkpoint along the Abuan River (the major waterway used for transporting illegally cut wood from the Sierra Madre), approximately 800,000 bd ft of illegally cut hard wood were confiscated. Confiscations of illegally cut wood and illegally processed lumber continued in the succeeding years with the support of the provincial government of Isabela. The total confiscations exceeded 1.5 million bd ft. This project has resulted in the largest confiscation ever in the history of anti-illegal logging in the country. In addition to confiscations, court cases were filed against the lumberyard operators and owners, who were typically rich businessmen or politicians.

PTFCF has an ongoing project in partnership with the Palawan NGO Network, Inc. (PNNI) for the conservation of forests in the country's "last frontier" and supporting community-based forest monitoring and anti-timber poaching operations. The project targets the confiscation of equipment and tools (particularly chainsaws) used in timber poaching. Over fifty chainsaws



Multi-sectoral forest law enforcement activities led by CCPD in Agusan del Sur.



PNNI Staff with another confiscated unregistered chainsaw used for illegal logging in Palawan.

¹ Caraga Region in Eastern Mindanao is composed of four provinces with remaining primary and secondary growth forests. It is known as the timber corridor of the Philippines since the region has an estimated 1.3 million ha of forests and where some of the largest timber concessions are still in operation.

have been confiscated, and cases were filed against the owners and/or operators of anti-timber poaching operations for violations of the Chainsaw Act of the Philippines (Republic Act 9175), which prohibited the possession of chainsaws in forest areas without permits.

In the Caraga Region,¹ PTFCF provided support to the Caraga Center for Peace and Development (CCPD), a multisectoral coalition, for a region-wide information, education and communications (IEC) campaign; capacity development; and support for improved forest governance. The project catalyzed advocacy and concerted action resulting in the apprehension and confiscation of thousands of illegally cut

logs (valued at over Php200 million) and several conveyances, including three ships and tools used in illegal logging. The timber and logs confiscated in the Caraga Region were used in the fabrication of chairs for public schools through a partnership with the DENR and the Technical Education and Skills Development Authority (TESDA).

Strategic Partnerships

In recent years, PTFCF emphasized the need to expand partnerships for forest conservation, particularly for sustainability. In 2012, it joined a partnership between the DENR, the Foundation

Signing of Partnership Agreement between PTFCF, DENR and FPE for the National Greening Program.



Proceeds from the Condura Skyway Marathon: Run for the Mangroves 2013 were used for mangrove reforestation in Zamboanga Sibugay.

for the Philippine Environment (FPE) and PTFCF in support of the National Greening Program (NGP). The NGP aims to plant 1.5 billion trees covering 1.5 million ha of public lands in the next three years. The Foundation also forged a partnership with the Bureau of Fisheries and Aquatic Resources (BFAR) for the National Aquasilviculture Program (NAQP), which aims to plant 11 million mangrove trees for mangrove habitat rehabilitation by 2016. The strategic partnership also includes the conduct of joint capacity building, evaluation and monitoring efforts, as well as co-financing and leveraging of funds for mangrove conservation.

PTFCF has also partnered with the private sector, most notably Concepcion Durables, Inc. for the 2012 and then 2013 Skyway Marathon: Run for the Mangroves. The marathon raised awareness on mangrove conservation issues as well as raised Php1.1 million pesos (US\$47,300) for mangrove restoration in three municipalities in the province of Zamboanga Sibugay.

Development and Promotion of Science-based Forest Conservation

The use of science in conservation is a core strategy of the Foundation and is, thus, mainstreamed in all projects it supports. PTFCF supports initiatives that address science and information gaps. Educational materials about the Philippine forests and biodiversity were also produced in partnership with the Knowledge Channel and the Department of Education (DepEd). Four 20-minute television episodes on forests and biodiversity were completed to serve as learning modules for high school students in

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STUDY WITH UNMATCHED TREATS

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- Transportation allowance of Php 1,000 per month
- Book allowance of Php 5,000 per semester
- One round-trip transportation cost from home to university institution
- Annual accident insurance

STUDY WITH RESEARCH ASSISTANCE

- Support of Php 200,000 for MS thesis or Php 450,000 for PhD dissertation
- Opportunity to conduct research in any of the 250-PTFCF project sites in the country
- Accessibility to PTFCF's pool of experts and project implementers.

STUDY WITH PRESTIGE

- Best education from partner colleges and universities recognized as leaders in the field of plant science

STUDY WITH WORK PROSPECTS

- Chance to work for Energy Development Corporation (EDC) or other related institutions upon completion of study


IF YOU ARE:

- A Filipino citizen, residing in the Philippines.
- With 2 or more years of related work experience
- A new MS or PhD student who has been admitted to an eligible Philippine university or college
- Not more than 50 years old at the time of application and/or study
- Not holding any other scholarships
- Keen to complete the study within the academic years of scholarship offer

THEN, SUBMIT THE FOLLOWING:

- Letter of intent
- Curriculum Vitae
- Authenticated copies of Transcript of Records (TOR) and diploma of the highest tertiary qualification
- At least 2 recommendation letters from professors, or supervisors/employers (original copies in sealed envelope)
- Evidence of correspondence with a potential supervisor (only for PhD applicants)

Deadline of application: May 30, 2013
 Applications should be addressed and sent to:
The Executive Director
 Philippine Tropical Forest Conservation Foundation, Inc.
 Unit 11-1 VGP Centre (former Manila Bank Building)
 6772 Ayala Avenue, Makati City 1223
 For more details, visit www.ptfcf.org or call +63 2 864 0287.

 **Philippine Tropical Forest Conservation Foundation, Inc. (PTFCF)** provides grants to projects that aim to conserve, maintain or restore tropical forests in the country.

public schools as well as for out-of-school youth taking alternative classes.

In 2011, PTFCF also supported increased research on forest formations and the establishment of long-term forest research plots. A 50-hectare long-term ecological research (LTER) forest plot in Silago, Leyte was established to help generate valuable forest biodiversity information for the Visayas State University. It was linked to the global LTER effort by the Tropical Forest Research Center in Barro, Colorado.

The Foundation supported greater participation in policy processes through grants that organized several fora and conferences with the aim of improving the current framework of forest management in the Philippines. These include payment for ecosystems services (PES) and co-management of forest lands.

Consistent with its thrust of increasing capacity on plant science and forest conservation, PTFCF launched in 2012 the Plant Science Scholarship Program for masteral and doctorate students studying in Philippine higher learning institutions. The scholarship is intended to generate wider interest in plant science and increase the number of plant scientists in the country.

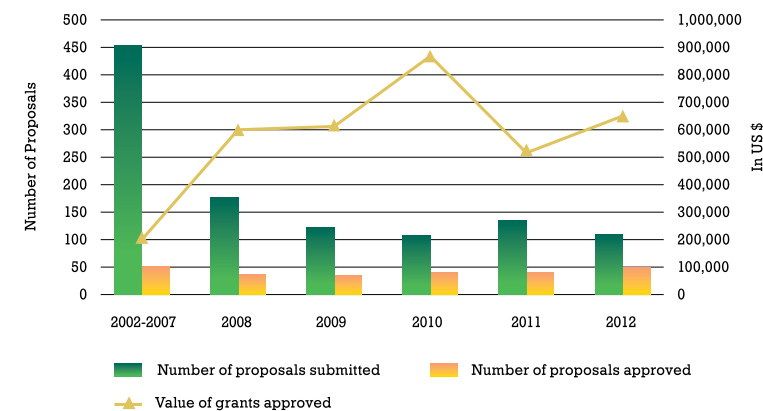
Fund Management

Since 2005, the Foundation has supported 257 projects with grant funds amounting to PhP 182.7 million (US\$4.53 million). Similarly, the counterpart investments made by the Foundation's partner NGOs/POs on forest conservation cannot be underestimated. Project counterpart consisting of materials, labor, as well as leveraged funds, amounted to PhP 152.2 million (US\$3.4 million).

In the early years of grant-making, approval rate averaged 12 percent owing to the poor quality of the proposals submitted (see Figure 3). Over the years, the approval rate has gradually increased to 45 percent in 2012. This is a result of the provision of more capacity-building support to NGOs/POs on project/program development, the introduction of new program strategies and increased awareness on PTFCF and its programs.

However, the number of approved grants does not necessarily reflect the nature of the projects and their values. Figure 3 shows that, from 2002 to 2007, the total value of the fifty-three approved grants was PhP 9 million

Figure 3. Approved Grant Proposals, 2002-2012





(US\$210,607), with an average grant amount of PhP 172,000 (US\$4,000). By 2012, the total value of fifty grants tripled to PhP 28,085,665 (US\$653,155), with an average grant amount of PhP 559,000 (US\$13,000).

As PTFCF gained experience in grant making, the number of grants, the quality of projects, and the impacts of those projects increased.

As of December 2012, the remaining balance of the Conservation Trust Fund amounts to PhP206 million (US\$4.45 million). Over the next three years, the fund stands to receive PhP9.8 million (US\$ 228,720) to complete payments to the Conservation Fund.

Oversight and Monitoring

The BOT exercises oversight on PTFCF through two committees, namely: (a) Program Committee for program directions, project evaluations and monitoring, and (b) Finance Committee for fund utilization and investments.

PTFCF conducts monitoring and evaluation of project outputs in a participatory manner.

Approved project descriptions provide the results framework by which projects are monitored and evaluated. PTFCF staff, and sometimes members of the BOT, conduct periodic monitoring of projects during the course of implementation, through site visits and stakeholder consultations, in addition to project reports. Reports, both narrative and financial, are required prior to disbursement of funds.

The Foundation has established financial management policies covering disbursement and procurement, conflict of interest and limits on grant amounts. Audits by a third party auditor are conducted annually, with no material findings reported to date.



Status of
PHILIPPINE FORESTS

Forests supply multiple environmental, economic and social services, all of which are significant to human development. The rich biodiversity of life and their interaction with soil, air and water have led to the provision of goods and ecosystem services that contribute to a hospitable living environment. Goods include food, water, medicine, clothing, shelter and other materials that support people's basic needs. The resources also serve as the foundation of a number of industries that provide livelihoods to millions of people, such as forestry, pharmaceuticals, construction, water distribution and others.



Forests also have key ecosystem functions that are vital to a healthy environment. These include water and air purification; collection of water in catchment areas and watersheds; and soil conservation to help support a variety of plants. Forest cover and vegetation help prevent soil erosion by keeping soils intact. They moderate floods, drought and extremes in temperature. Forests also play a major role in climate change mitigation as forests are a major carbon sink.

Forest resources provide the basis for many cultures, particularly of indigenous groups whose lives are closely interwoven with forest resources. Belief systems are governed by spirits found in mountains, trees, lakes and other facets of nature; and rituals are performed as part of traditional natural resource management activities. In the Philippines, approximately 30 percent of the population, including some twelve to fifteen million indigenous peoples, depend on forests for their survival, and their cultures revolve around their interactions with their natural environment (DENR 2009).

In the last several decades, Philippine forests, however, have been in steady decline. The original forest cover of 27 million ha has dwindled to as little as 7.2 million ha (DENR-Forest Management Bureau [FMB] 2011). This has a tremendous impact on millions of people who depend on these resources, and curtailed vital ecosystem services. Thus, forest conservation and restoration have become high on the agenda of the government and all other sectors of society.

Philippine Forest Types

Prior descriptions of Philippine forests mainly based on dominant tree species, site or location included the dipterocarp forest, molave forest, pine forest, mossy forest, beach forest and mangrove forest. For many years, this classification has been followed by the DENR-FMB.

More recent studies, particularly that of Fernando et al. (2008), identify twelve recognized forest types that are grouped according to the main physical characteristics of their habitat, vegetation structure and physiognomy of the forest. These forest formations best describe the diversity of forest types in the country.

There are a number of reasons behind the rich biodiversity and the diversity of forest types in the country. Its complex geological history has resulted in an assemblage of ophiolite terranes, and ocean-basin and continental fragments of different origins and ages. These have contributed to the creation of an archipelagic setting of more than 7,100 islands, where differences in soil, climate and altitude affect and create varying types of vegetation. In the thousands of islands that make up the country, a number of identified island arcs link the Philippines to neighboring islands, providing channels for the movement of biodiversity into and out of the country. The country has a diversified topography and is mostly mountainous, with a great altitudinal range from sea level up to 2,929 m. This has a profound effect on climate, especially on the prevailing winds, and seasonal distribution of rainfall; and corresponding effect on the types of vegetation at low and medium altitudes. These all contribute to

the variety of forest types found from the coast to the mountains, and in various habitat types (Fernando et al. 2008).

Towards the coast, one may find **beach forests**, which form a narrow strip of woodland along the sandy beaches beyond the upper tidal limits (Primavera & Sadaba 2012). It can be bordered by limestone or other rocks, or merged with the mangrove forest. Many species of this forest type have fruits and seeds adapted for water (i.e. *botong* [*Barringtonia asiatica*], *bitaog* [*Calophyllum inophyllum*], *talisai* [*Terminalia catappa*], *niyog* [*Cocos nucifera*]) or wind dispersal (i.e., *agoho* [*Casuarina equisetifolia*]) (Fernando et al. 2008).

Mangrove forests are found nearer the mouths of the rivers where freshwater meets saltwater. These forests inhabit tidal sea fringes,



usually above the mean sea level in the intertidal zones. Mangroves have special adaptations that allow trees to survive these habitats, and water-buoyant propagules that survive dispersal for many weeks and over long distances. Mangrove forests protect communities against strong waves; help stabilize sediments; reduce shoreline and riverbank erosion; regulate flooding; and recycle nutrients. They also provide nurseries and feeding grounds for many commercial fish, crustaceans and other marine species (Primavera et al. 2004). Mangroves also serve as a vital carbon sink. A total of thirty-nine mangrove species have been recorded in the Philippines. The more abundant species include *bakauan* (*Rhizophora apiculata*), *bakauan babai* (*R. mucronata*), *pototan lalaki* (*Bruguiera cylindrica*), *busain* (*B. gymnorhiza*), *langarai*

(*B. parviflora*), *pototan* (*B. sexangula*), *tangal ligasen* (*Ceriops tagal*), *malatangal* (*Ceriops zippeliana*), *bungalon* (*Avicennia marina*), *api-api* (*A. officinalis*), *pagatpat* (*Sonneratia alba*), and *pedada* (*S. caseolaris*) (Fernando et al. 2008).

In the lowland areas, from the coast up to about 1,000-meter elevations are **tropical lowland evergreen rainforests**. These are commonly called dipterocarp forests because they are the dominant tree species in this forest type. They are found mostly in areas that have a short dry season and a relatively uniform rainfall. Predominant trees include *lauan*, *lauan-hagakhak*, *yakal-lauan*, rattans and lianas. Intense commercial logging, however, has decimated much of this forest formation (Fernando et al. 2008).

In the same elevation but in drier parts of the country are the **tropical semi-evergreen forests**. These forests are in areas where there is an annual water stress period or a very distinct and strong dry season. They are found mostly on the western side of the country, in provinces such as Palawan, Zambales, Bataan and Mindoro. Some of the species here include white lauan (*Shorea contorta*), apitong (*Dipterocarpus grandiflorus*), panau (*Dipterocarpus gracilis*), guijo (*Shorea guiso*) and palosapis (*Anisoptera thurifera*.) In the Subic Bay Forest Reserve, the dominant species include white lauan (*Shorea contorta*) and common evergreen trees such as tamayuan (*Strombosia philippinensis*), bolong-eta (*Diospyros pilosantha*), nato (*Palaquium luzoniense*), and aniatam-kitid (*Cleisanthus augustifolius*) (Fernando et al. 2008).

In the same elevation and locations, but even seasonally drier climates are **tropical moist deciduous forests**. These forests are found in areas where water availability can be periodically limiting to plants and the forest. They can be found in coastal hills or the downwind side of mountains. Such forests may be found on the western side of Luzon, Palawan and Mindoro. The trees of this type are usually unbuttressed, low branching and form an uneven low canopy often less than 30 m tall. Some of the more common trees include molave (*Vitex parviflora*), ipil (*Intsia bijuga*), dungon (*Heriteria sylvatica*) and narra (*Pterocarpus indicus*) (Fernando et al. 2008).

At higher elevations, from 750 m to 1,500 m, and depending on the height of the mountain, are **tropical lower montane forests** that connect evergreen rainforest with the upper montane



rainforest. Tanguile (*Shorea polysperma*) is dominant, along with various species of oaks (*Lithocarpus*), oil fruits (*Elaeocarpus*), laurels, (*Litsea*, *Neolitsea*), makaasim (*Syzygium*) and shrubs of Rubiaceae and Acanthaceae. The tropical lower montane forest is also the habitat of many endemic orchids, especially of the larger genera including Bulbophyllum, Dendrochilum and Dendrobium (Fernando et al. 2008).

At elevations of 1,000 m and above are the **tropical upper montane rainforests**, which are commonly known as mossy forests. This type is characterized by the abundance of mosses and liverworts on tree trunks and branches. There is an increase in cloudiness, and climatic conditions are very moist with frequent strong winds. This formation is common in the summits of Mt. Pulag in the Cordillera Region and Mt. Isarog in the Bicol Region. On Mt. Pulag (2,880 m), the highest mountain in Luzon,



the upper montane rainforest ranges from about 2,000 m, the upper range of the pine forest is up to 2,500-2,600 m. Trees recorded include malasulasi (*Leptospermum flavescens*), igem (*Dacrycarpus imbricatus*), baltik (*Syzygium acrophilum*), mountain yew (*Taxus sumatrana*), and balakauin (*Neolitsea megacarpa*) (Fernando et al. 2008).

The **tropical subalpine rainforests** occur beyond the upper montane forest up to the altitudinal limit of tree growth on bigger mountains. Mountains with tropical subalpine forest include Mt. Kinabalu in Sabah, Malaysia and Mt. Halcon in the Philippines. Many of the plants found in this formation are mainly temperate in distribution. The pitcher plant *Nepenthes burkei* occurs commonly in all community types. Some of the more common trees include halcon igem (*Podocarpus glaucus*), binaton (*Falcatifolium gruezoii*), dalung (*Phyllocladus hypophyllum*),

cuming igem (*Dacrycarpus cumingii*), malasulasi (*Leptospermum flavescens*), and *Medinilla cordata* (Fernando et al. 2008).

Inland freshwater habitats have characteristic forest types. These include **freshwater swamp forests**, which are regularly inundated with water from rivers and streams. The water level fluctuates, and there is periodic drying of the soil surface. There are a few areas of freshwater swamp forest in the Philippines, some of which can be found in Agusan Marsh and Ligwasan Marsh in Mindanao. Dominant trees include yanipo (*Terminalia copelandii*) and the palm sago (*Metroxylon sago*) (Fernando et al. 2008).

