

BEACONS

STORIES FROM THE CORAL TRIANGLE

PHILIPPINES





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Managing Editor : Elvira C. Ablaza

Production Manager : Lourdes Margarita A. Caballero

Editorial Development : Raul G. Roldan

Contributing Writers : Edgar Bagasol Jr., Lourdes Margarita A. Caballero,
Angelo Jose Lumba, Christian T. Rieza, Raul G. Roldan,
Dana Rose J. Salonoy

Photo Credits : Benjamin Gonzales, Noel Guevara, Angelo Jose Lumba,
Raul G. Roldan, Aman Santos, Roger Savella,
Coastal and Marine Division, Biodiversity Management Bureau - DENR

Design and Layout: Aman Santos

For more information, please contact:

Asian Development Bank

6 ADB Avenue, Mandaluyong City, 1550

Metro Manila, Philippines

Tel: +63 2 632 4444; Fax: +63 2 636 2444

www.adb.org

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CONTENTS

| | |
|-----|--|
| 8 | Preface |
| 13 | Introduction |
| 22 | Stories from the Coral Triangle - Philippines |
| 24 | Molbog Teacher Inspires Teens To Create Organic Farms |
| 40 | Mangrove Cutters Then, Sustainable Livelihood Champions Now |
| 56 | Growing Corals For Taytay Bay's Underwater Gardens |
| 72 | Palawan Farmer Revives Dying Farmlands |
| 84 | Conserving A Fragile Paradise For Marine Turtles |
| 102 | Young People Sowing the Seeds of Change in Palawan and Zamboanga |
| 124 | Perseverance Pays Off For Dumanquillas Bay's "Accidental" PASu |
| 140 | Acknowledgments |

PREFACE

It was a memorable journey marked by gruelling boat rides to remote islands, long treks along mangrove swamps and rocky coastlines, and hundreds of community meetings in far-flung coastal villages to gather support from stakeholders. Along the way, a treasure trove of experiences and valuable insights were gained from five years of implementing the Regional Technical Assistance for Coastal and Marine Resources Management in the Coral Triangle-Southeast Asia (CTI-SEA or RETA 7813) project in the Philippines.

As with all development work involving remote coastal communities, the project had its fair share of successes and frustrations, light bulb moments, and missteps.

It was not the remoteness and accessibility of the project sites – Balabac and Turtle Islands are two examples – that posed the biggest challenges. It was changing deeply rooted behaviors, mindsets, and practices and leading stakeholders toward responsible resource use, conservation, and environmental protection.

In some areas, the gestation period and transformation happened within the project life. Still, there were instances when change was slow because of political, sociocultural, and administrative factors at play.

The biggest successes of CTI-SEA came from unexpected partners: mangrove harvesters and illegal fishers who stopped their destructive practices and joined people's organizations, and teachers and students who took the lead in reforesting denuded mangrove forests and watershed areas and spreading environmental advocacy through creative platforms.

Equally satisfying was the inspiring outcome of the project's many capacity building activities for fishers, women, schools, indigenous peoples, and out-of-school youth.

“Beacons: Stories from the Coral Triangle–Philippines” is about outstanding partners who have succeeded in overcoming challenges and made a difference in their communities.

Readers will relish the inspiring story of Molbog teacher, Bay Buhangin; the tale of redemption of former mangrove cutter, Gaudiosa Alto, now a woman leader in her village; and the struggles of Rey San Jose, a resourceful farmer who brought his moribund farm back to life by planting climate-resilient rice varieties.

Other features in this compilation of true stories are the pilot payment for ecosystem services (PES) project on coral and giant clam gardening in Taytay Bay, the innovative school-driven environmental projects in Palawan Province and Zamboanga Peninsula, the humor-laden confessions of a lady forester turned protected area superintendent, and the strong collaborative efforts forged in the remote but magical Turtle Islands in Tawi-Tawi.

These are stories of celebration that can guide future plans for sustainable coastal resource management and community resilience, especially in an era of climate change.

The CTI-SEA Philippine team would like to extend its heartfelt appreciation to its partners from various local government units, national agencies, academe, people’s organizations, development partners, and the Philippine CTI National Coordinating Committee for making this five-year journey truly productive and rewarding.

Our special thanks to the Asian Development Bank and the Global Environment Facility for their unwavering guidance and funding support that made these uplifting success stories possible.





Noel Guevara / ADP



INTRODUCTION

Partners in Progress: Stories of Hope, Courage, and Triumph

A farmer restores life to a dying farm by planting a rice variety resistant to salt water. A young Molbog teacher inspires his students to grow their own vegetables, the organic way. Fishermen turned divers tend underwater gardens of corals and giant clams to restore damaged reefs.

These are but a few stories they want to share with the world. Each narrative is unique, but a common thread runs through each and every story.

Not only graphic testimonies of perseverance, hard work, faith, and hope, these are firsthand accounts of partnerships forged in the hope of achieving a common vision and attained through collaborative work.

Partnerships are important in a world constantly changing and challenged by factors like rapid population growth, human migration, food scarcity, environmental degradation, and climate change. Our storytellers from the provinces of Palawan, Zamboanga, and Tawi-Tawi, recount their experiences in overcoming these challenges and the positive impacts of their partnership with the Coral Triangle Initiative–Southeast Asia (CTI-SEA) funded by the Asian Development Bank (ADB) and the Global Environment Facility (GEF).

The story of this productive alliance can be traced to a pioneering commitment made at the sidelines of the United Nations Framework Committee on Climate Change (UNFCCC) conference in Bali, Indonesia in December 2007. It was the launch of an international support partnership that involved the participation of ADB, GEF, the United States and Australian governments, and several non-government organizations (NGOs) including the World Wildlife Fund (WWF), The Nature Conservancy (TNC), and Conservation International (CI).

The Coral Triangle is often referred to as the “Amazon of the Seas,” “Nursery of the Seas,” and “the most important underwater wilderness in the world.” But by whatever name it is called, it is acknowledged as the world’s center of marine biodiversity.





CORAL TRIANGLE INITIATIVE

ON CORAL REEFS, FISHERIES AND FOOD SECURITY





Papua New Guinea



Malaysia



Indonesia



Its mangroves, coral reefs, seagrass beds, and marine life sustain about 120 million people of different cultures living mostly in coastal communities. Billions of dollars in revenues come from the fisheries and tourism industries.

Yet the Coral Triangle is also one of the most vulnerable sites on the planet. And despite the richness of its resources, people living in its coastal areas are among the poorest in Southeast Asia.

Former Indonesian President Susilo Bambang Yudhoyono noted the glaring omission of the oceans, which cover about 72% of the earth's surface and are a critical food source, in a landmark agreement signed by world leaders at the United Nations Conference on Environment and Development (UNCED), more popularly known as the Earth Summit, which took place in Rio Janeiro in June 1992.

The lapse was “corrected” 17 years later in May 2009 with the signing of the Coral Triangle Initiative on Coral Reefs, Fisheries, and Food Security (CTI-CFF) by six Coral Triangle countries—Indonesia, Malaysia, Papua New Guinea, the Philippines, the Solomon Islands, and Timor-Leste. The leaders of these countries pledged to carry out “accelerated and collaborative action” for the establishment of marine protected areas, the protection of endangered species, improved management of fisheries, and the development of strategies to adapt to climate change. The agreement was signed during the World Ocean Conference in Manado, Indonesia on 15 May 2009. It launched the multilateral partnership of the six countries for the protection of the Coral Triangle.



Environmentalists have called the initiative one of the biggest conservation campaigns ever undertaken to save the marine world. However, the six countries needed a mechanism or a platform to address concerns related to the protection and conservation of coastal and marine resources in the three countries. Aid from concerned governments and development partners was instrumental in funding technical studies and ground-level assistance programs at the start of CTI. But the challenges that the countries faced were daunting and would need follow-up actions and interventions.

It was in response to these challenges that the Regional Technical Assistance for Coastal and Marine Resources Management in the Coral Triangle: Southeast Asia (TA 7813-REG), also known as RETA 7813 or CTI-SEA, was conceived.

The project's primary objective is to help the three Southeast Asian countries (or the CT3)—Indonesia, Malaysia, and the Philippines—get their respective national plans of action (NPOAs) implemented through a number of national and regional projects.



National activities are defined as those implemented within a specific country but have incremental benefits for the Sulu-Sulawesi Marine Ecoregion. On the other hand, transboundary issues that are tackled through collaborative efforts of the CT3 fall under regional projects.

In the Philippines, five project sites were identified in consultation with the National CTI Coordinating Committee (NCCC): Taytay and Balabac in Palawan Province; Turtle Islands Wildlife Sanctuary (TIWS) in Tawi-Tawi; Dumanquillas Bay in the Zamboanga Peninsula; and Tañon Strait in Central Visayas. Each site has a set of targets consistent with the five NPOA goals: (i) effective management of designated priority seascapes; (ii) establishment and effective management of marine protected areas (MPAs); (iii) ecosystem approach to fisheries management (EAFM); (iv) application of climate change adaptation (CCA) measures; and (v) improvement in the status of threatened species.



In Taytay, a resource-rich municipality in Northern Palawan that is vying to be the next big ecotourism destination, CTI-SEA focused on sustainable financing and climate change adaptation. Down south in Balabac municipality, the project worked with government and development partners in capacity building and livelihood assistance to address illegal, unreported, and unregulated (IUU) fishing, especially of marine turtles, and the establishment of community-based MPAs.