Peat in **peat swamp forests** is formed when waterlogged soils prevent dead leaves and wood from fully decomposing, and these then build up over time into a thick layer of blackish substrate. Peat swamps store a high amount of carbon and are usually economically and culturally important areas for indigenous peoples. In the Philippines, two sites with substantial peatland have been identified, namely, the Leyte Sab-a Basin in Leyte and Agusan Marsh in Mindanao. Common trees include Tristaniopsis, Callophyllum and Syzygium. Other tree species include bayuno (*Mangifera caesia*), kamandiis (*Garcinia rubra*), and balat buaia (*Fagraea racemosa*) (Fernando et al. 2008).

Other forest types have been identified based on their substrate, one of which is **forest over limestone**. Limestone karsts are sedimentary rock outcrops consisting mainly of calcium carbonate formed by calcium-secreting marine organisms millions of years before they were lifted above sea level. These are mostly found at low elevations, carry unique vegetation

and often contain high levels of endemism. Forests of this type may be found in the limestone karst ridges of Palawan and Palanan, Isabela. Leguminous trees are dominant in this formation, including *tindalo* (*Azelia rhomboidea*), *ipil* (*Intsia bijuga*), *akle* (*Albizia acle*), *narra* (*Pterocarpus indicus*) and *batete* (*Kingiodendron alternifolium*). Other dominant species include *molave* (*Vitex parviflora*), *taluto* (*Pterocymbium tinctorium*), *kalantas* (*Toona calantas*), *bansalagin* (*Mimusops elengi*), *liusin* (*Maranthes corymbosa*) and much smaller trees such as *batulinau* (*Diospyros ferrea*), *bayok* (*Pterospermum diversifolium*) and *tula-tula* (*Mallostus floribundus*) (Fernando et al. 2008).

Forest over ultramafic rocks is found on rocks that have very low silica content; high concentrations of heavy metals (magnesium, iron, chromium, cobalt and nickel); low concentrations of phosphorus, potassium and calcium; and are composed of usually greater than 90 percent mafic minerals (dark colored, high magnesium and iron content). Associated vegetation is generally sclerophyllous (vegetation with hard leaves that have short distances between them along the stem) that is sharply demarcated from adjoining vegetation. Original forests in ultramafic rocks no longer exist because of mining (Fernando et al. 2008).

Species-rich Habitats

Philippine forests are a treasure trove in terms of the wealth of biodiversity they contain and their tremendous benefits to human health and wellbeing. The Philippines is recognized

as one of 17 megadiversity countries, which contains two-thirds of the earth’s biodiversity and about 70-80 percent of the world’s plant and animal species. The country is fifth in the number of plant species and maintains 5 percent of the world’s flora. It also ranks fourth in bird endemism (DENR 2009). Records show that endemism is particularly high for amphibians (85.4 percent), reptiles (67.5 percent) and plants (65.8 percent) (Conservation International [CI]-Philippines 2007a) (see Table 1).

These numbers are likely to increase as more studies and discoveries are made in Philippine biodiversity. In 2011, the Philippine Biodiversity Expedition led by the California Academy of Sciences yielded around 300 new species discoveries, including 100 terrestrial plants and animals that were new to science. They were found in the forests of Mt. Makiling in Laguna Province, Mt. Banahaw in Quezon Province, Mt. Malarayat in Batangas Province, and Mt. Isarog in the Bicol Region (Gosliner et al. 2013). Other recent discoveries in other surveys include the Camiguin Hawk Owl and the Cebu Hawk Owl (Rasmussen et al. 2012), as well as two new species of frogs from the genus *Platymantis* that were discovered specifically inhabiting the montane and mossy forests of the Nacolod Mountain Range in Southern Leyte (New Conservation Areas in the Philippines Project [NewCAPP] 2012).

To protect forests and other ecosystems and their contribution to global patrimony, the Philippines has identified 228 key biodiversity areas (KBAs) or places prioritized for biodiversity conservation, including 128 terrestrial and 100 marine sites. The KBAs provide habitats for



Table 1. Diversity and endemism of Philippine species

Taxonomic Group	Species	Endemic Species	Percent Endemism
Plants	9,253	6,091	65.8
Mammals	167	102	61.1
Birds	535	186	34.8
Reptiles	237	160	67.5
Amphibians	89	76	85.4
Freshwater Fishes	281	67	23.8

Source: CI-Philippines (2007a).

209 globally threatened species; 419 endemic species of amphibians, reptiles, birds, mammals, and freshwater fish; and 62 congregatory bird species. They cover 7,610,943 ha equivalent to 25 percent of the country’s total land area (DENR-Protected Areas and Wildlife Bureau [PAWB] 2012).

Unfortunately, deforestation, among other factors, has threatened the rich biodiversity of forest resources and the ecosystem services they provide. While Philippine biodiversity has been hailed as among the richest in the world, it is also among the most imperiled. The Philippines has become one of 34 global biodiversity hotspots. Each hotspot is an identified area or country that has high rates of biodiversity but faces extreme threats, and has already lost at least 70 percent of its original natural vegetation (CI-Philippines 2007a).

Current Forestry Situation

According to DENR-FMB (2011), the Philippines’ total land area of about 30 million ha is legally classified as alienable and disposable land (47 percent, or 14.19 million ha) and forestland (50 percent, or 15.05 million ha). Unclassified forestland accounts for 3 percent, or 0.755 million ha.

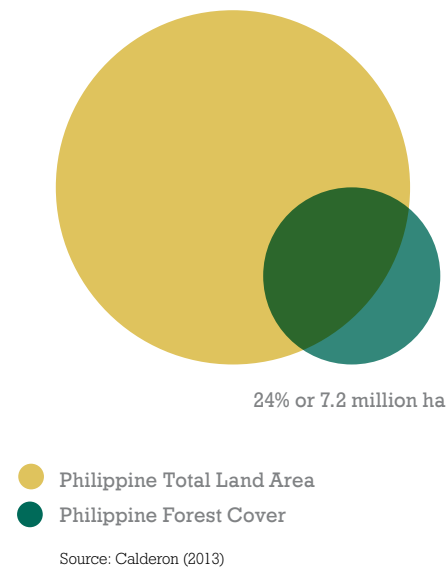
Classified forestland is further categorized into the following:

- Established timberland (10.056 million ha, or 69 percent)
- Established forest reserves (3.270 million ha, or 22 percent)

- National parks, game refuge and bird sanctuaries and wilderness areas (1.34 million ha)
- Military and naval reservations (0.126 million ha)
- Civil reservation (0.166 million ha)
- Fishponds (0.091 million ha)

About 755,000 ha are still unclassified forestland, which means that the use of these lands has not yet been determined. While land classification may have designated half of the country's total land area into forestland, 2001-2003 satellite imageries by the National Mapping and Resource Information Authority (NAMRIA) estimate actual forest cover at 7.168 million ha, or 24.27 percent of the country's total land area (DENR-FMB 2009) (see Figure 4).

Figure 4. Proportion of forest cover to the Philippine total land area



Total forest cover is further categorized into open forest (4,030,588 ha), closed forest (2,560,872 ha), plantation forest (329,578 ha) and mangrove forest (247,362 ha) (see Figure 5). This is the categorization followed by the DENR-FMB, used as well by the UN Food and Agriculture Organization (FAO). Highest total forest cover can be found in the regions of MIMAROPA (Mindoro, Marinduque, Romblon and Palawan provinces), Cagayan Valley and the Cordillera Autonomous Region. The National Capital Region accounts for the region with the least forest cover (see Table 2). Provinces with the most forest cover include Palawan (48 percent of its total land area); Cagayan (47 percent); Isabela (38 percent); and Agusan del Sur (28 percent). Provinces with the least forest cover include Siquijor, Guimaras and Metro Manila.

Mangrove	3.45%
247,362
Plantation	5%
329,578
Closed	35.72%
2,560,872
Open	56.23%
4,030,588

Source: DENR-FMB (2011)

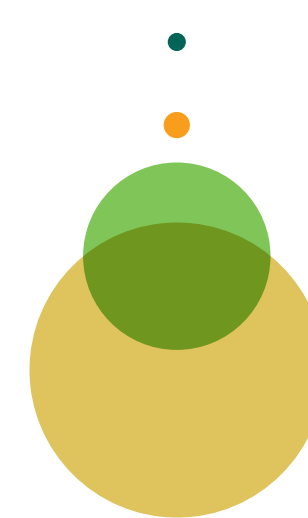
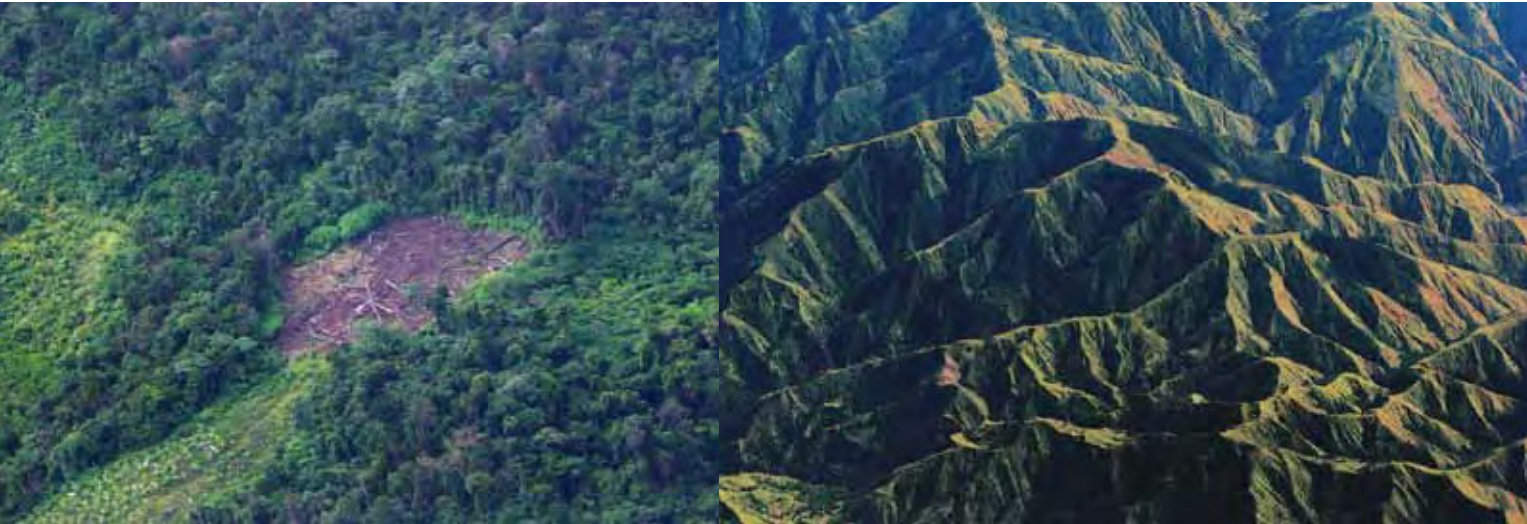


Figure 5. Forest cover of the Philippines, 2003

Table 2. Philippine forest cover by region (in ha), 2003

	Closed Forest	Open Forest	Mangrove	Plantation Forest	Total Forest
NCR	0	2,790	30	-	2,820
Cordillera Autonomous Region (CAR)	384,877	246,848	0	40,595	672,320
R-01 Ilocos	37,723	117,217	151	34,710	189,801
R-02 Cagayan Valley	503,149	604,473	8,602	33,621	1,149,845
R-03 Central Luzon	226,241	304,214	368	58,672	589,495
R-04a CALABARZON	117,162	161,165	11,346	-	289,673
R-04b MIMAROPA	484,866	604,246	57,567	48,465	1,195,144
R-05 Bicol	50,618	90,284	13,499	2,075	156,476
R-06 Western Visayas	105,873	104,686	4,600	49,355	264,514
R-07 Central Visayas	2,231	43,026	11,770	17,842	74,869
R-08 Eastern Visayas	36,473	410,111	38,781	34,483	519,848
R-09 Zamboanga Peninsula	29,652	126,790	22,278	3,474	182,195
R-10 Northern Mindanao	107,071	226,400	2,492	1,530	337,493
R-11 Davao	177,503	240,986	2,010	536	421,035
R-12 SOCSKSARGEN	126,385	218,858	1,350	2,641	349,234
R-13 Caraga	64,729	431,832	26,731	-	523,292
Autonomous Region in Muslim Mindanao (ARMM)	106,319	96,661	45,786	1,580	250,346
Total	2,560,872	4,030,588	247,362	329,578	7,168,400

Source: DENR-FMB (2011)



Extent of forest loss

Forest loss in the country is largely the result of centuries of unrestrained colonial and industrial logging practices. Logging and the export of timber have been major sources of income for the government, wood-based industries and associated businesses, traders, entrepreneurs, employees, workers and upland communities throughout the Philippines (DENR-FMB and CoDe REDD-plus Philippines 2010). The country's history of deforestation began during the Spanish occupation, where the estimated 27 million ha in the 1500s would drop to a little more than 7.2 million ha in 2003 (Philippine Climate Change Commission 2010).

From 90 percent of the total land area of 30 million ha presumed to be forested then, the total forested area had fallen to 70 percent, or 21

million ha by the 1900s (Pulhin 2002) as trees were cut down for ship-building and export crops plantation (Fernando 2005).

The Americans then introduced mechanized logging in the 1900s for timber export to the U.S.; and for opening up agricultural lands for production to underwrite colonial expenses in governing the Philippines (DENR-FMB and CoDe REDD-plus Philippines 2010). Export of wood was a profitable business since there was great demand for tropical wood in the international market. Forestry regulations were also directed towards forest utilization. The 1900 forest cover was estimated at 21 million ha, or 70 percent of the total land area (Environmental Science for Social Change [ESSC] 1999). However, commercial logging and mining over the following decades greatly reduced forest cover.



After the Second World War, the reconstruction process drove continued exploitation of the country's forest resources. In 1946, the Bell Trade Act gave American citizens rights to exploit natural resources as one of the conditions for Philippine independence. The majority of public forests were allocated to logging concessions, and log exportation became the top source of foreign exchange earnings (Calderon 2013).

A logging boom occurred in the 1960s-70s to feed an industrialized economy. Mining was introduced and became a major industry. Tracts of forests were also cleared to make way for agricultural and human settlements. By this time, forest cover had been reduced to 10.2 million ha (ESSC 1999).

In the 1980s, there were some attempts to control the depletion of natural forests, but

illegal logging was rampant. This led to a depletion of about 100,000 ha per year, as authorities remained powerless against the influence of illegal loggers (ESSC 1999).

In 1987, the DENR was reorganized through Executive Order No. 192, to better address pressing environmental concerns. The PAWB was also created to formulate and recommend policies, guidelines, rules and regulations for the establishment and management of an Integrated Protected Areas System (IPAS) such as national parks, wildlife sanctuaries, marine parks and biosphere reserves (Calderon 2013).

At that time, new government measures were introduced to arrest the continuing decline of forest resources. These include log ban in critical areas, including the virgin forests and forests above 50 percent in mean slope and above 1,000 m in elevation; ban of export of logs and raw lumber; launch of the National Forestation Program; shift from government reforestation to contract reforestation; and the preparation of the Master Plan for Forestry (Calderon 2013).

Commercial logging continued although this decreased over time. In fact in 1990, commercial logging operations in the Philippines were covered by seventy-five timber license agreements (TLAs) over 2.812 million ha with an annual allowable cut of 4.73 million cu m. In December 2011, however, there were only three remaining TLAs with an aggregate area of 177,085 ha located in Western Samar and Zamboanga del Norte (DENR-FMB 2011).



Causes of deforestation and forest degradation

There are a number of factors that have contributed to deforestation in the Philippines, including illegal logging, fuel wood and timber poaching, agricultural expansion, strip-mining, migration and plantation development (DENR-FMB and CoDe REDD-plus Philippines 2010).

The most serious threat to forest ecosystems has been logging (both legal and illegal) (DENR 2009). History of commercial logging that began during the Spanish occupation has severely decimated forest resources in the country. Illegal logging operations have continued because of poor law enforcement and the growing demand for timber and wood products.

Deforestation has also been facilitated by upland migration and agricultural expansion. Logging roads that led to previously isolated forests have facilitated the migration of largely poor families from other provinces, or from urban centers to upland areas. There are approximately twenty million people living in upland watershed areas, half of which are dependent on shifting cultivation for their livelihood (DENR-FMB and CoDe REDD-plus Philippines 2010). The creation of new settlements and *kaingin* (slash-and-burn farming) have resulted in the extensive fragmentation of upland forests. The social issues that accompany upland migration—such as land and tenure rights, the equitable distribution of resources, among others—complicate reforestation efforts in these areas.

Rapid population growth is another driving force in the deterioration of the country's forest



resources. With a population of around 92.34 million as of May 2010 (National Statistics Office 2012), forests continue to be converted for infrastructure development, including housing, and building of hospitals and schools. Currently, agricultural areas cover around 12.1 million ha, or 40 percent of the total land area of the country (World Bank 2011) and this may be expanded to satisfy increasing demand for food.

Forest degradation is heavily driven by fuel wood harvesting (DENR-FMB and CoDe REDD-plus Philippines 2010). Charcoal production has been steadily eating into forest resources since wood is a major source of energy. Consumers include an estimated 8.14 million households, as well as small- and large-scale industries. Most households use fuel wood for cooking and heating water. Small-scale industries include tobacco flue curing, baking, potteries, brick making and furniture production. Among these small-scale industries,



bakeries are the largest user of fuel wood, consuming an estimated 4.82 million cu m in 2000 (DENR-FMB 2009). Rising fuel prices may push more people to use fuel wood thereby further reducing or preventing the regeneration of secondary forests.

Mining activities have also led to massive forest destruction particularly in forest over limestone and ultramafic rocks. Large-scale open-pit mining operations, in particular, can result in significant deforestation as forests have to be cleared to access mineral deposits and open remote forest areas. The chemical processes used in mining operations also damage the environment and contribute to biodiversity loss. Most mining applications are located in forest areas, threatening the integrity of forests and the biodiversity they contain. Twenty-three mining projects are located in biodiversity-rich areas and overlap with KBAs found in the Sierra Madre Mountain Range in Luzon, and in Palawan and Mindoro provinces (DENR 2009). These and other issues need to be addressed to ensure the protection of the remaining forest resources of the country.



Saving Philippine Forests

While the state of Philippine forests leaves much to be desired, there is still hope as a number of conservation initiatives and approaches have been instituted to restore forests. Many conservation programs have adopted the multi-stakeholder approach by engaging local government agencies, NGOs and upland communities in forest management. Over the years, various programs, management frameworks and strategies have been developed to strengthen forest conservation in the country.

Initiatives to restore the integrity of forest ecosystems include the following:

Forest restoration and reforestation

In the past, non-native species were chosen for reforestation programs in the country due to their fast growth and easy germination. Research and experience would later show that

the introduction of species for fast-tracked reforestation was detrimental to the environment, and regenerating the original forest was better suited for conservation. Using native species would also help bring back biodiversity. This resulted in the development of “rainforestation” as a tool for rural development and biodiversity conservation.