In Tañon Strait, the biggest nationally managed protected area in the country, support focused on capacity building and the formulation of the General Management Plan that was eventually adopted in 2015. Dumanquillas Bay, another protected area that straddles Zamboanga del Sur and Zamboanga Sibugay and is an important fishing ground for pelagic fish species, became the project's pilot EAFM site. In TIWS, interventions concentrated on CCA and the protection of the endangered marine turtles, the municipality's most important natural resource.



The seven stories featured in this book showcase successful initiatives from the project sites—some by unlikely partners like former mangrove cutters and schoolchildren from remote coastal communities, as well as insights on resource management and environmental protection from the perspective of various stakeholders, including a Molbog (an indigenous group) teacher and a marine turtle warden.

The stories acknowledge that there are still many serious issues confronting the Coral Triangle, a region richly blessed with an abundance of natural resources, which could vanish sooner, rather than later, if timely interventions do not take place. Fortunately, significant inroads have been made through CTI-SEA and other development projects, which have invested in the Coral Triangle. With enhanced partnerships and strong leadership by the Coral Triangle countries, more successes can be achieved in the future.







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MOLBOG TEACHER INSPIRES TEENS TO CREATE ORGANIC FARMS

In the tight Molbog community nestled in the remote municipality of Balabac, Palawan, people speak proudly of Bahirrudin “Bay” Buhangin as the local boy who made good but chose to stay behind, ignoring the attractions of urban living and higher pay.

Buhangin is one of four Molbogs from Balabac who were able to graduate from college with a degree in education. He now works at the Balabac National High School (BNHS), where he teaches values education and organic agriculture. Given the widespread illiteracy and poverty in their ethnic community, his achievement is nothing short of amazing – and inspiring.

A Remote Paradise

The Molbog, a Muslim cultural minority group of around 23,000, are said to have migrated from North Borneo to Balabac in the southernmost part of Palawan. To reach Balabac, a person has to take a five-hour trip by land from Puerto Princesa City to Rio Tuba in Bataraza town, and then take a four-hour boat ride during good weather.

Balabac is one of the poorest areas in Palawan. Because of its remoteness, the town has limited access to electricity, water, and basic government services. It is not a popular tourist getaway like Coron and El Nido in Northern Palawan, even though it has spectacular beaches, glorious sunsets, and various endemic species like the mouse deer, Philippine cockatoo, and grey imperial pigeon.

“Development in Balabac is very slow because there are limited sources of income,” says Carmencita Pasang of the Municipal Social Welfare Development Office. “Either you work with the local government, venture into small businesses like seaweed farming and retailing if you have the capital, or engage in illegal logging, turtle poaching, or illegal fishing.”



A Goal Fulfilled. Getting an education was not easy for Bahirrudin Buhangin. But hard work and a deep desire to finish school enabled him to realize his dream and serve as an inspiration to the youth of Balabac.









Against the Odds

Amid this backdrop, Buhangin's success story is one worth retelling for those looking for role models for the young Molbog generation.

"It was not easy for me to finish my studies. I was the poorest, compared with the other three Molbog teachers. I had to work my way through school as my parents had to earn a living in Malaysia," says Buhangin.

Recalls Pasang, "Bay, who was our neighbor, used to share stories with us. Once, he said he had to take a test but he had no pencil. He asked for permission to pick some *kamote* shoots from our backyard to sell in the market so he could buy a pencil."

Buhangin also tried his hand at fishing as a young boy and later worked as a hired help in the house of a teacher who supported him in college.

When he finally received his diploma, Buhangin said he felt "like I was on top of Mt. Everest. I wanted to tell the world that I finally made it. I was very proud of myself as a Molbog. That was a most precious moment for me."

But being a Molbog also proved to be a disadvantage for the hardworking Buhangin. "I was discriminated against by some of my classmates. Most of the Molbog are seen as poor, weak, lazy, and hopeless."

Chasing Dreams. The distance from Puerto Princesa, the capital city of Palawan, and limited access to basic services like electricity, pose big challenges to Balabac residents, especially the youth. Many are born to a hard life, but are encouraged by Bahirrudin's success to achieve their goals.



He proved them wrong by not only tucking away a diploma under his belt but by becoming a community leader and spearheading an advocacy to protect Balabac's endangered environment.

"I started by being an inspiration to my students, especially Molbog children. Then, I put up vegetable farms where the students can learn the basics of agriculture and raise produce that they could eat at home or sell later," says Buhangin. Aside from an education degree, he also holds a Bachelor of Science in Agricultural Business degree from the Western Philippines University (WPU).

Endangered Resources

For all its abundant resources, Balabac is rife with serious environmental problems that could frustrate even idealistic types like Buhangin. Illegal logging activities in the mountains pose serious threats to communities living in nearby areas. Locals could no longer catch crabs, shrimp, and fish, as in the past, because of rampant mangrove harvesting.

Since fishermen could no longer bring in a good catch, some have turned to illegal activities like *kaingin* or swidden farming, which involves burning a patch of forest to clear the land for planting. Others have turned to compressor fishing to catch high-value reef fishes. There are also those who poach marine turtles, attracted by the high prices offered by local and foreign traders.



A Love for the Land

Buhangin initially wanted to join government service, but found himself drawn to agriculture after seeing the potential of the island's fertile lands. After finishing his business degree, he took up extra units in education to qualify as a teacher at BNHS where he can continue his advocacy and raise environmental awareness among the youth.

It was not an easy path to tread, he soon found out.

"My students knew nothing about environmental issues in Balabac. The lack of technology also contributed to their low level of awareness," Buhangin says.

With the implementation of the K-12 program in Philippine schools in 2015, the Department of Education assigned BNHS as a center for agriculture and fisheries in Palawan.

"Balabac has a really big potential for agriculture," notes BNHS Principal Antonio Pungyan. "But the residents didn't realize this until the K-12 program was implemented. In the past, market vendors had to buy vegetables in Puerto Princesa City to sell in Balabac. But now, our students who grow vegetables have become their suppliers."

Students have been cultivating vegetable farms with the help of Buhangin since 2015. "We grow organic cabbages, tomatoes,

Resources in Peril. Balabac has rich marine resources that provide diverse livelihood like seaweed farming, fishing, and fish drying. However, many turn to illegal practices such as turtle poaching, dynamite and cyanide fishing to make a quick buck.

(Top photo) The Balabac chevrotain locally known as *pilandok* is a small nocturnal mammal endemic to Balabac and nearby islands in Southern Palawan. It is widely hunted for its meat.







Gifted Storytellers. Elnah Basala, a student at Balabac National High School and a Molbog like Bahirrudin, was one of 10 winners of a story writing contest organized by CTI-SEA. She graced the launching of the book “Tales from the Coral Triangle” where her winning entry was featured, at the Asian Development Bank headquarters (opposite page, top photo). Another winner from Bahirrudin’s school is high school student Shaima Hunaini (opposite page, bottom photo).

legumes, eggplants, and other vegetables. Profits from market sales are distributed among the students to pay for their school needs,” Buhangin proudly says.

Crossing Paths with the Coral Triangle Initiative

A youth camp conducted by CTI-SEA in April 2015 provided much of the motivation for Buhangin and his students. Some 39 student-leaders and six teachers from six Balabac high schools participated in the three-day event. The camp combined lectures with practical activities related to climate change adaptation and coastal resource management.

Buhangin started out as an observer in the camp as the slots for teacher mentors have been filled up. However, his enthusiasm and discipline convinced the camp organizers to include him as an official participant. Buhangin gained a lot of new information and shared his own knowledge when it came to developing environmental projects that the schools will undertake and which CTI-SEA will support.

“Balabac is very rich in resources,” notes Raul Roldan, CTI-SEA Deputy Team Leader for the Philippines, one of the camp’s speakers. “It has a huge potential for nature-based ecotourism. However, most of the communities don’t know how to protect, manage, and use their resources properly.”

Putting Ideas into Action

To be more accessible to his wards, Buhangin built a small nipa house close to the school, which he shares with Randy Dumyan, a Grade 12 student and fellow Molbog. Beside the house is a Vertical Integrated Farming System (VIFS) funded by the project, Developing Sustainable Alternative Livelihood in Coastal Fishing Communities (ADB RETA 9160) with initial support from CTI-SEA.

Buhangin serves at the forefront of all agricultural projects in his high school, including the organic farms and the VIFS, with Dumyan giving him much-needed help. For the VIFS, an elevated two-storey wooden cage





Breathtaking View. The islands of Balabac boast of crystal clear waters and dazzling white beaches that would rival more popular tourist destinations in the Coral Triangle. Onuk, a private island surrounded by shallow reefs and powder-white sand, is a major turtle nesting site.





A Green Thumb. Bahiruddin grows assorted vegetable seedlings in a makeshift nursery tended by assistant, Randy Dumyan. Despite the lack of farm implements, he trains his hundred-plus students to grow vegetables the organic, sustainable way. Middle photo: The integrated chicken and goat house built by Bahiruddin serves as a livelihood demonstration facility. (Right photo) Molbog schoolchildren in Barangay Ramos walk at least two kilometers a day to go to high school. Contributions by private donors are helping turn these makeshift classrooms into safer, semi-concrete structures.

structure was installed, with goats at the top level and chickens in the lower level. Animal waste is processed through vermicomposting and used as fertilizer for the vegetable farms. In February 2017, the facility had around 110 chickens (including breeders) and six goats raised by Dumyan.

Earnings from the venture have boosted the cash-strapped Dumyan's confidence. "It's a big help because now I don't have to depend on my parents for money to support my studies," says Dumyan. "I'm also happy that I am able to share what I have learned about organic farming with the people back in my own village (Barangay Salang), especially my parents, who now maintain their own vegetable plots."

Buhangin is optimistic that the school projects will be expanded in the future. "I hope that in the next two years, we will be able to involve more people, particularly in our organic farming course, so that the entire Balabac community can benefit from what we have achieved so far."

A Timely Intervention

Buhangin is grateful that CTI-SEA assistance came at a time when Balabac needed it most.

"We are very happy that CTI-SEA introduced these activities so students can better understand the importance of the environment and formulate solutions to the environmental issues that Balabac is facing," he says.



For her part, Pasang also recognizes that the livelihood programs introduced by CTI-SEA are effective deterrents against illegal fishing and unsustainable farming practices.

Aside from the organic farm at BNHS, CTI-SEA has supported livelihood programs, such as seaweed farming for coastal communities, and sponsored training programs for Molbog women, out-of-school youth, and even drug surrenderees, in partnership with the local government and the Technical Education and Skills Development Authority (TESDA).

Sowing Seeds of Hope

Four years after he entered a classroom for the first time to teach, Buhangin looks back and likes what he sees. “My students tell me that they drop by the school on weekends just to check on their vegetable plots. Many of them have also started planting vegetables in their backyards,” he says.

Buhangin continues to inspire the Molbog youth, but one task still remains. His wish is that the story of his remarkable journey of ambition and hope is shared with other Molbog communities, especially those who live in the mountains and isolated islands of Palawan.

Says Buhangin: “My challenge to the youth is that if you have a dream, you have to hold on to it and pursue it until you get what you want. Work hard, keep the faith, and never give up.”



MANGROVE CUTTERS THEN, SUSTAINABLE LIVELIHOOD CHAMPIONS NOW

Gaudiosa Alto would never make it as a model citizen if one were to look at her track record in the last three decades.

A former mangrove cutter, the 65-year-old has spent more than 30 years in the humid fields of Pamantolon village in Taytay, Palawan Province, relentlessly cutting mangrove trees to be burned, converted into charcoal, and sold in the market.

The activity is not only illegal, it is a threat to the environment. It has also led Alto and others like her to play cat-and-mouse with authorities for years.

But all that has changed.

Today, Alto leads an organization of more than 40 members composed largely of fellow mangrove cutters, who have turned to sustainable livelihood ventures like growing organic vegetables, seaweeds, and abalone.

Together with other farmers who have organized themselves into people's organizations (POs), Alto has shown that initiative, determination, and the right attitude can transform lives for the better.

Never Too Late

In 1981, Alto and her husband moved with their children to Pamantolon from Camarines Sur, where she headed a group of farmers engaged in charcoal-making as a means of livelihood. She continued this livelihood in her adopted barangay.

Alto became one of five mangrove charcoal contractors in Pamantolon, each contractor in charge of 15 people. Her husband and two sons soon joined her team.

The mangrove cutters hacked away indiscriminately, although they avoided old trees, which were difficult to chop down. An average



No Longer on the Run. Gaudiosa Alto played hide-and-seek with authorities for years in her former life as a mangrove cutter. She is now into seaweed farming that brings her more revenue and peace of mind.





Mangrove Pyre. Hundreds of mangrove timber are piled up to be made into charcoal in a clearing in Barangay Pamantolon, Taytay, Palawan. Mangrove wood is prized for its good burning quality but the negative impacts of rampant cutting on the marine environment is immense.



Encounter with CTI-SEA. Gaudiosa Alto and other mangrove cutters in a memorable 2014 meeting with barangay officials and CTI-SEA representatives that changed the course of their lives. (Bottom photo) Similar livelihood support was given to the Pamantolon Fisherfolk Association whose members helped Alto's group with their initial seaweed venture.

of five trees were cut daily and later processed into charcoal. One mangrove tree could produce 10 sacks of charcoal worth P150 a sack in the public markets. The sacks were stocked in a warehouse until buyers from Luzon came around to pick up their orders.

Unchecked and largely left alone by authorities, the destruction of mangroves in Pamantolon went on for almost 30 years until the municipal government of Taytay passed an ordinance banning and penalizing mangrove cutting and harvesting. With no other option available to them at the time, the cutters chose to play a dangerous game, raiding the swamps while trying to elude the police.

But one bold, inspired move by Alto changed everything. Tired of constantly being the object of a chase, she decided that enough was enough. Alto sought out their barangay captain, Edilberto Felizarte, and asked about business opportunities in Pamantolon that she could venture into without getting into trouble with the law.

An Opportune Moment

The timing was perfect since Felizarte was also involved in efforts to stop mangrove cutting in their town. A meeting was held in 2014 at the barangay hall with Felizarte, other village officials, Alto and the mangrove cutters, and CTI-SEA, which had been assisting Taytay's fishing communities in sustainable livelihood and resource rehabilitation projects like mangrove reforestation.

An agreement was reached between CTI-SEA and the cutters' group, whereby the project will provide supplies and materials for members to engage in seaweed production. In return, the cutters will stop cutting down mangrove trees for charcoal and, instead, become partners in resource management in their barangay.







The agreement, with this explicit condition, was signed by Alto, Felizarte, and CTI-SEA and witnessed by village officials.

Alto and her members named their group *Bagong Pag-asa* (New Hope) Association as a bold declaration of their aspirations and the new path they would take. Showing steely determination that belied her age and frail frame, the feisty Alto volunteered to be the group's president.

A New Venture

Experienced seaweed growers from Pamantolon guided the Bagong Pag-asa members, most of whom were new to the venture, on the basics of seaweed farming. These veteran growers generously offered portions of their areas for the new association members to put up their farms. CTI-SEA provided seedlings, nylon ropes, floaters, and other materials for the new livelihood of the former mangrove cutters.

From an initial batch of 35 farmers eager to try their hand at something new, the number has grown to more than 60, with fishermen from other organizations eventually joining Bagong Pag-asa.

Harvest Time. Seaweed farming, a popular complementary livelihood to capture fishing, is carried out by many families in Taytay Bay. The demand for dried seaweeds has increased although the livelihood itself remains susceptible to bad weather conditions, fluctuating prices, and disease problems.







Pricey Haul. Abalone (*Haliotis asinina*) locally known as “sobra-sobra” commands a high price in export markets and is a favourite condiment in Chinese cuisine. It grows well in the clear, shallow waters of Taytay Bay.

But like every new organization, Bagong Pag-asa experienced its own share of birth pains: bad weather that damaged their farms, low price of seaweeds, the dreaded ice-ice disease, and disagreements among members. But Alto and her loyal members persevered.

Today, many Bagong Pag-asa members have their own seaweed farms and boats and have enough capital to expand their seaweed business.

And Felizarte is happy to see the change in the mindset of his constituents. “The incidence of mangrove cutting in Pamantolon has gone down drastically,” he notes. “Those who have been caught come from nearby barangays.”

Expanding to Other Livelihoods

Seeing that seaweed farming is a volatile livelihood because of fluctuating prices, unpredictable weather conditions, and the possibility of disease infestation, CTI-SEA extended additional support in the form of abalone and organic vegetable farming to Alto’s group and the Pamantolon Fisherfolk Association (PFA).



“Abalone farming brings in additional income for us,” says Tomas Elocat, PFA member and chairman of the Barangay Fisheries and Aquatic Resources Management Council (BFARMC) in Pamantolon. “At the same time, we help conserve the wild abalone population.”

A kilo of wild abalone costs around P400 in Pamantolon. In high-end restaurants in Metro Manila, a serving can cost as much as P3,000 (about \$60) per kilo.

Hatchery-bred abalone juveniles were sourced by CTI-SEA from the Aquaculture Department of the Southeast Asian Fisheries Development Center (SEAFDEC) in Iloilo Province and stocked in cages to assess their growth and survival in Taytay Bay. Three trials using different culture methods were tested by CTI-SEA with the day-to-day management of the project entrusted to PFA and, later, to selected Bagong Pag-asa members.

The trials showed that hatchery-bred abalone grow well in the pristine, shallow waters of Pamantolon. This paved the way for a potentially profitable livelihood project for coastal communities that can help reduce fishing pressure on wild abalone stock.



Going Organic. Organically grown vegetables have a huge potential market since majority of vegetable products in Taytay are sourced from Puerto Princesa City and even Manila. In 2017, CTI-SEA organized two hands-on training sessions on organic farming and distributed seeds to community groups in Pamantolon and Canique (opposite page).

CTI-SEA also saw, in the vast agricultural areas of Pamantolon and nearby Canique, the prospect of a successful organic farming venture that can supply organically grown vegetables to restaurants and resorts in Taytay and the nearby tourist town of El Nido.

In February 2017, CTI-SEA organized a hands-on training course on organic vegetable production with the help of the Office of the Provincial Agriculturist in Palawan. Participants, including Bagong Pag-asa and PFA members, were trained to make plant and fish-based fertilizers and pest repellants. They were also given packets of squash, bitter melon, string beans, and cucumber seeds to plant in their backyards.

Seven fisher-farmers recommended by Alto served as pilot CTI-SEA cooperators for organic vegetable production projects using their land and their own labor as equity.

The first harvest of organic vegetables was successful. This encouraged the cooperators to continue with their new income-generating project, which they alternated with fishing and seaweed growing. Armed with new skills, the beneficiaries expect to harvest every quarter and earn at least P15,000 (about \$300) per harvest.