The Visayas State University developed rainforestation in the 1990s. It advocates the use of indigenous trees specific to the areas to be reforested to enhance biodiversity, expand forest habitat and promote agroforestry and watershed management. As a strategy, rainforestation rehabilitates degraded landscapes and restores key ecosystem services and functions while providing forest-dependent communities with an alternative source of income through the use of organic practices in agricultural and forestry production (Milan 2010).

Environmental organizations have worked with the government to use rainforestation in the NGP, a forest rehabilitation program established by virtue of Executive Order No. 26 issued on February 24, 2011 by President Benigno S. Aquino III. It seeks to grow 1.5 billion trees in 1.5 million ha nationwide from 2011 to 2016. Aside from being a reforestation initiative, the NGP is also seen as a climate change mitigation strategy as it seeks to enhance the country’s forest stock to absorb carbon dioxide. Areas eligible for rehabilitation under the program include all lands of the public domain, including forestlands, mangrove and protected areas, ancestral domains, civil and military reservation, urban greening areas, inactive and abandoned mine sites and other



suitable lands. As of December 31, 2011, the NGP has planted in a total of 128,559 ha and 78 km. Of the total hectares planted, the DENR accomplished 82,164 ha, or 64 percent while other partners planted 46,395 ha, or 36 percent (DENR-FMB 2011).

Social forestry and community-based forest management

In the 1980s, people-oriented forestry programs such as the Integrated Social Forestry Program and Community Forestry Program ushered in the participatory approach to forest conservation and development. Forest rehabilitation was seen as a major strategy to address upland poverty and promote livelihood opportunities among the participating communities.

This promising approach has led to the nationwide adoption of Community-Based Forest Management (CBFM) in 1995 under Executive Order No. 263 as the national strategy for sustainable management and development of forest lands. Under CBFM, communities were contracted to do the reforestation and were given tenure over areas developed by them. The approach helps people get involved in forest rehabilitation to reduce forest degradation, and incorporates alternative livelihoods and agroforestry to reduce dependence on forest resources.

Assisting indigenous communities in conserving their ancestral domains

Over time, indigenous peoples (IPs) have become widely recognized as traditional stewards of the environment. Their knowledge



systems have been documented through the Ancestral Domain Sustainable Development and Protection Plan (ADSDPP) to appreciate how traditional natural resource management activities can be linked to government programs. Many of the forests that IPs claim as their ancestral domain overlap with national protected areas, as well as areas of intact forests, further strengthening the role of IPs in natural resource management. The awarding of certificates of ancestral domain titles (CADT) not only recognizes the rights of IPs, but also provides an opportunity for IPs, local and national government, and conservation organizations to harmonize their approaches to forest conservation (DENR-PAWB 2012).

Other Opportunities for Synergy in Forest Conservation

Some of the frameworks that are being used in forest conservation include Integrated Ecosystem-based Management or Ecosystem-based Management. This is an innovative management approach that considers the whole ecosystem, including humans and the environment, rather than managing one issue or resource in isolation.

Ridge to Reef is a holistic conservation and management approach that links conservation action across watersheds and adjacent coastal ecosystems. This approach applies science-based management across the land/seascape, from forested ridges downstream to rivers and estuaries, and further along coastal mangroves, seagrass meadows and coral reefs. The approach recognizes the links in managing water from

source to sea and, thus, the need to protect forest and coastal ecosystems.

Another is the National REDD+ Strategy, which boosts domestic efforts towards the reduction of emissions from deforestation and forest degradation. It likewise highlights the role of conservation, sustainable management of forests and the enhancement of carbon stocks in the country. These become particularly important since there is a huge potential for the forestry sector to serve as a carbon sink, effectively mitigating the country's overall greenhouse gas emissions through the absorption of carbon dioxide by forest resources. The National REDD-plus Strategy also creates an opportunity to strengthen the forestry sector's capacity to adapt against the impacts of climate change by enhancing ecosystem services and establishing safeguards towards the realization of multiple environmental and social benefits (Climate Change Commission 2010).

In addition to these management frameworks, various instruments have been developed to ensure the financial sustainability of reforestation programs, including public-private partnerships and payment for ecosystem services (PES). Public-private partnerships encourage multi-stakeholder involvement in reforestation efforts, encompassing contributions from government, NGOs, as well as businesses in the management of forest resources.

The protection of ecosystem services may be facilitated by having the PES as a financing scheme. The PES is a mechanism for improving the provision of indirect environmental services in which those who provide environmental

services get paid for doing so; those who benefit from environmental services pay for their provision; payments are conditional for both parties; and participation is voluntary for both parties (World Bank 2011).

The payment of environmental services involves households, LGUs, people's or community organizations, stewards/domain title holder and the business sector – all with different roles in the management of natural resources that have ecosystem services. Identified services may include forest enrichment and habitat rehabilitation; reforestation and maintenance of critical watersheds; conservation of threatened species of flora and fauna; protection of nationally and globally acknowledged landscapes and habitats, natural endowments for recreation and cultural value; and maintenance of riverways and land use plans (CI-Philippines 2007b).

In support of forest rehabilitation efforts in the country, PTFCF goes beyond its primary role of providing grants to projects that aim to conserve, maintain or restore tropical forests in the Philippines. PTFCF has partnered with public and private sectors to strengthen conservation programs and encourage especially the private sector to engage more in forest rehabilitation.

PTFCF is looking into more active conservation efforts to expand its leadership role in implementing the REDD-plus Strategy and payment for ecosystem services; and continue its public-private partnerships. Partnerships with government include collaborating with the DENR for the NGP. PTFCF supports the NGP by focusing on growing native tree seedlings, identifying planting sites, as well as building

the capacity of community partners in the use of native tree species for reforestation. In 2012, PTFCF and its partners produced at least 6.8 million seedlings, and planted native trees in about 8,551 ha.

PTFCF also supports the National Aquaculture Program (NAQP) of the Bureau of Fisheries and Aquatic Resources (BFAR) of the Department of Agriculture. The NAQP aims to plant 11 million mangrove trees for mangrove habitat rehabilitation by 2016. The collaboration will include joint capacity building, evaluation and monitoring efforts, and co-financing and leveraging of funds for mangrove conservation.

A breakthrough initiative is PTFCF's partnership with Concepcion Durables, Inc. (Condura) for awareness raising and mangrove restoration efforts. Proceeds from the 2012 and 2013 Condura Skyway Marathon: Run for the Mangroves were channeled through PTFCF for the planting of about 100,000 seedlings of the correct mangrove species in Zamboanga Sibugay. Similar partnerships with the business sector are being explored to help rehabilitate watersheds in other parts of the country.

At the rate the forests are disappearing, there is a concerted effort, not only by PTFCF, but all other organizations – government agencies, the academe and community members – in making a stand to protect Philippine forests. The CSOs have taken a more active role in various initiatives; and in the succeeding case studies, successful partnerships have been exemplified for increasing awareness on the importance of forest conservation and strengthening conservation efforts in the country.

References:

- Calderon, Ricardo L. 2013. *Forest and Forestry in the Philippines (2012-2016 Onwards): Challenges and Implications to Forestry Education, Research and Extension*. Quezon City: Department of Environment and Natural Resources- Forest Management Bureau.
- Conservation International-Philippines. 2007a. *Biodiversity Hotspots - Philippines*. <http://www.biodiversityhotspots.org/xp/hotspots/philippines/pages/biodiversity.aspx>, accessed October 4, 2011.
- Conservation International-Philippines. 2007b. *Human Wellbeing Framework and Strategy*. Quezon City, Philippines.
- Environmental Science for Social Change. 1999. *Decline of the Philippine Forests*. Quezon City: Environmental Science for Social Change. Ateneo de Manila University.
- Fernando, Edwino. 2005. "Restoring the Philippine Rainforests." Haribon Policy Paper No. 2, CY 2005. Quezon City: Haribon Foundation.
- Fernando, Edwino S., Min Hwan Suh, Jaeho Lee and Don Koo Lee. 2008. *Forest Formations of the Philippines*. Seoul: ASEAN-Korea Environmental Cooperation Unit.
- Gosliner, Terrence M. and Meg Burke. 2013. "From Parachutes to Partnerships: An 'Integrated' Natural History Museum Expedition in the Philippines." *Curator: The Museum Journal*. (86) (1): 47-67. <http://onlinelibrary.wiley.com/doi/10.1111/cura.12006/full>, accessed August 2013.
- Milan, Pacencia P. 2010. "Reforestation: A Paradigm Shift in Forest Restoration in the Philippines for Sustainability and Climate Change Mitigation." Presentation at the Mindanao Rainforest Restoration Forum, Malaybalay, Bukidnon, December 7-8.
- New Conservation Areas in the Philippines Project. 2012. "New Species of Frogs Discovered in the Philippines – Forests of Southern Leyte a Critical Biodiversity Area." Quezon City: Department of Environment and Natural Resources-Protected Areas and Wildlife Bureau and the United Nations Development Programme-Global Environment Facility, April 18. <http://www.newcapp.org/cgi-bin/news/details.php?id=268&catid=89>, accessed August 2013.
- New Conservation Areas in the Philippines Project. "About Philippine Biodiversity." Quezon City: Department of Environment and Natural Resources-Protected Areas and Wildlife Bureau and the United Nations Development Programme-Global Environment Facility. <http://www.newcapp.org/about-philippine-biodiversity.php>
- Philippine Climate Change Commission. 2010. *National Framework Strategy on Climate Change 2010-2022*.
- Philippines, Department of Environment and Natural Resources. 2005. *Memorandum Circular 2005-005*, "Adopting Forestry Definitions Concerning Forest Cover/Land Use." May 26.
- Philippines, Department of Environment and Natural Resources. 2009. *Assessing Progress towards the 2010 Biodiversity Target: The 4th National Report to the Convention on Biological Diversity*.
- Philippines, Department of Environment and Natural Resources-Forest Management Bureau. 2009. *Philippines Forestry Outlook. Asia-Pacific Forestry Sector Outlook Study II: Working Paper No. APFSOS II/ WP/2009/10*. Bangkok: Food and Agriculture Organization of the United Nations, Regional Office for Asia and the Pacific.
- Philippines, Department of Environment and Natural Resources-Forest Management Bureau. 2011. *2011 Philippine Forestry Statistics*. Quezon City: Department of Environment and Natural Resources.
- Philippines, Department of Environment and Natural Resources-Forest Management Bureau and CoDe REDD-plus Philippines. 2010. *The Philippine National REDD-plus Strategy*.
- Philippines, Department of Environment and Natural Resources-Protected Areas and Wildlife Bureau. 2012. *Communities in Nature: State of Protected Areas Management in the Philippines*. Quezon City: Department of Environment and Natural Resources-Protected Areas and Wildlife Bureau.
- Philippines, National Statistics Office. 2012. "The 2010 Census of Population and Housing Reveals the Philippine Population at 92.34 Million." National Statistics Office website. April 4. <http://www.census.gov.ph/>, accessed August 2013.
- Primavera, J.H., R.S. Sadaba, M.J.H.L. Lebata and J.P. Altamirano. 2004. *Handbook of Mangroves in the Philippines - Panay*. SEAFDEC Aquaculture Department, Iloilo, Philippines. 106 pp.
- Primavera, J.H. and Sadaba, R.S. 2012. *Beach Forest Species and Mangrove Associates in the Philippines*. SEAFDEC Aquaculture Department, Iloilo, Philippines. 154 pp.
- Pulhin, Juan M. 2002. "Trends in Forest Policy of the Philippines." *Policy Trend Report 2002*: 29-41.
- Rasmussen, P.C., D. N. S. Allen, N. J. Collar, B. Demeulemesster, R.O. Hutchinson, P. G. C. Jakosalem, R. S. Kennedy, F. R. Lambert, and L. M. Paguntalan. 2012. "Vocal Divergence and New Species in the Philippine Hawk Owl *Ninox philippensis* Complex." *Forktail* (28) (2012): 1-20.
- World Bank. 2011. <http://data.worldbank.org/country/philippines>, accessed August 2013.
- World Bank. 2011. <http://web.worldbank.org/WBSITE/EXTERNAL/TOPICS/ENVIRONMENT/EXTTEEI/0,,contentMDK:21010580~menuPK:1187844~pagePK:210058~piPK:210062~theSitePK:408050,00.html>, accessed August 2013.

A large, spreading tree with a thick trunk and many branches, covered in vibrant green leaves. The tree is the central focus, set against a background of a dense, lush forest. The lighting is bright, suggesting a sunny day, with some highlights on the tree's canopy. The overall scene is a lush, green forest landscape.

BEST PRACTICES

Creating Impetus
in Forest
Conservation

Saving Mt. Palali

The Experience of FRIENDS in Co-Management and Individual Property Rights Recognition for Improved Forest Management



• Mt. Palali, Nueva Vizcaya

“May magagawa kung mas marami at nagkakaisa [Many things can be accomplished if there are many of us and if we are united].” – Joseph Buhay, former President of Highland Agroforestry Farmers Association, project partner



A community member in Brgy. Maasin, Quezon carrying their harvests to their designated “bagsakan” area.

areas. In the early days, the mountain is said to be home to various species of trees such as white and red *lauan*, *almaciga*, *kalantas*, *kalomata*, and *ballugo* that connect Sierra Madre to the Cordillera and Caraballo mountain ranges.

However, Mt. Palali suffered serious forest degradation in the beginning of the 1960s up to the early 1980s. As confirmed by biologists, the forests of Luzon have been suffering from rapid habitat modification and fragmentation. In particular, Mt. Palali’s lowland dipterocarp forests have been denuded and modified into either agricultural or human settlement areas. Altering such land use has an irreversible impact on wildlife, especially those species that rely on the forest for habitat. Furthermore, landscape modification has reduced its capacity to function as headwaters (Duya et al. 2006).

“Almost every day, one could see smoke emanating from the forest brought about by *kaingin* (slash-and-burn practices) and charcoal-making activities of residents,” related Teresita Acosta, Executive Director of the Friends of the Environment for Development and Sustainability, Inc. (FRIENDS). She added that the growing population in Nueva Vizcaya has placed pressure on the bountiful resources of the mountain, resulting to further degradation of Mt. Palali’s remaining forests. As such, the conservation of Mt. Palali has become an urgent and critical concern.

FRIENDS, an NGO implementing biodiversity conservation in the province, heeded this call with what then seemed a daunting task: conserving the forest and biodiversity of Mt. Palali while addressing the economic needs of local communities.

Mt. Palali: Importance and Threats

Mt. Palali is situated at the foothills of the Sierra Madre Mountain Range, straddling portions of the municipalities of Bayombong, Solano, Quezon and Kasibu in Nueva Vizcaya Province. Formerly a hunting ground of the Bugkalots, this majestic mountain (1,715 masl) offers a vast range of ecological services, being one of the headwaters of Magat River that delivers water to communities in the province and adjacent

Mapalyao Falls' water level is sustained due to the concerted efforts of FRENDS and partners.



Off to a Good Start

FRENDS, tutored and guided by Development Alternative Inc.-Philippine Environmental Governance Project (EcoGov) on watershed management planning, is one of the first partners when PTFCF started releasing grants in 2005. The USAID-funded initiative led to the issuance of a Co-management Agreement (CoMA) covering 4,995 hectares of forests and forestlands within the Buliwao-Maasin subwatershed. Through stakeholders collaboration, the Integrated Resource Management Plan (IRMP) of the area was formulated and implemented. With a matching grant from EcoGov project's Annual Program Statement (APS), initial survey and mapping of individual land claims were undertaken, which eventually were issued with sub-allocation instrument, the individual property rights (IPR) agreement. Over two years, the project looked into the problems of Mt. Palali, generated a profile of the open access areas, and conducted scoping and information, education and communication (IEC) campaigns in the barangays of Buliwao and Maasin in the municipality of Quezon.

In 2009, the start-up project became the basis of a multi-year proposal for what FRENDS considers its most ambitious program to date for Mt. Palali: "Merging Socioeconomic Development and Biodiversity Conservation in Mt. Palali through a Community-Based Management Approach" project. This time, the project covered seven barangays in the municipalities of Bayombong (Barangays Magapuy, Paitan and Bansin) and Quezon (Buliwao, Maasin, Baresbes and Maddiangat).

On the one hand, the organization sought to strengthen ecosystems by restocking the patches of damaged areas to bring the forest cover back to an acceptable level if not a hundred percent. On the other hand, the project aimed to develop and provide livelihood to community members who will be involved in the project.

FRENDS, guided by EcoGov on the significance of multi-stakeholder participation in forest management, brought together various important stakeholders from seven barangay local government units (BLGUs), municipal officials, department heads and the Municipal Environment and Natural Resources Office (MENRO); the DENR-Provincial Environment and Natural Resources Office (PENRO); the Environment and Natural Resources Office (ENRO) of the provincial government of Nueva Vizcaya, academic institutions such as the Nueva Vizcaya State University, Saint Mary's University, and Philippine Science High School; Philippine National Police and other local NGOs. All these stakeholders gave their commitment and counterparts for the implementation of the project. The project also became instrumental in organizing people's organizations (POs) in the two municipalities, as well as increasing their level of awareness on the importance of a healthy forest ecosystem and engaging them in relevant IEC campaigns.

More importantly, the project has put an enormous effort in facilitating and strengthening individual farmers' tenurial rights. Applying the integrated watershed management approach, FRENDS continuously recognized the importance of issuing IPR agreement as an instrument to manage their lands, is a



Ground validation of reforestation sites.

key ingredient in conserving Mt. Palali; and that providing support to individual farmers is equally important as supporting farmer organizations.

At the start of the project, FRENDS was challenged by the existence of degraded open access areas in Mt. Palali that needed proper management on the ground; and yet community members living within those areas were not organized. Hence, efforts to engage community members through the formation of POs became one of the initial activities of the project.

Cognizant that some functions of the DENR have been devolved to LGUs (DILG-DENR Joint Memorandum Circular 98-01, 2003-01), the project facilitated the Quezon and Bayombong LGUs to enter into a co-management agreement with the DENR for the Baresbes-Maddiangat area in Quezon and Banging subwatershed in Bayombong, with the concurrence of POs that were formed. Subsequently, the stakeholders went through a very tedious process of operationalizing the co-management agreement through the formulation of their respective IRMP.

“The IRMP is the basis for issuing the IPR agreements. If it is not duly approved by the DENR and the local community of a municipality, awarding IPRs is next to impossible,” FRENDS’ Forester Joel Carig stated.