A Promising New Strain. In 2017, CTI-SEA distributed a high-yielding seaweed strain called “magnolia” for testing in Pamantolon. Initial results showed good growth and better resistance to ice-ice compared with traditional strains. The new strain of *Kappaphycus alvarezii* was originally developed through micropropagation at the SEAFDEC Aquaculture Department in Iloilo province.

Getting Ready for the Long Haul

Buoyed by the support they received from CTI-SEA and the local government, Alto’s group is bent on sustaining the gains from their ventures. Members have agreed to pay a one-time membership fee and monthly dues to their organization and to give a percentage of their seaweed income to the organization’s common fund. This fund serves as their shield in the event of harvest loss and as capital, should the group decide to venture into other projects. By doing this, the sense of ownership, accountability, and cooperation among members is strengthened.

As for Alto, the lady is not about ready to sit back, relax, and retire.

“I want to reach out to more farmers and tell them that there are other ways to earn a living, which you can be proud of,” says the tireless senior.

“We have each other now,” she adds. “I want other fishermen and mangrove cutters out there to know that we’re here to stay and help them every step of the way.”





GROWING CORALS FOR TAYTAY BAY'S UNDERWATER GARDENS

On a clear day, Lemuel Abrea hauls his diving gear to inspect odd metal frames adorned with coral pieces at the bottom of Taytay Bay in Palawan Province. The contraptions look like Christmas trees adorned with newly grown coral fragments resembling branches in bright neon colors.

Barely a year ago, Abrea grew rice and vegetables on a tiny farm in Taytay when he was not out fishing. Today, he “grows” corals as a warden for the coral and giant clam gardens, the first coral nurseries in Taytay Bay.

A project of CTI-SEA, the nurseries off Talacanan island and Denot Island, aim to promote ecotourism as a new source of livelihood for farmers and fishers with dwindling incomes, as well as spread awareness about the need to protect Taytay Bay's marine resources from further degradation. In nearby Tecas reef, over a thousand giant clams are thriving inside a marine sanctuary protected from poachers.



Restoring Life. Pieces of coral fragments “planted” on steel domes in 2015 in Talacanan Island show healthy growth after two years. The reef area, damaged from years of blastfishing, is showing very good recovery.



The coral and giant clam gardens are part of CTI-SEA's Payment for Ecosystem (PES) pilot project that is anchored on marine ecotourism.

"It's a first for Taytay Bay," says Dr. Lope Calanog, Sustainable Finance Specialist for CTI-SEA. "The people's commitment to protect the reefs is remarkable. They want to address threats like illegal fishing and mangrove deforestation. In a few years, they expect a boom in jobs and businesses related to ecotourism."



Laying the Groundwork

As a nature-based tourism destination, Taytay has much to offer. It is home to a wide variety of wildlife and endemic species like the Irrawaddy dolphin, marine turtles, white squirrel, pangolin, and giant flying foxes. It is also a sanctuary for over 130 bird species, including the threatened Palawan hornbill. It has islands with white sand beaches and coral reefs teeming with colorful marine life. Fuerza de Santa Isabel, a 360-year old fort used during the Spanish colonial times to protect the town against sea pirates, is an iconic landmark in the town center.

Yet Taytay's vast tourism potential remains largely untapped. Tourist arrivals in the town are just a third of the number of tourists visiting the nearby resort town of El Nido.

It is this challenge that prompted the local government, stakeholders, and CTI-SEA to focus on marine ecotourism as the pilot PES project. Their dream is to make Taytay the prime eco-adventure destination in Northern Palawan. The town, after all, is also known as "Estrella del Norte" (Star of the North), and the local government and its townspeople are determined to live up to its lofty name.

Under the PES scheme, users of ecosystem services—like tourists enjoying the many attractions of Taytay—will pay a fee that takes into account the value of the experience (from the perspective of the tourists or "service buyers" and the local government and communities or "service providers") and the cost needed to preserve these attractions.



Ecosystem services can be anything from wind and water to carbon absorption and recreation. Their main objective is to improve environmental management and generate livelihood for stewards of these services.

The PES system allows the local community to build a conservation fund collected from environmental fees and other revenues from tourism-related activities. The fund can be used to maintain marine protected areas (MPAs), beef up law enforcement, or start new projects on reef conservation.

“As PES is a relatively new concept, the biggest challenge is for the local government to issue an ordinance that will establish or institute tourism fees, a revenue sharing system, and a conservation trust fund,” says Calanog.

Putting the Pieces Together

Deciding on coral and giant clam gardening as the pilot PES scheme was not difficult. Although the local government has stepped up its campaign against illegal fishing activities, such as the use of dynamite and cyanide, these are still practiced furtively in some areas. Reefs

Unique Attractions. Taytay, Palawan’s capital during the Spanish colonial era, offers a wide array of tourist attractions such as a 360-year old fort (La Fuerza de Sta. Isabel) and Lake Manguao, the province’s biggest lake and home to migratory birds and endemic wildlife (next page).





Noel Guevara / ADB



Taytay Beckons. Denot Reef, a marine protected area, has excellent live coral cover perfect for snorkelling and recreational diving. (Middle photo) Barangay Debangon, with its fine white sand, coral reefs, and seagrass beds is an important foraging and nesting ground for marine turtles.

damaged from years of illegal fishing practices needed rehabilitation. Poaching of giant clams, an endangered species protected by national and international laws, remained a problem, spurred by the growing demand for clam meat by foreign markets. Indeed, the PES project became a timely intervention that complemented the local government's marine conservation program for Taytay Bay.

With the participation of Western Philippines University (WPU), a benchmarking study was carried out in 2014 to determine the status of coral and fish resources, assess the town's fledgling tourism industry, and establish the socio-economic profile of coastal communities that can be included in the PES project.

A willingness-to-pay study carried out by the Palawan State University (PSU) followed in 2016. It became an important basis for determining resource use fees.

The studies showed that Taytay Bay's reefs, home to a variety of high-value fish like the prized red grouper or *suno* (*Plectropomus*



leopardus), were in good condition. This made the bay an excellent site for the establishment of a network of MPAs.

“Some parts of the reefs showed damage, but there was evidence of new coral growth. It means these areas will recover fast,” says Dr. Benjamin Gonzales, CTI-SEA Coastal and Marine Resource Management Specialist and WPU Professor.

Building Local Capacities

The expertise of WPU researchers came in handy during the conduct of PES training. Representatives from the local government, Department of Environment and Natural Resources (DENR), and fishers’ groups were given intensive hands-on training on coral and giant clam translocation, maintenance, and monitoring.

CTI-SEA organized a training program on open water scuba diving for volunteers, who will monitor the giant clams and coral nurseries and serve as underwater tour guides. The project also turned over five sets



PES Partnership. A Memorandum of Understanding on the coral and giant clam garden pilot project was signed in May 2017 during the Pasinggatan Festival by the Taytay LGU, CTI-SEA, a fisherfolk association, and a resort owner.

of dive equipment, eight tanks, and a portable compressor to the local government so that monitoring and maintenance of the gardens can be undertaken on a regular basis.

The trainees were excited to receive their open water divers' licenses after completing the program. "We trained as community divers to maintain the gardens," says Perfecto Dolliente Jr., President of MATAPAT, a local fisherfolk organization.

On his watch as a volunteer for the sea patrol team, Dolliente sniffs around for the scent of poachers who scour the waters for pricey underwater treasures like giant clams. "I know when poachers are in the area when I hear the sound of an explosion. But they are hard to catch, especially if some of them happen to be your neighbors," he admits.

The establishment of the coral and giant clam gardens aims not only to augment family incomes, but also to raise awareness on marine conservation among the communities around the bay. "The coral gardens mean more income for us in the future so it is important that we take care of the nurseries," says Dolliente.

Abrea, on the other hand, is looking at the possibility of undergoing further training to become a dive instructor in anticipation of the tourism boom in Taytay.

[A Haven for Giant Clams and Corals](#)

At present, there are at least 1,200 giant clams nestled on a sandy reef flat inside the Tecas Marine Sanctuary. Here they can grow undisturbed and seed adjacent areas during the spawning season. In another part of Tecas, a nursery has also been established as a source of coral fragments for tourists, who are allowed to plant on coral domes and platforms in damaged or barren reef areas. Similar nurseries with thousands of live coral fragments have likewise been installed in nearby Denot Reef, another protected area.





VIRGIL



Noel Guevara / ADB



Most impressive of all these coral structures are the domes in Talacanen Island where, in just two years, coral fragments have grown rapidly, attracting many colorful fish species to seek shelter around the steel domes. Since 2015, Gonzales reports that the fragments have grown almost eight inches.

Further adding to the underwater attractions of the bay are a concrete “I♥Taytay” sign in Teras and a 25-m² replica of Fuerza de Santa Isabel and a giant statue of Queen Isabela in Denot Reef. These structures also serve as coral substrates.

Highlights of the proposed PES package are on-site education and actual coral planting, which aim to arouse the spirit of volunteerism among conservation-minded tourists and visitors. Tourists can also join the “adopt-a-giant clam campaign” by sponsoring the relocation of giant clams from outside the sanctuary to inside the protected zone. Small tags bearing their names will be attached to the shell of their “adopted” clams, and they can be updated on their status through the Taytay tourism website.

For visitors who opt to stay comfortable and dry, CTI-SEA and the sanctuary wardens have constructed a glass-bottom boat, from which tourists can view the coral gardens and giant clams below.

Finding the Perfect Partner

“The concept behind the PES package is to harness tourism as a vehicle for conservation and livelihood,” explains Calanog. This concept, particularly its pioneering ecotourism approach using coral and giant clam gardens, has struck a responsive chord with Flora and Martin Fankhauser, owners of Floral Island Resort.