The approved IRMPs laid the ground for the distribution of IPR agreements. However, the process of distributing IPRs was not a walk in the park. Aside from numerous discussions on the policy and guidelines on the award and administration of the IPR/forest management agreement crafted by the PO members and stakeholders, emphasis was placed on the responsibilities of the IPR holders. Further, the delineation of the IPR areas including individual farm planning were given focus. Ms. Acosta stressed that land claimants were expected to utilize 80% of their areas for multiple purposes, which were subsequently used for the planting of fruit-bearing seedlings and/or non-timber-based livelihood such as tiger grass plantation and mushroom production. The remaining portions were delineated as reforestation and protection zones.

With the approved IRMPs, the communities of Bayombong and Quezon under the co-management agreement established at least 577 ha. of reforested area, provided initial livelihood for PO members through the issuance of IPR agreements, and carried out protection and maintenance activities.

Support Strategies that Facilitated the Project’s Success

DAI-EcoGov played a vital role in providing technical capacity to FRENDS staff which



Working hand in hand for Mt. Palali’s restoration.

enabled them to attain their major objective of biodiversity conservation and providing for human welfare. Other partners have contributed to the success of the project. The College of Forestry of the Nueva Vizcaya State University, ENRO of provincial LGU and local DENR shared their expertise on technical matters. Massive and sustained IEC helped build commitment and created a strong constituency of support for the conservation efforts of the project. In addition, the POs were mentored in preparing their farm plans and identifying areas for protection and production to effectively manage the lands entrusted by their LGU.

Towards institutionalization, FRENDS had the opportunity to influence local policy-making bodies to support the forest management programs of Quezon and Bayombong, particularly in securing budgets from their local appropriations to support and sustain programs under the co-management agreement. For instance, the BLGUs of Bayombong and Quezon allocated 5% of their 20% development fund for the co-management program, similar to what their LGUs have

allocated for the implementation of their forest land use plans (FLUPs). Collaborative works among stakeholders were sustained through the regular conduct of steering committee meetings to update them on the IRMP implementation. In addition, FRENDS, in partnership with the DENR and the LGU representatives, facilitated workshops to formulate the policy and guidelines on the award and administration of IPR/forest management agreement, and develop a monitoring and evaluation system for Bayombong and Quezon.

Project Outcomes: Perspectives of LGUs and PO partners

There is no shortcut for success in any program or project. The task of implementing the project may have been challenging, but FRENDS and the other stakeholders gradually reaped the fruits of their hard work.

With the co-management agreements and IRMPs in place, the IPRs were recognized by the LGUs and the DENR. The devolution of forest management to the POs of Bayombong and Quezon was completed while the issuance of sub-allocation instrument to its residents is still on-going. Moreover, the distribution of IPRs led to the expansion of the areas managed and protected, and planted with native trees like *tanguile*, *lauan*, *kalantas*, *narra*, *ballugo*, *kalomata*, and *panglomboien*.

To date, the Quezon LGU has 344 approved IPR agreements covering a total land area of 944.66 ha distributed to its partner PO beneficiaries. Congruently, LGU Bayombong



FRENDS with DENR and MENRO staff validating the reforestation areas.

Mt. Palali's scenic view from the lowland agricultural area.



has 83 approved and awarded IPR agreements, covering a total land area of 158 ha. A total of 6,410 ha of what have been previously identified as open access areas are now being managed by the nine POs from these two municipalities. This is a major breakthrough given that these areas were rife with boundary conflict issues and claimant problems.

Quezon MENRO Melchor Manzano and Bayombong MENRO-designate Marilyn Juan reflected further on the impact of the project in their respective LGUs and partner beneficiaries. They both agreed that the project helped

establish a strong and effective partnership among the different stakeholders – FRENDS, the DENR, the organized POs and the LGUs – as evidenced by the signing of the co-management agreements. This led to reduced incidence of slash-and-burn practices and timber poaching; which ultimately improved the watershed, as observed during the dry season. “Now, you barely see forest fires, because every burning activity in individual farms has to be coordinated,” added Ms. Acosta.

Meanwhile, the POs observed an increase in the level of awareness on the importance



of Mt. Palali among community members. “*Kung dati ay dalawa lang ang nagpapaliwanag na kailangan nating magtanim at alagaan ang kabundukan, ngayon ay marami nang gumagawa nito* [If previously, only two people were explaining that we needed to plant and protect the mountain ranges, today there are more people doing this].” explained Delfin

One of the nurseries established under FRENDS project.

Mariano, Chairman of the Board of Directors of the Paitan Upland Farmers Association (PUFA) and former Punong Barangay of Paitan, Bayombong. Mariano also shared that the project is very significant as it helped capacitate him and his fellow PO members to efficiently and effectively manage the forest and their own organization.

The sense of assurance and ownership grew with the number of IPRs. “*Nung maaprubahan na ang aming IPR, nawala yung takot namin na bukas o sa mga susunod na araw ay bigla na lang kaming paalisin sa mga lugar na kinatatayuan namin at masayang ang mga pinaghirapan namin* [When our IPR was approved, we no longer feared that one day we might just be evicted from the land we are occupying and all our efforts will go to waste],” said Adonis Julian, PO President of Magapuy-Kalanguya Farmers Association (MAKAFA) in Bayombong.

More importantly, it empowered PO leaders to assert their stance during meetings, forums and consultations. From being unaware, shy and lacking in knowledge of the importance of conserving and protecting Mt. Palali, they have become agents of change, capable of effectively managing the resources granted to them, while at the same time being able to improve the forest cover of Mt. Palali.

Sustaining the Partnership and Commitment

The PTFCF’s financial support has ended, yet FREENDS continues to sustain its partner POs’ activities.

FREENDS’ Teresita Acosta (left) with Bayombong MENRO personnel holding the FLUP, IRMP and Municipal Environment Code prepared by stakeholders implementing the PTFCF projects.

Below: Signing of co-management agreement.



Two projects funded by the UNDP-Small Grants Program is being implemented in the co-managed area in each municipality until March 2014. These projects are focused on rehabilitating the lower elevation forests, which were not covered by the project. In addition, through PTFCF, FREENDS facilitated the participation of its PO partners in the NGP. Apart from raising indigenous seedlings, PO partners were engaged in carrying out plantation and reforestation activities as their alternative livelihood. FREENDS also continuously assists them in ensuring their sustained participation

Photos below by Aloy Duya show some of the birds found in Mt. Palali as a result of initial Rapid Biological Inventory conducted by Conservation International.



in the NGP and inclusion as target beneficiaries up until 2016. Of the 312,500 seedlings raised and planted by the POs, approximately 86% (or 267,650) were assorted forest tree seedlings, while 14% (or 44,850) were fruit-bearing tree seedlings.

FREENDS has also conducted an investment forum with project stakeholders to revisit avenues of support for sustaining what has been a harmonious program and project implementation. Part of FREENDS’ phasing in–phasing out process is to capacitate the POs in coming up with their own project proposals to further extend financial support, and increase capability for livelihood activities. The gestation period of fruit-bearing trees, the major livelihood component of the project, takes a long time, and partner POs could not be expected to simply wait for the trees to bear fruits. Thus, FREENDS is planning to identify social enterprises and non-resource-based livelihood interventions to help the POs diversify their sources of income.

The evolution of an effective, efficient and innovative way of managing the forest and forestland of Mt. Palali was a result of a convergence of elements – sincere, transparent and open communication; sharing of responsibilities and commitment among stakeholders; political will and accountability of the LGUs; and the adoption of a community-based approach in capacitating POs. The process brought the stakeholders together and spurred motivation and inspiration among them to commit to an improved forest management. Moreover, this project experience generated important lessons and insights that can also be applied in other similar development initiatives.

References:

Duya, M.R.M., P. Alviola, G.R. Pallaya and G. L. Buesser. 2006. “A Preliminary Report on the Avian and Mammalian Composition of Mt. Palali, Quezon, Nueva Vizcaya, Luzon Island, Philippines.”

Friends of the Environment for Development and Sustainability, Inc.

Project reports and progress reports to the Philippine Tropical Forest Conservation Foundation, Inc.

Going Back to their Roots

The Higaonons' Heritage of Biodiversity and Forest Conservation



Oral historical narratives of Misamis Oriental's Higaonons (literally, mountain dwellers) mention an extraordinarily huge and robust tree that grew at the center of what was to be the first officially-declared barangay when the municipality of Claveria was established in 1950. The tree was so big that a *budyong* (helmet shell used as a horn) sounded behind it could not be heard on the other side of its trunk (Lacson n.d.). Aposkahoy, one of Claveria's twenty-four barangays, was named after this tree, which was unfortunately felled as it was believed to have carried a fatal curse.



Despite precautions to preserve ANR sites, accidental grass fires happen. The farmers' reaction: start over to recover lost ground.

Thousands of other trees in Northeastern Mindanao's dipterocarp forests, especially in Claveria – the largest among the twenty-four towns of Misamis Oriental, with a total land area of 825 sq km (82,500 ha) – have since shared the fate of the fabled *apostkahoy*.

Yet the culprit to the area's considerable deforestation in the past four decades was not a fatal curse but the practice of migrant settlements. Newcomers in search of the proverbial "greener pasture" initially cleared a small portion of land for crop production, and cut trees for house construction and firewood for home consumption. But more migrants meant more trees felled, bigger clearings of fertile land for high-value crops, and consequently, less forest cover.

The implementation of the PTFCF-funded reforestation project in Barangays Madaguig and Mat-i, and in Aposkahoy's Sitio Man-ibay in Claveria couldn't have come at a better time. "Building on Community-based Conservation of Native Trees: Reforestation at the Cabulig and Balatukan Forest Margins," was a two-year project implemented by the Landcare Foundation of the Philippines, Inc. (LFPI).

To the Higaonons who consider mountains and forests sacred, the principal aim of the project – to enhance the conservation of native trees and plants – is not unfamiliar. It is akin to their traditional environmental management practice of setting aside a *sikaran*, a "no hunting area" in the forest, to help preserve species of fauna (including the endangered Philippine Eagle [*Pithecophaga jefferyi*]) and flora (Lacson n.d.). To develop and strengthen community enterprises and livelihood sources that enhance forest conservation was an equally strong



The growth of abaca (a major source livelihood) is enhanced by intercropping with native forest trees.

Through their experience in the PTFCF-LFPI community-based reforestation project, the Higaonons have become experts in building nurseries such as this 155,000-seedling nursery for DENR's NGP in Man-ibay, Aposkahoy.



motivation for the residents' active involvement in the project.

Moreover, the Higaonon *datus* (chieftains) welcomed the project as technical support to the preparation of their application for Certificate of Ancestral Domain Title (CADT) and the formulation of their Ancestral Domain Sustainable Development and Protection Plan (ADSDPP). Both were initiated in 2005 by the leaders of the MAMACILA (acronym for Mat-i and Man-ibay; Civoleg and Langguyod) Apo Ginopakan Higaonon Tribal Council, Inc., a non-profit organization to which some of the community-based forest management project stakeholders belong.

Project results showed that objectives were satisfactorily met – and more.

Rethinking Reforestation

In the three project sites, 283 ha of land with high biodiversity were delineated by the communities for strict protection, a specified area closed to all human activity except for scientific studies and/or ceremonial or religious use by the Higaonon. An additional 25 ha were set for forest rehabilitation. Moreover, 56.5 ha were identified as communal forests, and 17.2 ha were set for individual's restoration areas through assisted natural regeneration (ANR).

The ANR, which incorporates the protection of seedlings from undergrowth and the planting of new trees when needed, is labor intensive and requires constant maintenance. In communities where most families' survival depends heavily on the national government's support that

was precursor to the current conditional cash transfer program, forest protection could be intensified if integrated with the development of additional sources of income.

Bantay Kalasan (forest guard; BK) chief Joping Malo-ay recounts confrontations with neighbors, relatives and friends apprehended for timber poaching. He is invariably told, "You're right, this should not be done, but I need to put food on the table. If you want me to stop cutting trees, give me money to feed my family."

It took 16.5 hectares-worth of agro-forestry (abaca, coffee) in the individual farm lots of community members and the launch of small-scale *tinagak* (abaca fiber rope) and *hinabol* (hand-woven textile) enterprises to convince small-scale illegal loggers to rethink their easy-money schemes.

Today, all barangays involved in the project have enacted an ordinance requiring any resident cutting trees in the ANR areas to plant ten seedlings in exchange for every tree felled. Some might doubt the sustainability of this practice, but the community's volunteer forest guards are convinced it is viable since this practice has been handed down by their ancestors.

Each community (Man-ibay, Mat-i and Madaguig) built nurseries and growing chambers, through which locals improved their wildling collection and management skills. To be reacquainted with native trees, they asked community elders, who willingly shared their knowledge of the mountains and forests. The picture painted by their elders showed that drawing upon the past can be a significant source of diversity. Who would have known, for instance, that the Cabulig and Balatukan

With assistance from LFPI and PTFCF, community members became engaged in sustainable livelihood activities.



forests were home to about twenty-six kinds of high-quality rattan species?

Young Higaonons were involved in the project's nursery building and maintenance. "For school tree-planting activities, these students would invariably insist on using native tree species with which they have become quite familiar," says Malo-ay. "Knowledge of these things keeps them reconnected with, and teaches them to value their roots," he adds.

The project, meant to preserve the biodiversity in the three communities, (out)planted a total of 52,491 hills of nineteen species of indigenous trees, such as: *ani-e* (*Erythrina fusca*), *basikong* (*Ficus bothryocarpa*), *bitaog* (*Calophyllum blancoi*), *buga-buga* (*Neolisea vidalii*), *hinagdong* (*Tremma orientalis*), *kati-e* (*Castanopsis spp.*), *lago*

(*Prunus gresea*), white *lauan* (*Shorea contorta*), *nato* (*Palaquium mindanaense* Merr), *narra* (*Pterocarpus indicus*), *sagimsiman* (*Syzygium brevistylum*); as well as *lugisan*, *magapipi*, *malangkaw*, *malasantol*, and *pugahan*, which are identified only by their local names.

Reinforcing Community Agro-forestry

Three livelihood projects were initiated or given assistance for expansion through the community-based forest management program: abaca production and processing; coffee production; and community marketing enterprise for abaca fiber and abaca finished products – tinagak, hinabol and handicrafts.

"It took sometime before we could convince those who are used to foraging to refrain from, or minimize harvesting rattan, which used to be abundant in our forests, and other timber and non-timber forest products," recounts Perfecto Pinuhan, also known as Datu Matundaan.

Some 16,500 abaca suckers were distributed to ninety households in three communities of Man-ibay, Mat-i and Madaguig. "Even those who didn't sign up for the project eventually benefitted," says Datu Matundaan, as those involved in the project shared planting materials with their relatives and neighbors.

Today, most of the Higaonon farmers in the three communities grow abaca, which is both economically and ecologically beneficial. A shade-loving plant, abaca typically grows better in mountainous areas in association with various forest species (Gonzal 2005). It also helps prevent soil erosion and conserves forest water.

The Higaonons' choice of abaca as cash crop is a testament to their knowledge of what is now termed "rainforestation," a farming strategy that restores the original vegetation stand and at the same time conserves the biological diversity in the area by facilitating the natural process of succession (DILG 2004).

By the time the project ended in 2008, the community marketing enterprises in the three communities supported by the project had a total value of Php103,337 (US\$2,520), a 51.4-percent return on the Php68,250 (US\$1,664)-worth investment. Part of the earnings went to MAMACILA, to be used in its operational expenses. The rest was divided among those who took an active part in the reforestation project, to help them in their

abaca/coffee farming (some 54,100 coffee seedlings propagated in the three project sites' community nurseries were distributed to ninety farmers).

A big help to the communities of Man-ibay and Mat-i was the establishment of a business partnership with Cagayan de Oro Handmade Paper, Inc. (CDOHP) based in Opol, Misamis Oriental. Through the partnership, the handmade paper company provided the communities with an abaca stripping machine in exchange for abaca fiber and cuttings.

Supporting the Ancestral Domain Claim

Inspired by the success of their counterparts in the Minalwang Higaonon Tribal Council (MIHITRICO), which started pursuing their CADT application as early as 1993, MAMACILA followed the lead albeit a dozen years later. The two organizations, which share common traditions and ethno-linguistic characteristics, synchronized their separate CADT application-related activities through the assistance of GREEN Mindanao and other NGOs working closely with LGUs (Lacson n.d.).

In 2007, LFPI took over from where other NGOs left off, helping in the pre-perimeter survey as well as the actual ground perimeter survey of the 17,558.6-hectare CADT claim of the Higaonon Tribe of MAMACILA; and facilitated the installation of monuments for ancestral domain boundary.

"We (LFPI) assisted (the group) in reworking their CADT application and in reframing what was to be the basis for their ADSDPP (through

Datu Buo-tan and his wife are among the Higaonons benefiting from abaca production and processing



a workshop),” recalls Ben Errol Aspera, LFPI executive director.

Erlinda Malo-ay, MAMACILA chair, says the support from LFPI consolidated their efforts to secure tenure. “After almost a decade of waiting, we’re almost there,” she declares. “Just some more procedural requirements and we will soon be able to present each of about 200 households 2 ha with CADT. We’re just waiting for the go-signal from the Land Registration Authority.”

Fostering Partnerships

One of the significant gains of the project is having facilitated the working relationships between the community and LGUs – from the

barangay to the municipal and even provincial levels – with other government agencies, and even with the business sector and other NGOs.

The barangay councils and the municipal LGU have recognized the achievement of the target communities in forest conservation and livelihood development. They provided these communities with financial as well as policy support to their different activities. The municipal and provincial LGUs have also partnered with the three communities in enhancing their abaca-based enterprises.

The DENR also enlisted MAMACILA and LFPI as members of the Protected Area Management Board (PAMB) of the Mt. Balatukan Range Protected Area.

“Their exposure to different government agencies, other POs and NGOs made the community leaders confident in negotiating and putting forward their concerns,” observes Rey Nambatac, from the Office of the Cagayan de Oro City Environment and Natural Resources Office (CENRO), designated Municipal Environment and Natural Resources Officer of the Municipality of Claveria. He also said that the implementation of DENR’s NGP in these communities couldn’t have been easier, thanks to their experience with the PTFCF-LFPI community-based reforestation project.

Institutionalizing Community Initiatives

Building on the initial gains of the project, 2009 saw the propagation of 62,025 seedlings of fourteen indigenous tree species for the expansion of the project covering the eco-and

Regular meetings to monitor project progress have also helped community folks be more aware of the needs of their neighbors and offer help whenever necessary.



Below: Bantay Kalasan members, deputized by DENR to apprehend timber poachers, end up playing a crucial role in conflict resolution, thanks to the various training-workshops they attended.

buffer zones of Mts. Balatukan and Kimangkil ranges in the upper portion of Barangay Mat-i and Man-ibay and the riparian areas along the Cabulig River in Barangay Lanise. In addition to the 283 ha of ANR and forest under strict protection established in the project’s first phase, a total of 149 ha were rehabilitated.

No less important among the achievements of the expansion project is the institutionalization of community participation in forest protection and management by organizing BK, a 12-member volunteer forest guard group.

Several cases of illegal activities related to *kaingin* and small-scale timber poaching, as well as commercial charcoal production, have since been documented and reprimanded by BK members in the three villages, and reported to the DENR/CENRO in Region X and Municipal Local Government Unit of Claveria.

The Sangguniang Bayan of Claveria passed a resolution in 2011 to provide monthly honorarium to each BK member as part of the LGU’s incentive program and sustaining mechanism for environmental conservation-related efforts.

As an incentive for their active involvement in the conservation of indigenous tree species and other forest conservation initiatives, sixteen community members of Barangay Lanise received 16,000 abaca corms, which were planted in 19.8 ha of agroforestry-based abaca plantation across their barangay. Additional livelihood support was also given to BK members as an incentive for their volunteer effort in safeguarding the forests in their communities. Training on *lakatan* (a variety of banana) production was provided. Each BK group was also given 500 banana suckers for propagation.

References:

Gonzal, Lelita R. 2005. "Integrating Abaca in a Mixed Forest Culture: A Livelihood Option for Smallholder Tree Farmers." Paper presented at the planning workshop of the Australian Centre for International Agricultural Research (ACIAR) Project ASEM/2003/052 entitled, *Improving Financial Returns to Smallholder Tree Farmers in the Philippines*, Ormoc City, Leyte, February 15-17.

Lacson, Rey Dan/GREEN Mindanao Association, Inc. *Ancestral Mountains: Indigenous Knowledge, Practices and Stories in Misamis Oriental* (Cagayan de Oro City: GREEN Mindanao Association, Inc.).

Republic of the Philippines - Department of Environment and Natural Resources. 2004. Memorandum Circular No. 2004-006. "Guidelines in the Integration of Rainforestation Farming Strategy in the Development of Open and Denuded Areas within Protected Areas and Other Appropriate Forest Lands." Quezon City, August.

Looking Back

Through the two phases of the project, a total area of 536.98 ha around Mt. Balatukan and Kimangkil was planted with nineteen native tree species. These trees are beneficial to the water quality and quantity in the Cabulig watershed.

"The real contribution of this project is in the area of reforestation," declares Marcelino Patindol, a farmer and chair of the Board of Trustees of LFPI since 2009. "Of course, the livelihood component is important," he explains, "but ultimately, this is a conservation (of native trees) and reforestation project, and all parties involved in carrying it out can be assured that they have achieved this goal." He also considers the organization of the BK as another major achievement of the project even if it was not initially specified as one of its goals. "We always hear about the evils of illegal logging but what often come to mind are big loggers with chainsaws. The reality is that the locals do small-time timber poaching that may initially pass unnoticed until the resulting deforestation is added up. The BK volunteers have certainly helped mitigate this because they know what will convince their own people to stop engaging in such self-destructive activities."

The fatal curse that felled the fabled aposkahoy so many years ago might have been a foreshadowing of what may be considered the real curse that felled thousands of trees decades later – the self-destructive activities of timber poaching and a general lack of care for the environment foreign to the Higaonon culture. By going back to their roots, Misamis Oriental's mountain dwellers have proven that this can be reversed.



Sustaining Forest Conservation Among the Kanawan Aytas



The forests of Morong, Bataan have long been the domain of the Kanawan Aytas, who relied heavily on forest resources for food, medicine, clothing and shelter. The Kanawan Aytas reside in the Kanawan Negritos Reservation Area (KNRA), which is part of the 23,688-hectare Bataan National Park (BNP). Over time, however, the forests of the KNRA and the BNP have suffered because of illegal logging for timber and charcoal production, and kaingin for small-scale farming. The expansion of settlements has also reduced forests in the area. All these have exacted a heavy toll on the Kanawan Aytas since the loss of forest resources meant a reduction in vital sources of food and livelihood, and the weakening of the foundation of their traditional way of life.



Support from the PTFCHF would address forest rehabilitation and conservation issues in the KNRA and help restore the forests that sustained the Aytas. Through a grant, the Center for BioMolecular Science Foundation (CBMSF) implemented the “Establishment of an Integrated Reforestation, Conservation and Sustainable Livelihood Program for the Kanawan Aytas at the Bataan National Park”. The project aimed to empower the Aytas as stewards of the forest by complementing traditional knowledge with forest rehabilitation and reforestation methods, increasing awareness of the need for forest conservation and

providing the Aytas assistance in their claim to their ancestral domain. Livelihood activities and alternative sources of income were likewise introduced to make the effort sustainable.

The project ran from 2006 to 2011 and was part of a continuing effort of volunteers to reduce poverty at the KNRA through a holistic approach involving education, preservation of their cultural heritage, development of sustainable means of livelihood and improvement of their health status. An integral part of the project was support for strengthening the Aytas’s claim to their ancestral domain to ensure that their rights as indigenous peoples are protected, traditions are maintained, and that they can continue to manage and nourish the environment as they have done in the past.

The Kanawan Aytas

The Aytas belong to the Magbukún Tribe who are believed to be the first inhabitants of Morong, Bataan. They used to roam freely, and hunt and gather food from the Boton River of Subic to the peak of Mt. Natib, down to Gantuan River in Nagbalayong, close to the Bagac-Morong boundary.

The creation of the BNP in 1945 resulted in the restriction of the Kanawan Aytas to Sitio Lemon of Barangay Sabang. Unfortunately, they were evicted from the area when the Philippine Refugee Processing Center was established on the site in 1979. They would have been evicted again if not for the 1987 declaration of President Corazon C. Aquino of 227 ha in Kanawan as the KNRA.



While in their traditional clothing called "lubay," Ayta men demonstrate their wild honey gathering techniques in Nagbalayong, a significant part of their ancestral domain.

Although they move through different parts of the BNP, the resources of the forest continue to provide for the needs of the Kanawan Aytas. They also have traditional practices that nourish and cultivate their environment.

The Kanawan Aytas still maintain a semi-nomadic way of life and spend weeks in the forest occupied with traditional means of livelihood, mainly wild boar hunting and wild honey gathering. They hunt wild pig and deer from June to October only. Beyond this period, hunting is discouraged to allow the animals to reproduce. Hunting is usually not done during the dry season as the animals are too lean. Other wild animals like *labuyo* (wild chicken), *bayawak* (monitor lizard), *musang* (civet cat) and *pugo* (quail) are hunted throughout the year. The Aytas also fish in the rivers using traditional methods and indigenous materials.

"Pero wild honey *talaga ang pinagkakakitaan namin* [Our main source of income is wild honey]," states Joe Salonga, a member of the Kanawan Ayta tribal council. The gathering of mountain honey or wild honey begins during the dry season, when most of the flowering plants are in bloom. This usually starts from late December or January until May. The Aytas also have a way of gathering honey that preserves the bee colony.

The Magbukún Aytas practice a type of swidden agriculture called *gasak/gahak*, which differs from *kaingin*. In the *gasak*, grassland areas are cleared without cutting down and burning trees, then planted with crops. All *gasak* areas are rainfed.



The Aytas consciously disperse seeds found in the forest. During hunting activities, they pick up seeds and throw these in other areas and thus assist in the natural diffusion of the diversity of plants.

The Aytas's concept of conservation is integrated in their indigenous knowledge system. For instance, the productivity of wildlife is maintained through periodic hunting and gathering practices. Aytas harvest only what they need. They do not harvest more than what they are able to consume or sell, and this helps maintain the balance of nature.

Hence, forests continue to provide for the needs of the Kanawan Aytas. However, forest loss in recent years had tremendous impacts on the lives of the Kanawan Aytas.

Impacts of forest loss in the Bataan National Park

As forests declined, so did the variety of the wildlife that could be found. Wild boar was harder to come by, and more Kanawan Aytas began to engage in farming to provide food and income for their families. However, many shifted from the traditional *gasak* method to *kaingin* as practiced by lowland settlers, which is more destructive compared with their traditional farming methods.

Honey yield also declined, striking a major blow on the incomes of the Aytas. The Aytas related that from 1989 to 1990, they were still able to find around ten hives a day in one hectare of forest. These hives would usually be 6

Wildlife that used to be abundant in the KNRA

- *Unggoy sa puno, unggoy sa lupa* (monkeys)
- *Uyha, maniger* (deer)
- *Baboy ramo, makadyang tinguhon, maitlok tinguhon* (wild boar)
- *Birds* (including *kilyawan* and three types of eagles)
- *Bayawak kahoy, bayawak ilog* (monitor lizards)
- *Musang, lamiran* (wild cats)
- *Basakay* (flying lizard)

feet long and could yield up to 60 liters of honey. By 1992, wild honey collection would yield only three hives a day, and these would only be around 4-6 feet long, yielding 40-60 liters of honey. Around 2005, the Aytas were unable to locate beehives in 5-10 ha of the forest area after roaming for two days. When they did find beehives, these would only be around 2.5 feet long, and contain about 4-8 liters of honey.

Aside from forest loss, overharvesting also affected the availability of wild honey. While the honey continued to decline, the Kanawan Aytas also had to compete with non-indigenous peoples who also collect wild honey from the same areas.

Knowledge and change led to positive pay-offs

A major factor in the success of the PTFCF-supported project is the longstanding relationship between CBMSF and the Kanawan Aytas. CBMSF has been working with the community for more than a decade and they have earned the trust and support of the Kanawan Aytas. Highlights of the PTFCF support to the Kanawan Aytas include the following:

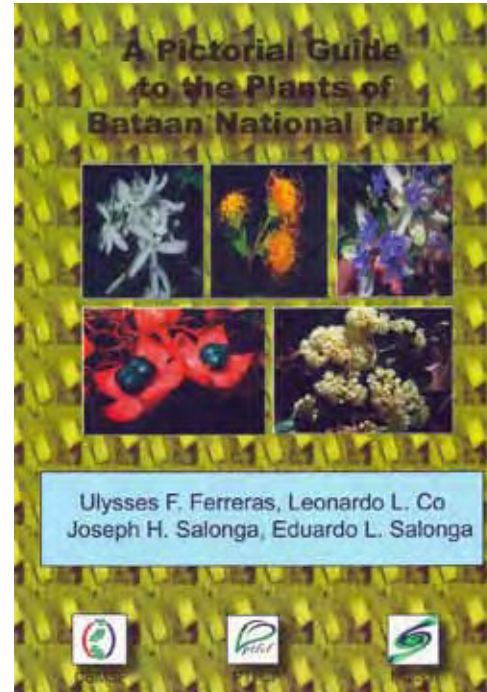
Policy of transparency ensured project ownership

The project engaged the Kanawan Aytas right from the conceptualization stage. Mutual transparency served as a prerequisite to fostering trust among the Kanawan Aytas and created among them a sense of project ownership.

The process allowed all parties to level off on expectations, and identify and assign specific tasks, roles and responsibilities to participants. This also allowed the group to use a culturally-grounded participatory planning, implementation and monitoring system.

The community reigned over personal interests

The Kanawan Aytas worked hard to maintain unity during the course of the project. At times, there were cases when the project had conflicts with the Ayta leadership. Members of the tribal council would be at odds with one another, but rather than challenge the leadership, the members worked on compromising and maintaining unity within the community.



Pictorial Guide to the Plants of the Bataan National Park

The pictorial guide is an important product of the training in parataxonomy and forest inventory. The guide represents a selection of species recorded during many field surveys with Aytas to assess the plant diversity of the KNRA. It documents the natural distribution of the featured species, the scientific and vernacular names of the plants, and their flowering and fruiting schedules. The pictorial guide is authored by Ulysses Ferreras; the late botanist, Leonardo Co, who was involved in the early stages of the PTFCF project; Ayta tribal leader, Joseph Salonga; and EL Salonga, one of the few remaining Aytas with a deep and intimate knowledge of the plants and animals of Bataan.



Science-based approach fostered learning exchange and strengthened traditional forest management

As the forests declined, the Kanawan Aytas knew that they needed to take steps to protect the resources they relied heavily on for survival. Traditional environmental practices could no longer cope with the widespread destruction of the forest. The PTFCF supported activities that raised their awareness on the need to conserve the forest, and provided the skills that allowed them to sustain forest resources.

The Kanawan Aytas participated in trainings on parataxonomy, forest inventory, conduct of plant biodiversity survey, nursery establishment and reforestation. The application of science-based interventions strengthened the traditional forest management practices of the Kanawan

Aytas and was instrumental in ensuring the success of the project's biodiversity conservation efforts. The process became a two-way learning exchange where the Kanawan Aytas and project staff became aware of the other's knowledge of plant names; as well as the growth, development and uses of local plants.

Forty-four Kanawan residents participated in the training on parataxonomy. Ulysses Ferreras, the project botanist, would stay for one week in the mountains with the Aytas and discuss the relationships among the plants. The Aytas would say, "*Itong mga halaman na ito, magpipinsan* [These plants here are cousins]." Sometimes they were right, other times they were wrong, but it was evident that the relationships they knew about had some taxonomic basis. Mr. Ferreras would discuss taxonomy and the scientific names of plants, and the Aytas would tell him about their local names and how the plants were used by the community. Initially, the younger Aytas knew very little even about local names of plants. However, the exercise provided the Ayta youth the opportunity to learn about their culture and the environment, with new knowledge shared both ways between local residents and the project staff and volunteers.

Four gentry plots were integrated into the inventory of forest species. Thirty-three participants were taught how to identify local trees; collect, prepare and process specimens properly; and take field notes. The inventory of forest species adjacent to the reforestation area showed that *binunga* (*Macaranga tanarius*), *binungang malapad* (*Macaranga grandifolia*) and *alim* (*Melanolepis multiglandulosa*) were more dominant in more disturbed areas on the

site and played a significant role in effecting canopy closure especially in the edges of the forest patch. These species can serve as pioneer trees for the eco-restoration effort. This allowed for more informed decisions in the reforestation process and facilitated the planting of trees appropriate to the area.

Forty-six Kanawan residents participated in the plant biodiversity survey in Bisay Falls, Mt. Silangan area, and along the ridges of Pinagbandirahan. The activity was conducted to determine the biodiversity of the area as well as provide inputs to an ecotourism plan. Mother trees were identified and information on plant life cycles was gathered for the phenology database. Interesting discoveries in Mt. Silangan include a new island record of the orchid *Bulbophyllum dearei* and a new locality record for *Bulbophyllum catenulatum*.

As part of the monitoring efforts, thirty-seven Aytas and three non-Aytas who gather honey and hunt wild pigs served as forest guards and monitored the forest, watched out for grassfire outbreaks and continuously collected phenology data.

The Kanawan Aytas also underwent training on nursery establishment and reforestation methods. Two nurseries were established at the Kanawan Elementary School compound and these nurtured 10,742 seedlings and cuttings of forest and pioneer trees. Reforestation efforts covered around 1,500 ha within the BNP using *apitong*, *kamagong*, *yakal*, *siakal* and *dao*. A total of 10,350 seedlings of cashew, *bignay*, *atis*, cacao, guava, *santol*, *atsuwete* and *malunggay* were planted in 19 ha of gasak areas located along the forest edge. Other trees planted in

various parts of the KNRA include 680 coconut seedlings; 740 banana and cuttings of cassava; 240 cuttings of *siniguelas*, or Spanish plum; and 122 cuttings of *katuray*.

Twenty-eight Aytas and non-Aytas attended training in pruning, tree surgery and treatment of diseased trees.

In addition, project impacts were measured through the Socio-Cultural Development Index (SCDI), which was developed by CBMSF. The SCDI was developed at the start of the project when a member of the tribal community asked, “*Paano masisiguro na ang proyekto ay di makakasira sa aming kultura?*” [How can it be ensured that the project will not damage our culture?]” The SCDI measured changes in health, education, cultural integrity, income and other factors. It showed significant results in income for the community through earnings from increased honey yield, harvests of cashew and other fruit trees, as well as employment in the Subic Bay Freeport Zone. Buyers now go to the community to purchase cashew, *duhat* and wild honey in bulk.

Food-for-work scheme allowed families to benefit from the project

During the various consultations that took place between CBMSF and the community, the Aytas themselves suggested the food-for-work scheme as the method of remuneration for participating in the project. As such, all participants became fully supportive of the food-for-work arrangement. According to Dr. Lourdes Cruz, head of CBMSF, “The Aytas agreed that if wages were paid, the money could



Training on parataxonomy and other science-based approaches strengthened the traditional forest management of Kanawan Aytas.

easily be spent on cigarettes and other vices. A food-for-work program would ensure that the whole family benefitted from their participation in the project.”

Various activities raised awareness on environmental conservation

Environmental awareness-raising activities for other members of the community included a school gardening project. School children from Grades 4 to 6 participated in setting up the school garden. The Kanawan Elementary School won first place out of twelve participating schools in December 2008 in the search for the Most Outstanding School Garden in Bataan for School Year 2008-2009.

“Learning is Fun Sessions” conducted by the University of the Philippines students through the Civic Welfare Training Service (CWTS) program provided lessons on the environment. One of the CWTS students, MC Cayabyab, even penned a song that encouraged the community to love and protect nature. “*Kabataan ng Kanawan* [Youth of Kanawan],” which became an anthem of sorts among the children, has since been modified to make it more appropriate for adult Aytas, and became known as “*Awit ng Kanawan* [Song of Kanawan].”

Trainings aimed to expand livelihood opportunities

The local people established the Samahan ng Magbukún sa Kanawan (SMK) to manage livelihood projects. These projects included *itik* (duck) farming where participants were able to

earn from the regular production and sale of salted eggs. Food processing was also introduced and some of the products that were developed include *duhat* wine, instant *banaba* tea and instant *tanglad* tea.

An ecotourism plan was also developed for Kanawan and Bisay Falls. The community was actively involved in maintaining the trails and building handrails and benches to help assist visitors. About three Aytas were trained as guides.

As a form of supplementary livelihood, households were encouraged to practice organic farming, and cultivate vegetables and other crops such as rice, corn and bananas. The harvest was used mainly for household consumption, but some households were able to sell produce either within the community or in the Morong market. The Sloping Agricultural Land Technology (SALT) method was introduced to address the problems associated with their traditional gasak farms. One family adopted the SALT system and the farm served as a demonstration plot that integrates soil conservation measures and food production.

Residents were also trained in marketing management, small business management, bookkeeping and basic accounting to help manage business opportunities.

Seminars strengthened awareness of indigenous people's rights and their claim to ancestral domain

An additional aspect of the PTFCF support was increasing the Kanawan Aytas's level of awareness of their rights under the Indigenous People's Rights Act (IPRA). Borromeo B.

Motin of CBMSF translated the IPRA to Tagalog and helped the Aytas prepare the documents required for CADT application. Learning the IPRA and participation in meetings on IP rights helped the Ayta community regain pride in their identity.