“We’ve been improving Talacanen by putting up our own coral domes,” says Martin. “We’re glad we were given a chance to be part of the PES project.”

Underwater Surprises. A 10-ft statue of Queen Isabela, a large fort replica, and a concrete Taytay signage await divers and snorkelers who will avail of the PES tour package.





Flora is just as enthusiastic. “I saw how this activity has improved the quality of the reefs. I would like to see more fish and more marine life thriving in the bay in the future.”

The Fankhausers have been ardent supporters of the project from the very start. “We now have around 18 domes. We shall continue growing corals to make the gardens more attractive for everybody,” says Martin.

In May 2017, to coincide with Taytay’s annual Pasinggatan Festival, local government officials led by Mayor Romy Salvame, fisherfolk representatives, Flora Fankhauser, CTI-SEA, and members of the Tourism Council, signed a memorandum of understanding to formalize their commitment and support for the coral and giant clam gardens.

In the pipeline is the formulation of a municipal ordinance on ecotourism fees and details of the conservation fund. CTI-SEA is also providing assistance to the LGU in developing the town’s ecotourism master plan.

The underwater garden project is the best example of productive collaboration between the community and Taytay’s other stakeholders to protect and rehabilitate their marine resources through an innovative and participatory PES approach.

It is hoped that it will serve as a valuable model for other coastal communities to follow.

Perfect Hideaway. Taytay Bay has many resorts for different types of tourists. One of these is Floral Island Resort in idyllic Talacanen Island whose owners have partnered with CTI-SEA for the pilot coral garden project.



PALAWAN FARMER REVIVES DYING FARMLANDS

A mind open to innovation and a willingness to try new solutions saved the day for Reynaldo San Jose, when he saw his rice fields withering away in the summer of 2013.

“I saw that I could no longer grow rice in my farm, as I used to, so I wasted no time in looking for new varieties that could survive the changing weather condition,” said San Jose, a farmer for the past 35 years in Sitio Quilala, Barangay Poblacion, Taytay, Palawan Province. “You have to learn how to experiment with new strains and new techniques when you are into farming. That’s how you adapt to change.”

An Observant Mind

A maritime studies graduate, San Jose developed a passion for farming as he was exposed to the business at a young age by his father who was also a farmer. Running the family’s 35-hectare (ha) farmland since 1982, the younger San Jose became a seed grower in 2004. He supplies different rice varieties to other farmers in Taytay and nearby towns.

San Jose grows his seeds in a 3-ha seed farm in Sitio Quilala, roughly 10 km from the town proper. A large portion of the farm, which is close to a mangrove swamp, has become unproductive because of saltwater intrusion. Over the years, the farmer noticed tidal water gradually seeping into his rice field and causing traditional rice varieties to die. He also observed that storm surges had increased in intensity, causing sea spray to spread to his seed farm and affect the growth and quality of his rice seedlings.

Luckily, in 2013, San Jose received several kilos of Salinas 1 and 9 rice from the CTI-SEA project. These varieties were developed by the International Rice Research Institute (IRRI), along with other climate-resilient rice, to cushion the impacts of climate change on the food supply.

At that time, IRRI was eager to work with organizations to hasten the rollout of its rice varieties for testing by farmers all over the country. IRRI’s only request was that, in exchange for the free rice seeds, they must be informed, by way of monitoring reports, about



Game Changer. (Opposite page) Reynaldo San Jose, a veteran farmer, was first to try IRRI’s climate-smart rice in his seed farm in Taytay. (Top photo). The first batch of Salinas seeds was turned over to the Municipal Agriculture Office in 2013.

Back to Verdant Fields. Many farmlands in Taytay affected by drought, flooding, and saltwater intrusion have been revitalized with the use of climate-resilient rice varieties developed by IRRI.





Noel Guevara / ADB

the results of the field trials. CTI-SEA promptly complied with IRRI's request, with the help of San Jose.

The farmer was astonished to see the two rice varieties growing vigorously soon after he planted his salt-soaked fields with the Salinas seeds. The success of the first trial paved the way for other IRRI varieties to be tested in his farm in Sitio Quilala, including *Submarino* (for areas prone to prolonged flooding), *Sahod Ulan* (for drought-affected areas), and *Katihian* (for farms with limited water supply).

Around 12 climate-smart varieties were tested in the seed farm from 2013 to 2017. CTI-SEA provided San Jose with farm inputs recommended in the IRRI farmers' guide.

News quickly spread around town about how the new rice varieties, with no special maintenance, could thrive on salt-affected soil. Soon enough, farmers and seed growers in Taytay and nearby towns began to purchase seeds from San Jose for testing in their own farms.

Since then, San Jose has kept records of his observations and the results of his field trials of the various rice varieties, noting their distinct qualities and advantages. He has shared the information with the CTI-SEA team and has readily opened his farm to visits by CTI-SEA, IRRI, the local government, and other farmers.

Besieged Farmlands

Pilot-testing of salt-tolerant rice varieties is one of the priority strategies in the Climate Change Adaptation (CCA) Plan of Taytay, often referred to as the "rice bowl" of northern Palawan. The other priorities are mangrove reforestation, seaweed farming, training on early warning and disaster response and preparedness, and health management and sanitation monitoring.

World Wildlife Fund (WWF)-Philippines was at the forefront of CCA planning in the municipality, supported by funds from the Coral

Hard Worker. Rey San Jose spends at least 8 hours each day in his seed farm monitoring the growth of different rice varieties and keeping records of his observations.





Major Rice Producer. Taytay is referred to as the rice bowl of Northern Palawan. Many of its farmlands are experiencing the impacts of climate change such as flooding, drought, prolonged heat, and saltwater intrusion. Farmers are finding it increasingly difficult to schedule their operations, from planting to harvesting, because of unpredictable weather conditions.

Triangle Support Partnership (CTSP) of the United States Agency for International Development (USAID).

Around 14–17% of Taytay’s farmlands, or a total of 800-1,000 ha, have not seen substantial harvests in recent years because of saltwater intrusion in rice fields caused either by the over-extraction of groundwater or the rise in sea level or sea spray fanned by strong winds.

“There is physical evidence of farms reached by salt water,” says municipal agricultural technician Hernan Fenix. “We planted freshwater rice varieties in the past, but these did not survive.” Meanwhile, drought has damaged almost 8,000 ha, or 52%, of farmlands, reducing rice harvests from 3-5 tons per ha to around 1.4-2 tons per ha.

Sharing the Good News

San Jose considers himself lucky because he was picked as one of two farmers to pilot-test the Salinas varieties in 2013. “I was eager to learn and felt it would make good business sense to try my luck,” he says. The other cooperator from barangay Pamantolon was not as fortunate as ducks fed on his newly sprouted experimental rice.

Looking back, San Jose reveals he was often sought out by other farmers who wanted to know what he learned from the experiment. “Whenever other farmers or seed growers ask me if I had any special technique, I tell them that my basic approach is to study the concepts and farming methods from different fields, and then choose what’s best for the problem at hand,” he says.

As news of good harvests from the once unproductive Sitio Quilala farm got around, San Jose knew the next step would be to share the new technology with other farmers.

That time came when CTI-SEA organized a Farmers' Day in December 2015. Some 60 seed growers from 16 barangays showed up at San Jose's farm to know more about IRRI's vaunted rice varieties (including the salt-tolerant Salinas 15 and 16, the high-yielding RC 222, and the drought-tolerant *Katihan*) and marvel at the sight of rice ripe for harvest. The farmers went home satisfied not just with fresh knowledge about climate-smart rice but with seed samples they could plant in their own fields.



San Jose also recounted his experience before participants of the Food Security Forum hosted by the Asian Development Bank (ADB) in June 2016. The international forum invited him as resource speaker on the theme, "Safe, Nutritious, and Affordable Food for All." It highlighted various innovations in agriculture, including what was closest to San Jose's heart: growing climate-smart rice.

Preparing the New Generation

"CTI-SEA gave me a chance to learn about IRRI technology. In turn, I would like to give back by passing on the torch to the younger generation," says San Jose.

"If you ask me, I think it's much better to train the young ones. They are not afraid of change and are more open and willing to adapt to new technology, unlike many who belong to the older generation," he adds.

It is no surprise then that San Jose also works with the Department of Education's Alternative Learning Systems (ALS) program for out-of-school youth and adults interested in acquiring basic education skills and, in the case of Taytay, learning about farming practices.

Planting rice varieties that survive in flooded, drought-stricken, or salt-soaked farmlands could be one of the solutions for communities







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most affected by climate change, especially when it concerns food production.

“We cannot wait for science to be completely certain of things to come before we act,” says Dr. Rosa Perez, CTI-SEA Climate Change Expert.

It may take a while before people realize that coastal flooding caused by rising sea levels can occur, she adds. On the other hand, saltwater intrusion can happen faster than we think.

“In this scenario, coastal agriculture, particularly rice production, could be severely affected. Today, however, we don’t have to abandon the fields because we can use more climate-appropriate rice varieties for food security and increased livelihood opportunities,” says Perez.

Four years after climate-smart rice varieties started growing in parched or soggy lands once deemed unfit for tilling, Taytay is back to being one of the top rice suppliers in Palawan.

Sharing the Rewards. Over 60 farmers from Taytay and nearby towns joined the CTI-SEA sponsored Farmers’ Day held in San Jose’s farm to learn more about the new varieties and bring home free samples for planting.