Through the support of various organizations, including CBMSF, the Kanawan Aytas submitted an application for a CADT in 2004. The CADT application covered about 10,000 ha of a triangular area bound on the northeast by the Boton River of the Subic Bay Freeport Zone, on the southeast by the Gantuan River and on the west by titled properties along the coastal area of Morong. Seminars on the IPRA helped provide inputs into the ADSDPP. The community is currently awaiting the boundary demarcation of the CADT to be conducted by the National Commission on Indigenous Peoples (NCIP).

Challenges in project implementation

Overall, there were few challenges in project implementation because of the prior working relationship between the Kanawan Aytas and CBMSF. One particular challenge relates to food processing activities initiated to help reduce pressure on the environment. Most of the Kanawan Aytas do not yet have practical knowledge of nutrition, hygiene and sanitation, a prerequisite to food processing as a livelihood activity. "Traditional methods are clean, but standards have to be more stringent if you want to produce more food products. Sometimes, the Aytas cannot grasp the concept of microbes



Mr. Joseph Salonga explaining about their project with CBMSF and PTFCF, and the benefits they derived from it.

and their effects, and they take shortcuts in the production," related Dr. Cruz. They resolved the issue by ensuring that food production was conducted at the CBMSF office so that activities could be monitored.

Livestock production was also problematic. "Aytas still maintain a semi-nomadic way of life, and it is hard for them to manage projects that need attention on a daily basis." Dr. Cruz explained that this had negative impacts on the *itik* farming project since the Aytas might sometimes leave their homes for a week to hunt boar or gather wild honey.

There is also a perception that non-Ayta communities have become jealous of the support provided to the Aytas, and this might have led to some vandalism, destruction of property and incidences of grass fire outbreaks. As a result, other activities began to engage non-Aytas so that they may also benefit from the PTFCF project.

Project interventions strengthened the life, identity and culture of the Kanawan Aytas

One of the major outcomes of the project is the rehabilitation of the forest and a greater appreciation for forest and biodiversity conservation among the Aytas. Poverty has led them to extract more than necessary from the forest, but the support from CBMSF and PTFCF has provided an opportunity to reinvigorate their ties with nature and protect the source of their life and identity – the base of their culture.

The parataxonomy training, in particular, provided an opportunity for the younger generation to re-learn their IP knowledge system. The training not only helped record the identity and uses of the local plants, but also gave the Kanawan Ayta youth a chance to know more about the plants that played a significant role in the life of their elders. The reforestation training also helped Kanawan Aytas realize the relationship between the forests and the availability of their primary resources, wild honey and boar. A healthier forest means more trees in bloom, and, thus, more bees and honey. A stronger habitat also means that, perhaps, more wildlife can be found in the forests of Kanawan in the years to come.

Efforts to increase their awareness of their rights under the law have provided the Kanawan Aytas the voice to fight for their rights to their ancestral domain. This has helped them facilitate their application for their CADT, as well as evaluate the projects that have sought their cooperation and collaboration. As a result,



they are now better equipped to manage the resources within their ancestral domain.

The Kanawan Aytas stressed that PTFCF and CBMSF empowered them to think and act for the betterment of the community. In the past, they would only listen to people and generally accept and believe what little information was provided them. Today, because of their interactions with various agencies, their increased knowledge and skills, better awareness of rights, as well as their increased appreciation for their indigenous culture, the Kanawan Aytas are more confident, articulate and able to voice their opinions and fight for their rights. Joseph Salonga stated, “*Mas kaya na naming magsalita at humarap sa ibang tao, lalo na’t alam namin*

ang aming mga karapatan [We are now more confident of speaking to and facing other people, especially as we know our rights].”

That the project worked for the Kanawan Aytas is evident in the 60-percent increase in the rating for educational status, which is a reflection of the increase in literacy rate, enrollment rate and number of high school and vocational/college graduates. The development interventions done under the PTFCF project contributed greatly to the increase in the SCDI in 2010, thus, demonstrating the positive impact of the project on the Ayta community. The Kanawan Aytas have reclaimed their ties to their environment and, hopefully, this will lead to cultural restoration and a better way of life.

Their future before them, the children of Sitio Kanawan enjoy today the benefits of their elders’ diligent work towards forest management.

Community Perspective

Joseph Salonga is a forty-year-old tribal council member among the Kanawan Aytas and is a major partner in the PTFCF project. He stressed that through the PTFCF project, “*Nalaman rin namin na kapag nababawasan ang kagubatan, nawawala ang honey, pati ang mga baboy ramo. Kailangan naming pangalagaan ang kagubatan para tumibay ang aming pamumuhay* [We also learned that when the forest is reduced, the honey disappears, and so are the wild boars. We need to protect the forest to secure our livelihood].” Joseph adds that PTFCF and other projects have helped the Kanawan Aytas think more critically. They are now more able to analyze and discuss situations, as well as resolve challenges in a more logical and diplomatic manner that will best serve the interests of the community. “*Pag may problema, napapag-isipan ito at napapag-usapan, hindi lang nag-aaway. Mas malawak na ang pag-iisip namin ngayon. Napakalaking tulong rin ang ginawa ng PTFCF para malaman namin ang aming mga karapatan bilang mga IP* [When there is a problem, we get to analyze and discuss this, not just fight over it. We are now more broad-minded. PTFCF also helped significantly in making us aware of our rights as IP].”

Project Update

The community still produces seedlings, but these are usually grown in backyard nurseries. Local community members take it upon themselves to plant in forest gaps. When community members venture into the forest to gather wild honey or hunt wild boar, they record what they see and report this to CBMSF. Reforestation efforts continue and the forest remains protected from logging and other disturbances. Incomes have improved due to increased honey yield and harvests from fruit trees such as cashew, bananas, coconuts and avocado. Some households continue to tend vegetable gardens to supplement their food needs. A project facilitated by former Subic Bay Management Authority Chair Felicito Payumo is set to start soon. PTT Philippines Corporation, a subsidiary of Thailand’s biggest oil company, is partnering with the DENR for its “Gas Up for a Tree” Project. Under the project, PTT is planning to plant at least 10,000 seedlings of fruit-bearing trees and dipterocarps such as lawaan, apitong, narra, and other hardwood species in some 50 ha of denuded land in Sitio Kanawan. The project is expected to benefit more than a hundred Ayta families and may run for twenty-five years.



Polillo, Quezon Province

Integrated Ecosystems Management Approach

A Mangrove Rehabilitation Initiative in Burdeos and Polillo, Quezon Province

Quezon Province is recognized for its expansive mangrove forests and the highly diverse species found therein. Polillo Island is one of the key biodiversity areas (KBAs) with a total area of 20,276 ha, which partially covers Burdeos and Polillo. These two municipalities straddle Northern Lamon Bay, along with seven other municipalities, such as General Nakar, Infanta, Jomalig, Mauban, Panukulan, Patnanongan and Real.



Being fishing communities, Burdeos and Polillo depend on coastal resources for food, livelihood and at times as source of fuel. Wood from mangrove forests are used as *raha* (fuelwood) in bakeries and *andamyo* (gangplank) for the houses. *Lambanog* (wine made from coconut) production, which utilizes *sasa/nipa* (*Nypa fruticans*, a type of palm that grows in mangrove areas), is a local industry in these municipalities. Healthy mangroves also protect these coastal communities against strong winds and storm surges, lessening the risk of communities being wiped out during typhoons.

Healthy mangroves ensure sufficient coastal and marine resources for fishing communities in Quezon.

Increased population, however, led to irresponsible and unsustainable mangrove utilization practices, thereby contributing to mangrove forest depletion.

“Problems of incorrect fishing practices and the cutting of mangroves have been encountered by all municipalities. Here in Burdeos, in the past, there was widespread use of dynamite and sodium cyanide. Finely woven nets were used for fishing to catch even small fish,” recalled Dorinda Estefani, the MENRO and the municipal agriculture officer of Burdeos. “Even the cutting of mangroves for use in houses or for sale is a big challenge to the administration,” she added.

The LGU in Burdeos recognizes that the lack of livelihood options heightened the threat to resources in contiguous ecosystems. Mangrove forests are part of our rich ecosystems that provide both economic and ecological functions. One of these is as nursery and breeding ground for fish and other organisms living in coastal areas and adjacent estuarine and marine ecosystems. The disappearance of mangroves depletes the fish and other resources, thus affecting the livelihood of fishing households. Further, the lack of economic benefits from coastal resources as a result of irresponsible use of mangroves and unsustainable fishing practices prompts people to look towards the terrestrial or upland forest resources.

This threat to biodiversity due to socio-economic reasons heightened the need for immediate intervention.

“We are fortunate that PTFCF is implementing a project here through the Institute of Social Order (ISO). If it is solely the LGU

Communities in Polillo and Burdeos heavily rely on coastal and marine resources for livelihood.



who acts, its capacity and financial resources might not be enough,” explained Christa May Azas-Bantucan, Burdeos Sangguniang Bayan (municipal council) member and Committee on Agriculture Chair. “From what we have started and what the ISO has contributed, I think we have done so much,” she added.

Setting the stage

The project is part of the Integrated Coastal Resource Management (ICRM) Program of the ISO being implemented since 2005 in nine municipalities – Burdeos, General Nakar, Infanta, Jomalig, Mauban, Panukulan, Patnanongan, Polillo and Real. ISO’s delivery of support services to coastal communities

in Burdeos and Polillo presented an opportunity to seek PTFCF’s support, which the Foundation welcomed, to link it with terrestrial biodiversity conservation initiatives happening in the uplands.

Hence, the partnership made possible the integration, complementation and interconnectedness of the mangrove forest and terrestrial lowland forest development initiatives headed by two distinct institutions: ISO and the Polillo Island Biodiversity Conservation Foundation, Inc. (PIBCFI).

Key strategies in the Integrated Ecosystems Management Approach

The implementation of the approach throughout the two phases of the project relied on several strategies that involved not only the technical advice of agencies but also the dynamic participation and support of fisherfolk organizations (FOs). The project organized and strengthened the FOs, namely, the Association of Small Fisherfolks in Libjo (ASFFIL), Pakatan Pag-asa ng Samahan ng Tamulaya-Anibong (PPSTA), Samahan ng mga Maliliit na Mangingisda ng Sibulan, Inc. (SMMSI) and the Puragnas Association, all in Polillo; and the Samahan ng mga Maliliit na Mangingisda ng San Rafael (SMMSR) in Burdeos. These FOs were all registered with the Department of Labor and Employment (DOLE), further bolstering their legitimacy to operate as mangrove stewards.

The science-based methodology as a take-off strategy. The first phase of the project was

Community members actively engaging in the study on mangrove depletion.



dedicated for the conduct of a study in 2006 on the extent of mangrove depletion in the area. Data generated from eight of the nine municipalities surrounding Northern Lamon Bay confirmed that the depletion of coastal and marine resources, including mangroves, was brought about by the increasing population, which demanded more food and created more coastal and marine resource-dependent communities. Added to these were the pressures inherent in development such as unsustainable use of mangrove resources, water pollution and unsustainable fishing.

In 2010, the project used GIS (*Geographic Information System*) to map out the damaged mangrove areas. The outputs were then presented to, and validated with community members to identify and agree on the most

degraded mangrove areas, which were to be set as priority sites for enhancement planting; and included in their sustainable mangrove management plan. Through the community validation, previous conservation efforts were reflected as well in the map.

The tools and processes might have seemed intimidating for some fishers, but for others, they were worth exploring. The application of scientific and technical bases to this project increased the local groups’ capacity and enhanced their local knowledge and practices.

“In any project start-up, we need to set bases. Local groups may be good at experimentation, narration and description, but most of the time they are not able to document. They need to learn how to record. Now they are the experts. They are involved in research and baseline



PO members preparing the nursery.

Below: General Assembly of PO members in Burdeos.



data gathering as well. They are consulted on the local names, including the use of certain types of mangroves,” attested Ms. Emmeline Ceas, Project Development and Monitoring Coordinator of ISO. “They can now easily do documentation and recording. This is important to quantify the interventions made vis-à-vis those set in the plan,” she added.

The subsequent processes during the second phase in January 2010 to April 2011 observed scientific bases particularly in nursery

establishment, mangrove rehabilitation and livelihood creation interventions. The second phase highlighted the dynamic involvement of other stakeholders such as the LGU, the FOs and partner local institutions.

Shared governance and responsibilities for mangrove and terrestrial lowland forests.

Partnership building, including resource sharing, was identified as one of the key elements to the success of the project as this helped create a sense of ownership among stakeholders in the project. While ISO helped bring the PTFCF support services on mangrove forest management to its partners, it also valued the resources and capacities contributed by the PIBCFI especially in the terrestrial lowland forest development initiatives during the first phase of the project.

Through the agreement formalized between ISO and PIBCFI, it was decided that the Municipal Fisheries and Aquatic Resource Management Council (MFARMC) will deal with mangrove management-related issues while the Local Conservation Areas (LCA) Management Council will tackle issues relating to lowland terrestrial forest management. Various capability-building activities were also implemented for the LGUs and the FOs to enable them to become competent partners in mangrove resource management. These included paralegal training, as well as technical assistance through networking with experts such as the EnDefense Program, which the NGOs tapped for legal assistance.

“Anything related to mangroves is a concern of ISO, while anything related to forests and

the mountains are PIBCFI’s concern, but we constantly communicate because the mountains and the seas are interconnected. Each of us has our own capacity and network, and if we think that something will benefit the other, we just let the other take over,” explained Ms. Agnes Faustino, ISO Program Coordinator.

The active involvement and participation of PTFCF staff in meetings with partners during on-site visits and monitoring activities inspired the local stakeholders to continue working towards the effective and efficient protection and rehabilitation of the mangroves. As Carmelito Conchada, Secretary of ASFFIL shared, “*Nabubuhayan kami ng loob pag dumarating ang PTFCF. Kung sila nga na di mga taga-rito ay nag-aabala sa pagpunta sa amin, kailangan din naming kumilos para sa aming mga nakatira dito. Nakasanayan na rin ng mga miyembro ang pagtanim at nakilala na rin kami sa gawaing may kaugnayan sa pangangalaga ng pakatan* [We feel encouraged every time PTFCF staff visit. They are not from here and yet they take time to visit us. We also need to take action for ourselves, who live here. Our members have gotten used to planting and we have been recognized for our initiatives in mangrove conservation].”

Raising awareness through IEC campaign. It has been proven in various coastal resource management initiatives that the success of any conservation effort boils down to a clear and common understanding among all partners, especially the primary stakeholders – in this case, the fisherfolk and the FOs. From the study conducted in Phase I, management intervention

options including awareness raising activities, were identified.

The PIBCFI worked with ISO in the conceptualization and development of IEC materials that carried themes on both mangrove and terrestrial lowland forest conservation. A video documentary distributed to FOs, LGUs and schools, which highlighted their coastal resources and their status, as well as current and future initiatives, was a notable IEC material developed. Calendars and campaign t-shirts distributed to local LGU partners, line agencies and FO members all the more highlighted the importance of mangrove and marine ecosystems.

Establishing mangrove nurseries for rehabilitation.

Mangrove nurseries that were set up ensured the continuous supply of planting materials for the reforestation activities especially when propagules were out of season. These nurseries provided steady supply of seedlings for their organization as well as other groups that undertook mangrove reforestation activities. The planting materials were locally sourced, thereby reducing the expense to transport these to the planting site. All the FOs had their nurseries of mangroves built and restocked with about 30,000 seedlings, subsequently planted in reforestation sites in Burdeos and Polillo. These seedlings were comprised of: *Rhizophora*, or *bakhaw*; *Ceriops tagal*, or *tangal*; *Avicenia marina*, or *miapi*; and *Bruguira sexangula*, or *pototan*.

Jonathan Humaol, a District Environment and Natural Resources Officer (DENRO) of Burdeos who joined the SMMSR in 2013,

clearly saw the payback. He explained, “*Ngayon, maipagmamalaki kong animnapung alimango na ang nakukuha ko sa aking tatlung pirasong bubu na dati-rati ay dadalawa lamang. At may mga isda na ring makikita sa mga pampang. Ito ang mahalagang malaman ng mga kapwa ko umaasa sa yamang dagat upang sumapi sa amin at makatulong sa pagpapanumbalik ng pakatan*” [Today, I can proudly say that I can harvest sixty mud crabs from my thirty pieces of breeding cage, which previously could yield two crabs only. Fish can also now be found along the shore. These are the things that my fellow fishers who depend on marine resources need to know so they will join our organization and help in restoring the mangroves].”

In Polillo, SMMSI and ASFFIL encouraged their respective members to continue raising mangroves even in their backyards. ASFFIL alone required its members to plant 1,000 seedlings of mangroves each year.

Monitoring and law enforcement. A composite team of MFARMC/*Bantay Dagat*, local police and the MENRO carried out law enforcement activities in Burdeos. Patrolling was deemed important to safeguard the gains of the project. The local police were enticed to join patrolling operations, particularly to protect Bantay Dagat volunteers from harassment.

Among the most important accomplishments of the SMMSR was the conduct of regular patrolling in the mangrove areas. Explained Joel Aman, SMMSR Chair, “*Kami ay naka-grupo sa dalawa. Bawat grupo ay nagpa-patrol tuwing ika-15 at ika-30 ng buwan, at ito ay nagsimula noon pang 2010. Ang oras ng pagpa-patrolya ay*

mula alas-dose ng tanghali hanggang alas-tres ng hapon para low tide at makakapaglakad kami – dahil wala naman kaming bangka – sa loob ng pakatan ng may halos 100,000 mangroves [We are grouped into two. Each group conducts patrolling every fifteenth and thirtieth of the month, and this started in 2010. Patrolling is conducted from 12:00 noon to 3:00 in the afternoon during low tide, so we could walk – we do not have boats – in areas with almost 100,000 mangroves].”

Their capacity to conduct mangrove surveillance and patrolling was enhanced by their participation in paralegal trainings, and formal deputation as DENRO.

Burdeos MFARMC proudly claims that the intensification of fishery law enforcement, including apprehensions and filing of cases was one of their major milestones in 2010.



miyembro ng aming samahan na may negosyong paglalambanog ang tumiwalag na. Siguro’y sa dahilang magkaiba ang kanilang prinsipyo sa ginagawa. Bukod sa pagpapalit ng tanim na sasa sa mga datihang bakhawan upang kalaunan ay pagkunan ng lambanog, ang magluto ng isang container (mga 20 litro) ay mangangailangan pa ng 1 kubikong gatong na kadalasan naman ay sa pakatan din kukunin. Kaya mahalaga ang may alternatibong pagkakakitaan na di umaasa sa masisirang bakhawan [Many of the original members of our organization who are into lambanog production already left PPSTA. This is probably because of the inconsistency of their principles with what they actually do. Aside from replacing the original mangroves with the nipa species to eventually serve as sources of lambanog, cooking one container (about 20 liters) would still need 1 cubic meter of fuelwood, which are usually also taken from mangroves. Thus, it is important to have alternative livelihood that does not need mangrove destruction].”

In response, the project piloted the adoption of an environment-friendly mud crab pen culture. This is one of the components of the operationalized and executed Mangrove Protection and Rehabilitation Plan of Burdeos and Polillo. The aquasilviculture technology demonstrated that it is possible for development to not sacrifice the integrity of mangrove forests. Project participants reported that the seedlings planted around the mud crab pen had almost a hundred-percent survival rate.

Further, to address demand for seedlings and generate income for their respective organizations, FOs were considering to charge every

The study on mangrove depletion served as basis for developing plans for mangrove restoration in Quezon.

Offering alternative livelihood options. One of the major reasons for mangrove deforestation is the excessive extraction of mangrove trees and by-products for subsistence and commercial use without regard for their sustainability. This is worsened by the lack of options for income generation. To illustrate, the existence of a local industry of lambanog production in Quezon Province poses a big challenge to the conservation efforts.

Norberto Mundia, a member of PPSTA in Polillo said, “*Marami nga sa mga orihinal na*

Mangrove propagules that are ready for planting.



seedling they distributed. They hope that this will allow them to recover their expense and revolve the fund for continuous restocking.

Recognizing the critical contribution of the LGU. In Polillo, LGU support was very strong at the barangay level. In fact, SMMSI member Garry Nazareno, who is also the Barangay Secretary of Sibulan, has been instrumental in gaining access to financial assistance from the Barangay Council to support the nursery establishment and planning activities of the organization. Congruently, the ASFFIL Secretary, who was also the barangay secretary, has been able to influence the barangay to impose penalties for cutting mangroves. As penalty, those caught are required to plant 1,000 mangrove seedlings for every single mangrove cut.

In Burdeos, full support was provided by their municipal LGU and council members. This,

complemented by the commitment of Bantay Dagat, led to the eventual curb in illegal fishing activities and mangrove cutting. Through the employment of the “*bibingka* (rice cake) approach,” actions took place simultaneously at both lower and upper levels, in this case, community and LGU levels, which translated to better impact in mangrove conservation.

Strengthening sustainability and enhancing replicability. While many positive outcomes have come out of the project, the main challenge was how to sustain the efforts and expand the conservation areas. Development does not happen overnight. Thus, the catalytic role of intermediary institutions like the PTFCF through the ISO is important in enabling the coastal communities to embrace conservation efforts and consequently derive benefits from it.

“*Ngayon nga, tingnan ninyo. Yung kulang isang oras na paglilibot namin sa inyo sa pakatan, di lang limang sando bag ang nakuha natin na sihi. Maraming pamilya na ang makakapag-ulam nito. Ibig sabihin, marami na ulit sihi ang mamumuhay sa pakatan dahil sa mga itinanim naming mga bakhaw noong mga nakaraang taon.* [At present, you can observe that in less than an hour of taking you around the mangrove areas, we have already collected five bags of *sihi*, or sea snails. These can already feed many families. This indicates that many more *sihi* will survive in the mangrove areas because of the mangroves that we have planted here in the past years],” said Emma Obispo, Secretary of SMMSR.

Moreover, as Mayor Gil Establecida of Burdeos said, “Sustainability at a certain point is in the hands of whoever is in the position.



How can this continue if the LGU is not able to support this, whether financially or technically, especially at the start of the project? We at the LGU are still committed to partnering with SMMSR, ISO and PTFCF and hopefully, we’ll be able to expand to other coastal barangays. I hope that the succeeding administrations will continue what we have started and be inspired to replicate it in other areas.”

Building on the outcomes

Towards the end of the project, ISO was granted financial assistance from the United Nations Development Programme Small Grants Program to institute marine protected areas (MPAs) with the intent of emphasizing the interdependence of mangroves and coral reefs.

The FOs in Burdeos and Polillo are continuously restocking their nurseries to provide a steady source of planting materials, looking at the possibility of transforming this into a community livelihood. They are also looking at the possibility of federating their organizations to be able to present a concrete and mass-based stand on certain issues and concerns. There are bigger and more challenges to face but the LGU, the NGO partners and the communities in Burdeos and Polillo are confident that the partnerships they have established can accomplish the tasks ahead.

From Ripples to Rolls of Success



Restoring the Mangrove Resources in Sibuguey Bay

Introduction

Kabasalan in faraway Zamboanga Sibugay was once noted for its very high rainfall and wet weather throughout the year; hence, the municipality's name, which old accounts claim came from its Filipino root word "*basa*," or wet. Beyond its obvious association with wet weather, the town is fast solidifying its claim as the province's premier seafood capital as well as a notable ecotourism destination. This resulted from the dedicated efforts of the local government, a driven PO and two NGOs with the vision and determination to make a significant change in the lives of coastal communities. Barangay Concepcion in Kabasalan is at the hub of this amazing transformation: what were once denuded coastal areas and a wide expanse of abandoned fishponds are now healthy, verdant mangrove forests supporting a rich, diverse array of marine and terrestrial life.



A boardwalk was constructed adjacent to the KGMC training center in Brgy. Concepcion so that nature lovers, students, and tourists can appreciate the beauty of a healthy mangrove habitat.

Synergy at Work

The Xavier Agricultural Extension Services (XAES), an NGO affiliated with the College of Agriculture of the Xavier University in Cagayan de Oro City, has been assisting rural communities in the Zamboanga Peninsula since the late 1980s. Bishop Federico Escaler, a prominent Xavier University official who was assigned to the area, felt that the Peninsula needed urgent assistance because of the many socioeconomic issues affecting the communities, including environmental degradation, illegal fishing and widespread poverty. It has been thirty years since but Nestor Carbonera, XAES Director, remembers this assignment very well. "I was alone, with a tiny office, with no vehicle, but with clear instructions to assist the poor farmers and fishers in the remote areas of the province," he recalled. Slowly, he was able to access support from foreign donors such as the Canada International Development Agency, European NGOs particularly from Germany and the Netherlands, and government line agencies such as the Department of Agrarian Reform (DAR).

"XAES was very low-profile at first, but we started making a name for ourselves with the implementation of many small community-based projects," Carbonera noted with pride. "An NGO cannot effect change alone. It needs government support especially in providing counterpart resources," he added.

XAES first crossed paths with the PO, Kapunungan sa Gagmay'ng Mangingisda sa Concepcion (KGMC) in the early 2000s. XAES was then implementing the Western Mindanao Community Initiative Project (WMCIP) of the

DAR, and KGMC was one of the beneficiaries. The Project provided seed capital to community groups to implement livelihood activities. With Php150,000 (US\$3,466) in hand and much optimism to spare, KGMC embarked on grouper (*lapu-lapu*) cage culture and oyster farming. These projects, which continue up to this day, turned out to be very successful. Carbonera noticed from the outset the group's earnestness and determination to succeed and promised the PO that they will continue to work in future projects even after the end of WMCIP.

The fruitful partnership between XAES, PTFCF and KGMC came about when Felix Badon of XAES attended a consultative meeting organized by the FPE. Also in that meeting was Dr. Proserpina Gomez-Roxas, one of FPE's senior officials who is also a trustee of PTFCF. She encouraged Badon to submit a concept paper and project proposal for possible funding by PTFCF. XAES and KGMC saw this as the opportunity to renew their collaboration and work together to save Sibuguey Bay's mangrove resources. In January 2007, XAES became PTFCF's partner in the project, "Rehabilitation and Enhancement of Denuded and Exploited Mangrove Resources" (REDEEM), in Sibuguey Bay.

A Crucial Intervention

The REDEEM Project could not have come at a better time. Since the mid-1980s, the mangrove forest cover around Sibuguey Bay has been decreasing at an alarming rate. Much of the mangrove forest has been converted

into fishponds, cut illegally for the production of charcoal, for construction, or for coastal settlements. This has resulted in the decline in fish catch from 7-10 kg per fishing trip from a decade ago to only 2 kg. It has also made coastal villages, such as Barangay Concepcion, vulnerable to flooding and storm surges.

With a budget of almost Php2 million, REDEEM focused on three key development areas: (1) enhancement of coastal resources by reforesting a total of 60 ha of mangrove forests in Barangays Concepcion, Nazareth, Makilas, and Buluan; (2) strengthening of four FOs to support efforts in protection, conservation and sustainable utilization of coastal resources; and (3) assistance for sustainable aquaculture interventions for livelihood. The expected long-term benefits of the project were the increase of spawning and feeding grounds for fish and commercially important species, and improvement in income and quality of life of beneficiaries.

Around 374 fisherfolk from four POs in Kabasalan and Ipil were mobilized for REDEEM. Besides KGMC, the other PO beneficiaries were the Makilas Small Fishermen Association (MAKILAS), Barangay Buluan Fisherfolk Organization (BBFO), and the Kapunungan sa mga Gagmay'ng Mangingisda sa Nazareth (KAGAMANA).

Surpassing Targets

To capacitate the POs, XAES conducted training and workshops on a wide range of topics such as mangrove propagule collection, handling,

Aquaculture-based livelihood assistance, such as KGMC's grouper (*lapu-lapu*) cage farm is one of the key components of the REDEEM project.



Patrolling the mangrove forests is part of REDEEM's many conservation initiatives to safeguard Sibuguey Bay's coastal resources.





planting, and maintenance; community-based resource management; paralegal; and forest and land use. Under the mangrove reforestation component, PO members were paid a peso for each propagule or seedling planted. After a year of implementation, the POs collected and planted 685,000 propagules, seedlings and saplings of various species exceeding the target of 602,900 by around 14 percent, notwithstanding early mortalities. With the number of planting materials surpassed, the area coverage likewise expanded from the target of 60 ha to 71.5 ha.

Under the Project, the four PO-beneficiaries were required to apply for, and secure, Co-Management Agreement Certifications signed by the DENR and the LGUs. These certifications served as recognition of the POs' efforts to secure tenurial rights over reforested areas. KGMC had a huge advantage over the three other POs because they had already been granted a Co-Management Agreement Certification years earlier. By the time the REDEEM Project was underway in 2007, KGMC already had the tenurial

rights to manage 46 ha of mangroves in Brgy. Concepcion. This instrument enabled the PO to plant more mangroves in a bigger area resulting in REDEEM targets being surpassed. This also provided KGMC a 5-percent utilization area where members can sustainably harvest wood for home consumption, such as for firewood and house repair. The remaining 95 percent were retained and protected carefully to serve as a source of planting materials.

As an incentive for their conservation efforts, PTFCF provided each PO with a start-up capital of Php40,000 (US\$924) to implement a livelihood project. Barangays Makilas and Nazareth operated one and two units of fish corral, respectively; Barangay Concepcion was engaged in oyster culture; and Barangay Buluan was provided with a unit of gill net. These projects netted modest profits with the KGMC in Brgy. Concepcion and KAGAMANA in Brgy. Nazareth reporting net incomes of Php21,000 (US\$485) and Php19,194 (US\$443), respectively, in the first few months of operation. More than the monetary rewards, PO members were able to enhance their capacities, one of

With technical assistance from PTFCF, KGMC was successful in establishing multi-species mangrove nurseries.

which was generating funds for their respective organizations.

XAES, as the project grantee, regularly monitored the operations of the four POs, and provided on-site coaching and assistance in the preparation of reports and review of financial records. Director Carbonera knew, based on his experience, that a PO's success depends on how much they are willing to learn.

"There are those [POs] who have very good vision and mission statements but have not done anything. The type of support should be balanced with the capacity of the PO to absorb learning," he explained. "I am happy that of the one hundred barangay-based POs that XAES helped organize, at least 60 percent are still functioning," he added.

While the other three POs were able to meet their REDEEM targets, it was KGMC that performed well beyond expectations. Not only did KGMC plant more mangroves in a bigger area, they were also able to support the three other POs by giving useful livelihood ideas and technical advice especially in setting up mangrove nurseries.

A Champion with a Challenging Idea

At the heart of KGMC's success is PO President Roberto Ballon, nicknamed Ka Dodoy. He is a slightly-built, affable man in his mid-40s with a quick wit and jovial disposition. Ka Dodoy recounted that as a young boy of 16, his love for the environment began as a member of the local church organization in Kabasalan and was further fueled by participating in

NGO-sponsored training. He and his parents were primarily fishers, migrating from Capiz Province in the 1980s in search of better opportunities – and better fishing grounds – in Mindanao. Ka Dodoy clearly remembered the time when fish and other marine resources were abundant in the area. However, over the years, he saw their catch and that of other fishers dwindle because of illegal fishing and habitat destruction.

Realizing that they had to do something to stop the habitat loss, Dodoy and other KGMC members started planting mangrove propagules along the riverbanks in 1986. "*Pinagtatawanan kami ng ibang tao noon kasi sira daw ang ulo namin at nagtatanim ng bakawan eh marami pa naman daw natitira* [People were laughing at us and called us crazy because there were still dense mangrove forests at that time]," recalled Dodoy with a smile. Members had to shell out their own money for food and gasoline (for their boats) until they were able to plant 50 ha with mangroves. Many members were at first hopeful that they would be compensated for their efforts by the government; however, when this did not happen, the number of volunteers steadily declined. When Dodoy became KGMC Secretary in 1988, there were thirty-six active members; but by 1994, this number has gone down to eighteen, and by 2000, when Dodoy was elected PO President, only three members were still doing volunteer planting work. Dodoy and his loyal members, however, persisted.

As Dodoy explained, "*Ang mga pamilya namin ay sa dagat umaasa upang mabuhay, hindi sa mga pulitiko o sa ibang tao, kaya't dapat lang na una natin itong pangalagaan*

[Our families depend on the sea for our survival, not on politicians or other people, so it is only right that we make its protection our priority].”

Valuable Education on the Ground

Having planted mangroves for more than two decades, KGMC has developed practical techniques to increase plant survival. Ka Dodoy recounted, “*Nung una kaming nagtatanim, mataas ang porsyento ng namamatay na propagules ng bakhaw kasi nasisira ng barnacles o ng malakas na alon* [When we first started planting, propagule mortality of the *Rhizophora* species was high because of barnacle infestation and strong waves].” They found out through trial and error that survival will increase if they plant the *bakhaw* propagules on higher intertidal grounds where many abandoned fishponds are located. They have discovered also that mangrove seedlings will grow best in sites where they naturally occur – a fact that, unfortunately, is lost on many agencies that promote planting *bakhaw* in open, wave-exposed portions of the coastline.

The PO members, led by Dodoy, have also developed practical nursery techniques for *pagatpat* (*Sonneratia alba*), *miapi* (*Avicennia marina*) and *bakhaw* (*Rhizophora spp*), allowing them to use different species in their planting programs. Dodoy is very proud of what his group has accomplished. “*Wala namang nakapag-college sa amin, puro high school lang kami; pero mahilig talaga kaming matuto, dumiskubre at sumubok ng iba’t-ibang paraan* [None of us went to college, all of us just reached

high school; but we love to learn and test new things],” he explained. Indeed, the nursery techniques he developed for *S. alba* have been presented in technical forums and have also been shared with other POs and NGOs. He credits PTFCF for giving very useful technical advice, and providing support for his participation in technical conferences; which further enhanced his curiosity to try new ideas.

Their experience with REDEEM taught the POs that for reforestation projects, it is good to mix species and plant them where they are best suited. Proper site selection is, thus, a very important factor prior to planting to ensure better survival rates of the seedlings or propagules. Also, the occurrence of typhoons and strong wave surges that damaged plantations during the early phase of the project made it necessary for *Rhizophora* propagules to be potted first and raised in a nursery for three to four months (when four to six leaves have appeared) to enable the plants to establish a strong root system prior to transplantation.

The nursery phase is also very crucial for *pagatpat* and *miapi*, which have small seeds and need to be reared in polybags for several months, or when the seedlings have reached a height of at least 12 inches, before they can be used for planting purposes. With the help of PTFCF, KGMC was able to improve on their nursery techniques – from collecting mature seeds (the best time is May-June), seed extraction (using rainwater will increase survival rate), sun-drying for three to four hours to enhance seed germination, sowing in soil beds (best temperature is at 35° C) and potting using polybags, to planting in the project sites.

Poster presented at the 1st Asian Congress on Mangrove Research and Development.

The POs also installed net barriers along the perimeter to protect newly planted seedlings from strong waves, grazing animals and fishers who carelessly trample on the plants while towing their boats. The use of billboards and tarpaulins in the project sites was an effective strategy in informing residents and nearby communities about the project and imparting basic values on coastal resource management and environmental protection.

Unique Ways in Enforcing the Law

As previously mentioned, KGMC surpassed their REDEEM targets. Even more remarkable was that on top of the REDEEM Project, the PO was also actively involved in other coastal resource management (CRM) activities in their municipality such as law enforcement. Starting 2007, the Kabalasan LGU has entrusted to KGMC the responsibility of patrolling near shore waters and mangrove forests, giving them not just a patrol boat unit but also appropriating Php500,000 (US\$11,553) each year for *Bantay Dagat* (sea watch) operations. PTFCF’s support included provision of training on paralegal aspects and law enforcement.

Among the clever strategies that Dodoy employed was to put eight Bantay Dagat members in a boat, instructing four of the men to crouch and hide so they will not be visible to illegal fishers and mangrove harvesters. They then slipped out of the boat furtively while the other men made a quick patrol of the area and leave. “*Akala ng mga nag-iilgal umalis na kaya tuloy ang pagputol. Biglang gulat nila may*

Recognizing that law enforcement is crucial in resource management, the Kabasalan LGU has partnered with KGMC in conducting regular patrols to apprehend illegal fishers and mangrove wood cutters.



Bantay Dagat pala na huhuli sa kanila. Tanong nila agad, pano nangyari yon? [Violators would go back to mangrove cutting thinking that the boat with the law enforcers had left. They would then be shocked when they see other Bantay Dagat members in the area ready to apprehend them. They would ask themselves, ‘how did that happen?],’ Dodoy said with a laugh.

Violators caught by the Bantay Dagat are brought to the KGMC office, where they are given food and an orientation on basic fishery and forestry laws. When the “friendly” approach does not work and the offense is repeated, gears are impounded and violators are brought to the police. Through KGMC’s law enforcement efforts, all the filter nets in Barangay Concepcion have been dismantled. Filter nets installed in rivers often obstruct navigation and,

because of their fine mesh size, indiscriminately catch immature and juvenile fish.

Kabasalan Vice Mayor Freddie Chu, a three-termer and mayor when the REDEEM Project started in 2007, is proud to have given full, unequivocal support in the fight against illegal fishing and mangrove cutting. “I grew up surrounded by mangroves and I realized that if you cut them, the fish catch and the harvest of shrimps and shells will go down,” he said. “Because of our serious law enforcement efforts, mangrove cutting has been reduced significantly, and the livelihood of people has improved. I don’t think many mayors will do what I did for fear of losing in the elections and because there’s no money to be made. Law enforcement, therefore, becomes a personal crusade of the chief executive,” he added.