CONSERVING A FRAGILE PARADISE FOR MARINE TURTLES

It is truly one of nature's most spectacular sights: droves of huge green turtles emerging from the sea and lumbering up a sandy beach on a moonlit night. They move slowly, dragging their bodies with much effort until they find a suitable, secure place where they can lay their eggs. After two hours of frantically digging a hole in the sand with their flippers, they are ready to deposit their soft but leathery eggs into the safe, 18-inch deep nesting chamber.

On the average, a turtle lays a clutch of 100 eggs. After completing the task and covering their nests with sand, the gentle creatures slowly make their way back to the sea having accomplished their life's purpose: producing progeny to ensure the survival of their species.

Female turtles will return to nest a few more times in about two weeks before they resume their mysterious journey across vast oceans. A few years later, after mating, they will again travel great distances to go back to the shores where they were born—again to nest and continue their species' cycle of life.

A Faraway Haven

Nowhere in the Philippines is there a more important nesting site for green turtles (*Chelonia mydas*) than the Turtle Islands Wildlife Sanctuary (TIWS) in faraway Tawi-Tawi Province. The Turtle Islands group consists of nine islands, six of which are part of Philippine territory, while three are under the jurisdiction of Sabah. Collectively, these islands are widely recognized as the most important nesting areas of green turtles in Southeast Asia. Roughly 2,000 nesters are estimated to come to the shores of the Turtle Islands each year, producing around 1 to 2 million eggs annually.

In 1996, an agreement was signed between the Philippines and Malaysia declaring the islands the Turtle Islands Heritage Protected Area (TIHPA), making it the first transboundary protected area for marine turtles in the world.

Turtles are highly migratory and travel great distances to forage, grow, mate, and nest. Pioneering research has shown that turtle



Turtle Protector. Frasad Yusop is one of several wardens who watch over the turtle nesting grounds in six islands. He has been protecting the turtles for 26 years. The Turtle Islands are the region's most important nesting grounds for green turtles, an endangered species protected by national laws and international treaties.







Challenging Journey. Arriving safely in TIWS, a joint team is welcomed by locals with a thanksgiving prayer. Rough seas during the monsoon season, security concerns, and irregular boat schedules make travel to TIWS from the Tawi-Tawi mainland a formidable challenge. (Middle photo) One of several hatcheries put up by DENR to increase hatchling survival. (Right photo) A rare, active mud volcano can be found in Lihiman Island, one of six islands that make up the Philippine Turtle Islands.

populations in the neighboring countries of Indonesia, Malaysia, and the Philippines have close genetic links. Thus, the protection of these endangered animals must involve the cooperation of the three countries in the Sulu-Sulawesi ecoregion.

The Turtle Islands group is not just about turtles. It boasts of white sandy beaches, crystal clear waters, and a bewildering array of marine life that would put other popular beaches in the Philippines to shame. Lihiman Island has a rare active mud volcano while Langaan Island is known for its dazzlingly white beach and stunning sand spit.

“When I first set foot on the Turtle Islands back in 2009, I was completely amazed by its beauty,” recounts Marion Daclan, Senior Adviser for the Sulu-Sulawesi Seascape Project of the German international development agency, GIZ. “It was like paradise. A hidden gem. The residents made me feel welcome, and I did not get the feeling that I was in any kind of danger at all.”

[A Warden's Hard Life](#)

The “jewel in the crown” among the six islands is Baguan, a 29-ha island surrounded by wide, sandy beaches that has been declared a strict protection or “no take” zone. This is also where the highest numbers of nesting turtles are recorded. Except for a few wardens



employed by the Department of Environment and Natural Resources (DENR) to monitor adult turtle and hatchling movement, there are no other residents living on the island.

Frasad Mujih Yusop, an affable fellow who is quick to offer visitors a handshake and a welcoming smile, is one of the veteran wardens whose island assignments are rotated regularly. He has been a warden at the sanctuary for 26 years now.

“I grew up on the Turtle Islands, but I studied at Juan Sumulong High School in Manila. I never imagined I would be working in TIWS because my parents wanted me to become a doctor,” recalls Frasad.

“When I started working as a warden in Baguan, there were no stores, boats, radio, or people—just four of us wardens on a remote, isolated island with no way to protect ourselves,” he adds. “Thank God, we pulled through until the conditions gradually improved.”

Shoreline patrolling is a warden’s basic role since poachers sometimes raid turtle nests for eggs or harm adult turtles. It is also the job of a warden to count the number of turtle tracks on the beach and check if the turtles have successfully laid eggs. A warden also collects eggs to be put in makeshift hatcheries to increase the chances of hatchling survival.

Huge Potential for Tourism

The Philippine Turtle Islands, declared a Protected Area in 1999 under *Republic Act 7586, the National Integrated Protected Areas System (NIPAS) Act*, have the potential to be a premier tourist destination like neighboring Selingan Island in Sabah. The waiting period for tourists to visit Selingan is at least six months. The admission fee for a day trip to the island will cost a non-Malaysian tourist a hefty 60 Malaysian Ringgit (or about P720). Staying overnight in basic facilities in Selingan to observe a turtle laying eggs and releasing hatchlings into the sea will cost much more.

To take advantage of this potential tourism gold mine, the Philippine Government, through the Tourism Infrastructure and Enterprise Zone Authority (TIEZA), has earmarked P28 million to put up basic tourism facilities in TIWS. Several meetings and site visits have been made, but this tourism project remains on the drawing board, saddled by the changes in local government administration and delays in meeting basic technical requirements.

There is also the challenge of travelling a great distance to reach TIWS. From mainland Tawi-Tawi, it takes about 14-16 hours via a regular Navy boat and 36 hours by passenger boat.

Trouble in Paradise

The Turtle Islands may be picture perfect, but every paradise has its own share of problems, many of which have a direct impact on its most important marine resource, the turtles. Illegal fishing, turtle egg collection, intrusion by foreign vessels, pollution, and a volatile peace and order situation are issues that still need to be resolved.

Cluttered Shorelines. The picturesque islands of TIWS are surefire tourist magnets but trash brought in by waves and the lack of a solid waste management program, especially in Taganak Island, pose significant sanitation problems. The debris also serve as obstacles to nesting turtles and hatchlings.

These problems are not unique to the Turtle Islands. The critical decline in the world population of marine turtles prompted the International Union for Conservation of Nature and Natural Resources (IUCN) to declare all marine turtle species endangered.







The small hawksbill turtle (“sisikan” in Filipino) with its beautifully patterned carapace has been listed as critically endangered.

“Sadly, many Filipinos do not understand the critical role that marine turtles play in the coastal environment,” notes Raul Roldan, CTI-SEA Deputy Team Leader for the Philippines. “Many rural folk think turtles are important because they save people from drowning and that they provide eggs for human consumption.”

“Their ecological value is immense, and drastically reducing their population will have a huge effect on the health of the marine ecosystem,” adds Roldan.

A Vital Ecological Role

Turtles, like the hawksbill, graze on sponges that cover coral reef surfaces, while green turtles keep seagrass meadows healthy by pruning old plants. Leatherback turtles prey on jellyfish which, in turn, feed on fish eggs and small fish. Without leatherbacks to control jellyfish populations, there could be less fish in the ocean. Moreover, unhatched turtle eggs nourish the shrubs and trees that stabilize shorelines and serve as habitats to many organisms, which are part of the food chain.

However, in many parts of the Sulu-Sulawesi region, particularly in Southern Palawan, these gentle giants are killed for their meat, carapace, and plastron and transported across porous maritime borders to be furtively delivered to foreign markets.

Priority Issues. While the tourism potential of TIWS is immense, territorial claims, foreign vessel intrusion, egg collection, turtle poaching, in-migration, and security concerns are issues that need to be urgently addressed by local and national authorities.



(Top photo) After mating, a female green turtle will make her way up a sandy beach to deposit her eggs. After roughly two months of incubation, hatchlings will emerge and head for the ocean although very few will survive to become adults. (Opposite page) Stakeholders discuss TIWS concerns in a PAMB meeting held at the Protected Area Superintendent's Office in Taganak Islands. Despite the distance and long travel, members attend at least two PAMB meetings held yearly to deliberate on priority issues.

"There were occasions when strangers on speedboats came to the islands to catch turtles to forcibly remove their eggs," recalls Frasad. "Sometimes we worry about our safety because we have no regular security detail assigned to us."

Social Concerns

Other problems are closer to home. The increase in human population due to in-migration has resulted in illegal settlements, coastal pollution, and stiff competition for limited income opportunities.

"Turtles are disturbed when there are many people around," observes Frasad. "Many new residents are not conscious about conservation or about keeping the shoreline clean. I feel bad seeing a lot of trash floating in the water or littering the beach," he adds.

Pablo de los Reyes, Senior Ecosystem Management Specialist at the Biodiversity Management Bureau of DENR, agrees. "Cleanliness and sanitation must be undertaken if TIWS is to be promoted as a tourism destination. Communities must be organized, strengthened, and educated about conserving the natural resources of TIWS," he explains.

On the other hand, Kester Yu of the Turtle Conservation Society of the Philippines (TCSP) notes, "We cannot assume that local communities understand the law, its penalties, the implications of illegal actions, and the importance of conservation. We must also address their social concerns. That's why government services must be available to them."

Joining Forces

Armed with complementary objectives to assist TIWS, government agencies led by DENR and the Bureau of Fisheries and Aquatic Resources (BFAR), as well as development partners GIZ, TCSP, and CTI-SEA have joined forces and resources to help the TIWS Protected Area Management Board (PAMB).