Spreading the Benefits and Opportunities

Following the REDEEM Project’s completion and the POs’ good performance, PTFCF funded a similar twelve-month project in 2008, again in partnership with XAES. This was the Participatory Rehabilitation of Overexploited Mangroves Through Environment-Friendly, Community Driven and Technically Sound Strategies of Sibuguey Bay (PROTECT) Project. This covered a bigger target area – 80 ha spread across four sites in the Municipality of Ipil – with a target of 807,100 mangrove seedlings and propagules planted. Ipil was selected as the priority site because of the alarming condition of its mangrove resources; from roughly 2,500 ha

Roberto Ballon, KGMC President, proudly shows-off the fat lobsters they sell to traders in the Zamboanga Peninsula. He credits the restoration of mangroves for bringing back the rich resources of Sibuguey Bay.



Other follow-up projects to REDEEM and PROTECT were SMILE 1 and 2 that built on the lessons learned and successes of the earlier projects, this time covering several adjacent coastal municipalities of Sibuguey Bay.

of mangroves decades back, the mangrove cover has declined to just 10 percent of its original size. Ipil Mayor Eldwin Alibutdan was a very supportive LGU partner since he has adopted mangrove rehabilitation as his town’s flagship project for food security and climate change adaptation, and has allocated a counterpart fund of Php200,000 (US\$4,621) for PROTECT.

“My town has ten densely populated barangays with people needing to work and eat. The government cannot give them Php100 (US\$2.31) each day for food nor can I give them fish to eat daily. We need to help them protect their primary assets – the sea and its resources,” he pointed out.

Mayor Alibutdan summed up the problem in his municipality. “Mangroves are like a bank and people are withdrawing from this bank without putting anything back. They depend on the sea for their food, money, medicine, and for their children’s education; and so they should have an active role in protecting these resources,” he said. “The population increases but the coastal resources do not. That’s why I am very happy that XAES and PTFCF have been helping us,” he added.

The PROTECT Project was a success based on its accomplishments vis-à-vis its targets. The number of seedlings planted exceeded the target of 807,100; and a total of 175 fishers from the four POs were trained and capacitated on various aspects of CRM to enable them to better manage and protect their resources.

With the success of these two Projects, XAES and PTFCF expanded their sites to include more barangays and adjacent municipalities in subsequent collaborative efforts. Adopting

The PTFCF projects in Sibuguey Bay have been successful in mobilizing womenfolk and youth groups in forest conservation.



basically the same objectives, the two NGOs again partnered for the project, Sustaining the Mangrove Initiatives and Livelihood Enhancement (SMILE), in the municipalities of Ipil, R.T. Lim and Tungawan from May 2010 to May 2011. A follow-up project, SMILE 2, implemented from September 2011 to September 2012, covered new barangays in the three municipalities. Collectively, these projects were able to plant almost 2.4 million mangrove seedlings in 329.4 ha, including abandoned fishponds.

KGMC Paves the Way

What about KGMC – the PO that rose above many challenges in its early years and has become a model and an inspiration to other POs? After REDEEM, the KGMC, with the prodding and support of XAES, directly applied for and received a new grant from PTFCF. This

was the Coalition of Fisherfolk Associations for the Restoration of Sibuguey Bay's Overexploited Mangroves and Natural Resources in Siay, Naga, and Kabasalan, with a cleverly thought out acronym, CARBON-SINK. Basically following the same design as REDEEM but targeting two additional coastal municipalities, the new project progressed to a second phase (2011-2012), expanding to cover Paway and Alicia municipalities. The third phase, CARBON-SINK 3, which will end in 2014, covers all five municipalities.

KGMC, with only a handful of members in the 1980s, now has 320 members, all from Barangay Concepcion. As a matter of policy, all new members must plant from 100 to 500 propagules to instill from the outset a strong affinity with the environment. Ever the creative leader, Ka Dodoy has started a *Pera sa Basura* (Money in Garbage) program in Kabasalan, which encouraged people to join riverbank cleanups, segregate their waste materials and



Sibugay as its key corporate social responsibility program and has tapped KGMC to spearhead reforestation efforts in the province. Since 2008, the company, led by its President Ton Concepcion, has held the annual Condura Skyway Marathon to create awareness for its environmental platforms. In 2012 and 2013, the advocacy focused on mangrove protection; hence the Marathon theme, Run for the Mangroves. Over a million pesos (around US\$23,100) has been turned over by Condura to KGMC to reforest at least 20 ha of denuded forests of Sibugay and revert back abandoned fishponds to their original mangrove state.

properly dispose of their garbage. To up the ante, KGMC holds raffle draws every three months, giving the major winners a sack of rice and one bag of groceries. For this program, KGMC has thrice been awarded as Crown Winner by the Health and Nutrition Council of the local Department of Health.

Other accolades have poured in for Ka Dodoy and his group: the 2004-2005 Parangal ng Pangulo sa Natatanging Mangingisda, or Presidential Award for Outstanding Fisherfolk (Fish Culture Category), several Gawad Saka (farming awards) as Outstanding Fisherfolk (Fish Culture Category) of the Department of Agriculture, Most Outstanding Organization Leader by the Ateneo de Zamboanga School of Medicine and Most Outstanding Fisherfolk Citizen by the Prudential Bank of the Philippines, among many others.

Meanwhile, Concepcion Durables, Inc. through its partnership with PTFCF, has identified mangrove restoration in Zamboanga

Hard Work and Persistence Pay Big Rewards

Six years after PTFCF and XAES first partnered to rescue the mangroves of Sibuguey Bay, many positive impacts have emerged. The mangrove forest cover of the Bay has dramatically increased and the trees planted in 2007 have started bearing fruit. Mangrove and associated wildlife such as wild ducks, herons and monkeys, have returned and so have groupers, snappers, shrimps and even lobsters. Kabasalan beneficiaries reported that their fish catch has improved from 1.5 kg to 6 kg per fishing trip, and their fishing hours have gone down from eight hours to three to five hours per trip. Members are now able to buy boat engines and simple household appliances, and send their children to school.

Mayor Alibutdan credits the PTFCF projects for bringing back the fish resources of Ipil. "Our fishers can attest that their catch has

increased from 2-3 kg per day to 5-10 kg per day. My constituents require 2,000 kg to 2,500 kg of fish daily for their consumption, and I am glad that the project has helped me address that,” he said. He also noticed that with the increased mangrove cover, the impact of storm surges and the incidence of flooding in his town have been reduced.

Spreading the Ripples of Success

KGMC has expanded its mangrove reforestation efforts not just in Kabasalan but in nearby municipalities as well, under the PTFCF-funded CARBON SINK 3 Project. The group has started promoting bamboo planting under the same project to reduce mangrove cutting and provide an alternative for mangrove wood, which is used traditionally as poles and timber for fish drying and oyster culture.

A priority activity of KGMC is assisting Muslim communities – including former members of the Moro Islamic Liberation Front (MILF) – in Ipil and nearby municipalities organize themselves into POs so they can participate in mangrove reforestation, coastal conservation and livelihood projects. There are still hundreds of hectares of abandoned fishponds in Sibuguey Bay that the group is eager to rehabilitate with the help of other stakeholders.

The grouper culture project that the PO started in 2008 has grown to a commercial-scale enterprise expanding from a 12-cage module to an 800-cage flourishing business. Because of their strict protection and successful planting

programs, there is an abundant supply of wild grouper juveniles to be stocked in the cages. In 2011, the PO received a Php3 million (US\$69,319) grant from the USAID’s Growth with Equity in Mindanao. The money was used to build a spacious concrete venue that will be used for PO trainings and meetings.

Ka Dodoy is excited about their new venture: the Sea Palace, a picnic/meeting area where tourists can relax and enjoy the seafood after strolling through the mangrove ecopark. Asked why they chose the name Sea Palace when the structure is closer to the river than the open sea, Ka Dodoy merrily replied: “That’s because our specialties will be *sea-nugba* (grilled seafood), *sea-nabawan* (seafood in broth) and *sea-si* (oysters)!”

With growing recognition and offers of partnership coming their way, Dodoy sums up their advantage over other POs: “*Ang importante kasi ang track record. Yung ibang grupo meron lang track, yung iba naman record lang. Kami siguro parehong meron!* [The important thing is track record. Some groups only have ‘track,’ others only have ‘record.’ KGMC I believe has both!]”

There are still many environmental issues to address – mangrove cutting, for one, still continues albeit on a reduced scale. However, with strong partnerships established, and with the support of dedicated NGOs and communities now actively involved in conservation efforts, things are indeed looking good not just for Brgy. Concepcion in Kabasalan, but for the rest of Sibuguey Bay.

The Upper Pangi Fisherfolk Organization based in the town of Ipil is one of PTFCF’s beneficiaries under the SMIE project.



Perspective : Vice Mayor Freddie Chu, Kabasalan Municipality

Freddie Chu was Kabasalan mayor when the REDEEM project started in 2007. He gives full credit to KGMC for being a very active and vigilant partner in the crusade to protect the coastal environment. The PO, he said “has become an extension of the LGU” that a big chunk of the annual allocation for fisheries of Php1.2 million (US\$27,727) is downloaded directly to the PO to be used for law enforcement, coastal conservation and livelihood projects.

Vice Mayor Chu is proud to say that he is one of a few LGUs that battled these problems head-on regardless of the threats, offers of bribes by illegal businesses and possible loss of votes

come election time. “I was willing to die for my principles,” he disclosed, recalling those trying times when the odds tilted heavily against his favor. “I grew up surrounded by mangroves, and I knew as a young boy how important these mangroves were as a source of food for the people,” he explained.

With plentiful marine resources and a huge mangrove ecopark that is sure to lure nature lovers, Vice Mayor Chu is excited about his new dream project: making Kabasalan a must-see tourist destination. He also has big plans for Barangay Concepcion – such as building concrete roads, sanitary facilities and a gym to hold social events – as an incentive for the cooperation that the people have given, and are still giving, to the LGU in support of its environmental crusade.



MOVING FORWARD
in Forest
Conservation

Threats to Philippine forests continue to heighten from all fronts – illegal logging, forest land conversion, unsustainable use of forest resources and increasing impacts of climate change.

Overcoming these threats require that efforts at forest conservation be not just sustained but also heightened. For PTFCF, the ways forward involve a “re-visioning” of its strategy, organizational capacity development and a re-focusing of its grants program.



PTFCF Strategy (2013-2018)

In June 2013, the Board of Trustees embarked on a strategic planning workshop – first to assess how it has progressed in the last ten years and then to map out the short- and long-term future of the Foundation. To guide its path forward, the Board revisited its organizational vision, mission and goals. From this exercise, it reformulated its vision of a “*biologically diverse Philippine forests that are sustainably managed and equitably accessible to responsible stakeholders.*” To realize its vision and mission, the Board expanded the Foundation’s organizational objectives from the original four to seven, namely:

1. Sustainable and better management of forests in key areas;
2. Scaling up of best practices in forest conservation at the national level;
3. Improvement of the quality of life of communities tasked as forest stewards;
4. Development of broad participatory, multi-stakeholder modality for forest conservation;
5. Strengthening of the financial sustainability of the Foundation;
6. Research-based generation and promotion of knowledge on forest conservation; and
7. Improvement of organizational systems to support greater accountability, effectiveness and efficiency.



Organizational Capacity Development

PTFCF cannot accomplish all its lofty goals unless it also works to build up its own capacity to be a catalyst and an enabler. Thus, organizational strengthening shall be one of its key strategic objectives. The Foundation will enhance its existing organizational systems and develop new ones to support its revitalized thrusts. Policies on grant administration and fund administration will be periodically updated to reflect current needs and requirements.

In moving forward, the Foundation will emphasize its role as a catalyst and an enabler, continuously pushing key stakeholders in forest conservation towards achieving the desired sub-sector outcomes and impacts. Its main medium remains the forest conservation grants supported by a more transparent, effective and efficient grant-making process.

As an enabler, the Foundation shall work to ensure the success of its partner-CSOs in implementing on-the-ground projects on sustainable forest management. This includes building up the capacity of the CSOs in proposal writing to ensure higher chances of getting proposals approved. Getting more feasible project proposals approved redounds to the benefit of the Foundation because it not only increases the number of partners working towards the organization’s goals but also effectively increases the resources made available for forest conservation through counter-parting.

The scaling up of best practices is also intended to support the development and effective implementation of responsive national policies on forest conservation and

Under each objective, corresponding key result areas (KRAs), key performance indicators (KPIs) and program strategies were formulated. This alignment provides a clearer perspective as to how PTFCF intends to move forward in forest conservation. The strategic directions are clustered into four themes: scaling up of best practices at the national level; underscoring climate change vis-à-vis forest conservation; strengthening of the promotion of science-based forest conservation; and building up organizational capacity.

management. This requires critical partnerships with national and local governments because of their regulatory and policing powers. Corollary to this is the development of local and national capacities for monitoring, assessment and law enforcement.

Scaling up of best practices also require more partnerships other than with government. Thus, the Foundation shall continue to pursue meaningful partnerships with the business sector, academe and other advocates of forest conservation focusing on the three-fold objectives of raising more resources for forest conservation; increasing national awareness on forest conservation; and bridging partnerships for the NGO/CSO proponents and grantees.

The Philippine Tropical Forest Conservation Fund was initially intended to support forest conservation within a fourteen-year time period. However, PTFCF is aware that the gargantuan task of protecting and conserving Philippine forests cannot be accomplished within such a short period of time. A lot more needs to be done. Thus, in the next three years, PTFCF shall develop mechanisms to ensure the financial sustainability of the Foundation. Actions toward this goal shall include: generating additional income stream; generating new and unrestricted funds; implementation of an endowment fund-raising activity; and continuously improving the Foundation's investment strategy.

Moving Towards Landscape and Integrated Ecosystem Conservation

In the past, the Foundation had worked on small and medium projects in numerous forested areas. It shall now endeavor to support larger projects – across landscapes, across protected areas and across municipalities. PTFCF, however, shall continue to prioritize projects in areas where biodiversity and ecosystem services are most needed, that is, the most threatened areas. It will design and support integrated ecosystems management (IEM) and/or landscape conservation approaches or projects. Likewise, the Foundation will continue to ensure that projects receiving grants are located in KBAs, old growth forests, unique representative forest areas, threatened watersheds and priority conservation areas identified by the government and other conservation groups.

For the next years, PTFCF will focus its grant making support on the following:

A. Continuing forest conservation programs and projects, especially mangrove forest conservation and community conserved areas

Community-based conservation efforts have been proven effective in reducing threats to the forests, increasing forest cover and improving livelihoods of partner communities. These projects will be scaled up across larger ecosystems, involving more communities and engaging more partners. In addition to increasing the number of forest areas under improved management, new funding will be provided to current partners to support



sustainability efforts and increased private sector and LGU involvement.

B. Enhancing Forest Conservation in National Parks and Protected Areas

Efforts at conserving forests within national parks and protected areas will be enhanced. Current PTFCF-supported efforts are often implemented at the project area level, with short-term impacts on overall protected area management. With more resources allocated for protected area support, current projects will be directed towards more long-term activities involving more stakeholders. Indicative activities include enabling information-based and science-driven decision making, enhancing forest protection approaches and protocols, addressing livelihood and tenure issues of forest-dependent communities and indigenous peoples living in or adjacent to parks and protected areas, and developing sustainability mechanisms to ensure park maintenance and operations.

A key thrust is the development of sustainability options to support forest protection and restoration of protected areas, such as endowments and PES schemes. Current management and protection efforts are hamstrung by the allocation of limited resources and over-reliance on bilateral funding. Projects along this line will study and develop models for financial sustainability for national parks and protected areas.

C. Watershed Conservation

Efforts to conserve watersheds will enhance forest biodiversity as well as improve the provisioning of ecosystem services. However, given the scale of restoration efforts and the resources required to accomplish it, partnerships between the public sector, civil society and the private sector are necessary. PTFCF projects will create and foster public-private partnerships (PPPs), develop watershed management plans and institutionalize multi-stakeholder management arrangements, and initiate community enterprises that advance community livelihood consistent with watershed conservation goals.

Aside from large watersheds, PTFCF will support conservation efforts for sub-watersheds or micro-watersheds that service a relatively small area with definite users and stakeholders. These micro-watersheds usually service 50- to 100-hectare agricultural areas farmed by small landholders and farmer cooperatives. PTFCF will support projects that link forest protection and restoration activities by upland communities to water provisioning

of agricultural lands through payments for ecosystem services and/or community agreements. Projects such as this will compensate upland communities for their effort and inhibit them from engaging in activities that will degrade forests while ensuring sustained delivery of watershed services.

D. Forest conservation and REDD Plus

The country has adopted a Philippine National REDD Plus Strategy (PNRPS) that aims to reduce forest degradation and deforestation, reduce poverty in the uplands, conserve biodiversity and improve forest governance. PTFCF supports the PNRPS since it is another tool for improving forest quality and quantity, strengthening the gains of community-based forest management and enhancing forest governance and management.

The PNRPS assumes a ten-year time horizon (2010-2020) and serves as approximate guide for the development of REDD-plus activities in the Philippines. The PNRPS does not seek to prioritize strategies and activities within these phases or establish related budgets. Priority-setting and budgeting will be part of future action planning.

Action planning will also elaborate plans about how to scale up from the readiness phase to full engagement. However, the PNRPS timeline does provide insight into the process of early REDD-plus development and scaling up towards national-level engagement.

Consistent with the PNRPS, PTFCF will support activities that focus on REDD Plus readiness including (a) capacity building, consultation and planning, and integration of REDD Plus into DENR programs, (b) reform of policies for community and biodiversity safeguards, and (c) development of Monitoring, Recording and Verification (MRV) standards for forest carbon accounting.

Modest gains in forest conservation have been achieved in the past ten years owing to the concerted efforts of the Foundation and its partners to increase knowledge on forestry conservation, protect and manage forests, and develop sustainable forest-based community enterprises. The next ten years require enhanced grant making and project management, the development of improved monitoring and evaluation tools, increased efficiency in financial management, and continuing support for community-driven forest conservation actions with larger impacts across ecosystems and landscapes.

A young boy with dark, curly hair is smiling broadly, looking towards the camera. He is shirtless and wearing a red cloth around his waist. He is crouching in a field of tall green grass and dry straw. In his hands, he holds a small, vibrant green plant seedling with several leaves. The background is filled with more of the same vegetation, creating a lush, natural setting.

Moving forward, PTFCF shall strengthen the interconnectedness of forests, people and development. PTFCF's forest conservation efforts are about "connecting forests, people and development" because one cannot be without the others. On the one hand, forest conservation cannot be achieved without the people's active involvement. On the other hand, sustainable development cannot be realized without the ecosystem services provided by forests.