CTI-SEA, working with community groups organized by previous projects, such as the Coral Triangle Support Partnership (CTSP), has provided supplies and materials to the Taganak Women Buyers' Club to expand its business of making wallets and key chains. They have also assisted the Friends Youth Club to continue its souvenir T-shirts project. The brightly colored wallets and key chains are made of waste materials such as coffee sachets, candy wrappers, and plastic bags found on the beach.

NGOs, such as TCSP and LAHAT (Lupa, Araw, Hangin, Ako, Tubig), train the women in handicraft making and help market their products. BFAR-ARMM (Autonomous Region in Muslim Mindanao) and GIZ have identified other beneficiaries in TIWS, who will be trained and provided with equipment to undertake livelihood projects such as mat making and fish processing.

CTI-SEA has also recently purchased a satellite-based broadband (GSAT), which will provide internet service to TIWS. At present,

Diversifying Incomes. CTI-SEA is one of several projects assisting local groups such as an all-women organization and a youth club engaged in non-extractive livelihood projects such as creating keychains and wallets from recycled materials and making souvenir T-shirts.









residents have to purchase expensive Malaysian SIM cards to make calls and get Internet access for a limited period. Negotiations between the TIWS local government and a telecom service provider are also underway to further improve communication services in the islands.

This synergy between government agencies and partners extends to the sharing of technical information to update the TIWS Protected Area Management Plan, a roadmap for the multisectoral development of TIWS. CTI-SEA has shared the results of its climate vulnerability assessment with PAMB; TCSP, its biodiversity survey in two islands; and GIZ and BFAR, the results of their participatory coastal resource appraisal. BMB is conducting a coastal vulnerability assessment study that will further enhance the technical component of the management plan.

Dealing with Obstacles

Everyone involved in TIWS conservation agrees that success is possible only if national government agencies, ideally at the Cabinet level, will intervene, especially on the issues of foreign vessel intrusion, illegal fishing, and security.

“Our fishermen cannot compete with foreign vessels, which also employ locals. There must be stricter regulations on fishing and resource trade to empower Filipinos,” suggests Yu. “Even the issue of continued turtle egg collection and trade must be brought to the collective attention of national government agencies.”

Combining Forces. TIWS LGU led by Mayor Benny Oliveros (in red), DENR national and regional officers, Protected Area Superintendent Minda Bairullah, other government and NGO partners hold meetings to update the Protected Area Management Plan for Turtle Islands. Sharing of resources, data, and expertise has become an effective strategy in enhancing the plan and resolving immediate concerns. (Opposite page, bottom photo) Local women’s organizations have led the way in enterprise development with training and support from development partners and government agencies.



For a vibrant ecotourism industry to materialize, de los Reyes stresses that peace and order, as well as diplomatic concerns that hinder travel from TIWS to Malaysia and vice versa, should be looked into by the national government.

“An immigration office for TIWS tourists and visitors must be set up in Taganak Island, the town center and most populated island, since the bulk of tourists are expected to come from Sandakan in Sabah,” he adds.

Daclan avers, “The Philippines has to think outside the box because of many interlocking issues, such as territorial claims, border conflicts, poor accessibility, and security. Pushing for transnational cooperation and joint efforts to address these concerns is one step in the right direction.”

Despite these complications, Daclan is optimistic about TIWS’s future, noting that several government agencies, especially DENR, continue to provide assistance to preserve the biodiversity of the islands. “TIWS is probably in better shape than the other protected areas I have visited,” she notes.

Turtle Islands' incumbent mayor Berong Oliveros, a former Coast Guard Chief assigned for many years to the islands, shares Daclan's optimism. "I am ready to exert all efforts so the goals of the PAMB for the development of TIWS will be realized," he said during a recent planning workshop. He also gave his commitment to sign municipal ordinances to manage fisheries in TIWS and promote solid waste management to reduce pollution in his town.

A Promise to the Next Generation

Frasad is up at dawn. Although still tired from patrolling the nesting beaches the night before, he heads to the hatchery to collect the turtle hatchlings that have newly emerged from their nests. He puts the tiny turtles in a pail and brings them to different release points along the shoreline to increase their chances of survival. Most of them will not make it to adulthood, becoming food for birds, sharks, and jacks in the next few hours. But with a stroke of luck, a few will make it out to the open sea and survive.

In spite of the difficulties and dangers that come with being a TIWS warden, Frasad proudly declares, "I love my work and I will continue to protect the turtles so that my grandchildren will still see them here in Turtle Islands long after I am gone."



Strength in Numbers. Travelling around the islands is not without its problems. But being part of a big group, the presence of security escorts, and a healthy dose of humor make the long trips safer and definitely more pleasant.



YOUNG PEOPLE SOWING THE SEEDS OF CHANGE IN PALAWAN AND ZAMBOANGA

It was an unlikely partnership between new players, which many thought was destined to fail. But persistence, hard work, and belief in a common goal won in the end. Residents of Taytay, a bustling town in northern Palawan, are reaping the benefits of the alliance.

Down south in the municipality of Vincenzo Sagun in Zamboanga del Sur, teenagers are using dance and artwork to rouse their community to fight environmental degradation and draw attention to the many resource management issues in their town.

Most coastal resource management projects have focused on fishers, womenfolk, and local government agencies as their target beneficiaries and implementing partners. The gamble that CTI-SEA took by tapping the youth sector to become environmental champions has shown impressive results, proving that age is really just a number and not a vital ingredient to success.

Mangrove Resources in Peril

For decades, Taytay residents woke up to the sight of denuded areas caused by the cutting down of mangrove trees and clearing areas in the



Sharing the Message Through Dance. After they participated in the 2016 CTI-SEA youth camp, students of Kabatan National High School in Zamboanga del Sur have successfully spread their environmental advocacy through songs, dance, and art and through social media.

forest for farming, a practice known as *kaingin*. Along the coastline, hundreds of old and freshly cut mangrove stumps jut out from the muddy soil in once pristine forests. In a clearing nearby, mangrove timber await cutters ready to burn the pile and turn it into charcoal.

Mangrove cutters failed to understand or did not want to know the importance of the trees they were cutting down. Mangroves serve as barriers against storms and strong typhoons and are important feeding, breeding, and nursery grounds for many important organisms. But they are fast disappearing in most parts of the world primarily because of human and industrial activities. In the case of Taytay, weak monitoring and laxity in the enforcement of laws against mangrove cutting, coupled with low awareness about the importance of mangroves, have led to a rapid depletion of the town's mangrove cover.

Alarmed at the changing landscape of the town, which served as Palawan's capital during the Spanish colonial period, residents and local government authorities knew it was time to act before it was too late.

Nicki Arnaiz, Teacher-in-Charge at Pamantolon National High School, recalls how he and his students became increasingly worried because of the rampant deforestation taking place in their village. Without the protection of mangroves, they knew that it was just a matter of time before Barangay Pamantolon would suffer from the consequences of climate change like flooding and storm surges. In fact, Taytay had already experienced severe flooding and landslides in low-lying areas.

Tapping Youthful Energy

In December 2013, Arnaiz and his students joined a village-initiated planting activity in a denuded mangrove area in Pamantolon. A few months later, he and around 50 students joined a bigger mangrove reforestation activity organized by CTI-SEA in another part of the village.

Destructive Traditional Practices.

Slash-and-burn farming and mangrove cutting are common practices that can destroy the forest ecosystem and wipe out endemic wildlife. Deforestation also contributes to greenhouse gas emissions.

“The youth of Taytay are afraid of calamities and do not want to wait for these to happen,” says Arnaiz. “They said they were willing





to help revive the mangrove sites even if they have to endure the heat, hunger, and discomfort.”

Lourdes Margarita Caballero, CTI-SEA’s Knowledge Management and Communication Specialist, recalls, “At that time, we had no program that partnered with schools in remote coastal communities. So, we designed one that put the youth in the driver’s seat.”

On the day the program was launched, Caballero was surprised at the turnout, much more at the sense of commitment of the participants. “That was an *Aha!* moment for us. We saw that many students and teachers, who have experienced the worst environmental problems, were among the most deeply motivated to act.”

Lutgarda Juanich, a former principal of Central Taytay National High School (CTNHS), readily gave her support to the CTI-SEA’s “*Bayaning Kalikasan*” (Heroes of the Environment) campaign. Launched in February 2014, the campaign was aimed at educating, engaging, and inspiring high school students to mobilize their fellow youth to spearhead projects geared towards protecting the environment.

“Many were not aware of environmental issues, but they were eager to find out how they could help,” Juanich notes.



For his part, Raul Roldan, CTI-SEA Deputy Team Leader for the Philippines, explains, “We need to involve the youth in resource management activities so that at a young age, they will understand the value of protecting the environment. After 10 years, these students could be leaders in their communities, resource users, or even illegal fishers and mangrove cutters. This is, therefore, a crucial time to instill the right values in their young minds.

Innovative Youth Camp

In February 2014, students from different national high schools in Taytay bonded in a three-day youth camp to learn about coastal ecosystems, fishery laws, endangered species, and climate change. The camp’s design enabled them to explore and analyze the environmental, economic, and social resources of their communities to enable them to identify practical strategies to resolve certain issues. Facilitators used lectures, games, group work, and transect walks to intensify the learning process.

Says student Ryamm Gray Salvante of CTNHS, “In the camp, I learned that everything is interconnected. The forest is connected to the lowlands, mangroves, seagrass beds, and coral reefs. Each part of the ecosystem has a huge role to play. More important, I learned that the youth can help in a big way in preserving the environment. There is still hope, after all.”

A Very Fruitful Partnership. Through youth camps and in-service trainings for teachers focused on climate change adaptation and coastal resource management, schools in Palawan and Zamboanga have undertaken many successful environmental projects in their communities with support from CTI-SEA. The annual CTI Day celebration provides a great opportunity to bring CTI’s goal of marine resources conservation to coastal communities and shape young minds.







On the last day of the camp, each team drafted a project proposal based on the results of their transect diagrams. The project should be carried out for at least one school year, with support from their teacher-mentors and the local government.

“We did not want students to come to the camp with ready-made solutions. The point was to learn as a group and to develop a sound project based on scientific investigation,” Roldan explains. “By giving them the creative freedom to decide on their strategy, the students would develop a deep sense of ownership of the projects.”

In the last four years, students have come up with creative and innovative proposals on mangrove reforestation, solid waste management, river and beach clean-up activities, and information drives.

Hard Work and Passion Bear Fruits

After joining the April 2016 Youth Camp organized by CTI-SEA for Dumanquillas Bay, the Kabatan National High School in Vincenzo Sagun Municipality formed a Junior *Bayani ng Kalikasan* Dance Troupe to spread the message of environmental protection through dance. They also held a Coconut “Fishtival” to highlight problems in, and solutions to, marine resource conservation. Students fashioned costumes from recycled foam, coconut fronds, and other indigenous materials. In effect, the show highlighted creative minds at work by turning waste into works of art.

In Kumalarang municipality, also in Zamboanga del Sur, students of the national high school implemented the “Rivermazing” rehabilitation project for the Kumal River. The project included an information drive on proper solid waste management, a river clean-up, and the planting of 800 hardwood seedlings by at least 200 participants.

Not to be outdone, students of Toribio Minor High School in Margosatubig, Zamboanga del Sur, led by science teacher Lucky Lagura, launched an intensive school-wide solid waste management

Young Heroes. High school students of Toribio Minor High School (top photo) and Buug National High School (bottom photo) take charge of their school's solid waste management programs. Other projects implemented with CTI support include a Materials Recovery Facility and an outdoor knowledge park in Toribio Minor and a mini-forest and organic garden inside the Buug campus.



Honing Skills. The Youth Summit held in Pagadian City in April 2017 brought together student leaders and science teachers from Dumanquillas Bay to gain new knowledge and skills such as growing *pagatpat* seeds (*Sonneratia alba*) from multi-awarded PO leader, Roberto Ballon Jr. (Opposite page, top photo) Participants were also taught how to produce effective information materials (middle photo) and learn more about climate change (bottom photo).









A Big Heart for the Environment.
(Opposite page) In 2014, science teacher Diana Mercado (third from left) of Central Taytay National High School led the restoration of a denuded mangrove area in Sitio Quilala with strong support from her fellow teachers and students. In May 2017, Mercado presented her school's accomplishments at the ADB-sponsored Youth for Asia Forum in Yokohama, Japan.

program and fund-raising activities to support their environmental projects. Part of their income from a printing business supports two financially strapped but deserving students from the same school.

Under the watchful eye of teacher Raul Pasculado, a similar waste management program is being implemented by Buug National High School in Zamboanga Sibugay, where a mini-forest and cascading organic vegetable gardens (using old tires) have become showcases of youthful ingenuity

Restoring Life

The most successful mangrove reforestation project was carried out by the Central Taytay National High School. After the CTI-SEA youth camp in 2014, teachers and students led by Science Coordinator Diana Mercado began planting propagules of *bakawan* (*Rhizophora mucronata* and *R. apiculata*) in a denuded mangrove area in Sitio Quilala.

Today, there are over 22,000 mangrove trees planted in five adjacent sites, with a total area of three hectares. The school's Heroes of the Environment team accomplished this impressive feat by spending weekends planting the propagules and monitoring the growth and survival of the plants. The science teachers brought along their husbands and children to help out and encouraged local civil society groups to participate in the replanting program.

"I didn't really care much about the mangroves in the past because I didn't know why they were important," admits Rebekah Lilang, a CTNHS student and a participant in the 2017 Youth Camp. "But when I joined the replanting activity, I felt a connection with the mangroves and made a commitment to see it through."

What makes her heart leap is the sight of mangrove trees growing. "After two years and six months, the trees are now 1.5-m tall! They can grow up to 65-ft (20-m) if the community will continue to protect them from cutters."





The school has expanded its project to include the protection and reforestation of Mt. Mamaquen, an important watershed in Taytay.

Gina Benitez, one of the CTNHS mentors of the Heroes of the Environment campaign, reveals that their biggest challenge was linking up with the different agencies to ask for help. “We had tree planting activities before, but we never reached out to the local government. Later, we realized that we had to work with town officials if we wanted to get more people to support our cause,” she notes.

Tapping Community Support

From being a school-based initiative, the project has now become a partnership with the barangay. The collaborative effort has produced impressive results.

“The cutting of mangrove trees has been greatly reduced,” says Barangay Captain Allan Miguel, who has assigned *tanod* (watchmen) to closely monitor the site. “The *tanod* were also tasked to mobilize nearby households to join them in planting more propagules.”

When they were not out in the swamps, the students took time to update the *Sangguniang Bayan* (municipal council), the parent-teacher association (PTA), and police and military officers about their mangrove reforestation project. They also used social media to motivate other schools to join them or to solicit feedback.

“I feel emotional when I see committed students leading this kind of initiative. Many young people today are portrayed as self-centered individuals, but not the youth of Taytay,” says Miguel, who has assured the students of his full support.

Sustaining the Gains

CTI-SEA is proud of the example that CTNHS has set for other high schools facing similar threats to the environment. By partnering with the community, the school’s teachers and students have slowly transformed



Young Leaders in Action. Students show that learning about resource management can be efficiently combined with active environmental efforts such as mangrove and watershed reforestation, river rehabilitation, waste recycling, and organic farming.



Brgy: Ob Pob.

FOREST

Trees
monkeys
birds
coconut
insects
bat bat

CEMETERY

geckos
lizards
snakes
insects
monkeys

ROAD



HOUSES

Trees
birds
insects
monkeys

MANGROVE AREA

mangroves
sea shells
tamilok, crab

SHORELINE

crocodile
fishes

food source
fire wood
wood for
houses

food source
oil from the animals
for medication

food
cotton
firewood
shelter

furniture
food source
ornaments

food source

overcutting
of
trees

landslide/
land fall

overcutting of trees
overcrowded

cutting down
mangroves

polluted
and air

tree planting
and care

ask for the help of
local government unit
Detour
tree planting

planting trees & care
proper waste
disposal

mangrove
reforestation
and care

coastal
and monitor
proper waste
segregation



An Exciting Learning Tool. The Department of Science and Technology generously shared with CTI-SEA its STARBOOKS digital library that contains hundreds of thousands of digitized technical materials and videos. Thirteen schools in Zamboanga Peninsula and Taytay municipality were provided with desktop computers equipped with STARBOOKS.



denuded mangrove forests into verdant patches of green that have become a source of inspiration to a new generation.

To sustain its environmental education campaign and promote inclusive education, CTI-SEA has put up a Coral Triangle Initiative–Community Learning Center in the CTNHS campus and in Kabatan National High School. The centers, which are well-equipped for research and training, can be used not just by students and teachers, but also by other community stakeholders, particularly the womenfolk, indigenous people, and people with disabilities.

CTI-SEA has provided audio-visual equipment and computers installed with the Science and Technology Academic and Research-Based Openly Operated Kiosk System (STARBOOKS) of the Department of Science and Technology (DOST) so that updated science information can become more accessible to the students and the public.

The good news is that the two schools have pledged to maintain the learning centers and continue to finance the CTI-initiated projects through in-kind partnerships.

What's next for these young and tireless environment stewards?

“My experience working on this project has changed my view of the role the environment plays in our lives. It has taught us to be responsible caretakers of nature,” says Lilang. “We are thankful for the project’s trust in the youth, and we will not fail you. The key to why our project is working is our close relationship with the community. We know we are not working alone.”



CTI-SEA Legacy. Community learning centers have been established at the Central Taytay National High school in Palawan and the Kabatan National High School in Zamboanga del Sur.

(Opposite page, top photo) The learning center in Taytay was inaugurated in July 2017 in time for the annual ADB review mission.

(Opposite page, bottom photo) Schools were encouraged to develop novel income generating activities for them to continue their projects even without CTI-SEA support. The “Store for the Environment” in Kabatan National High School is a school supply store that also showcases art products made from recycled materials.





PERSEVERANCE PAYS OFF FOR DUMANQUILLAS BAY'S “ACCIDENTAL” PASu

Alicia Dimaporo thought all the odds were stacked against her when she was offered the position of Protected Area Superintendent (PASu) of Dumanquillas Bay, a body of water encompassing the coastal waters of six municipalities in the provinces of Zamboanga del Sur and Zamboanga Sibugay.

With its extensive mangrove forests, coral reefs, and abundant marine resources, including tuna and other pelagic species, the bay was proclaimed a Protected Landscape and Seascape on 10 August 1999 by virtue of *Presidential Proclamation No. 158* issued by then President Joseph Ejercito Estrada.

Since then, a number of PASus were appointed to manage the area. Many of them left, citing difficulties encountered on the job. Dimaporo was determined to keep her name off that list.

“I remember asking Geoffrey Zayas if he was joking when he offered me the position of PASu. He wasn’t,” she recalls. At that time, Zayas was the Community, Environment, And Natural Resources Officer (CENRO) of Guipos, Zamboanga del Sur.

Before even giving the matter serious thought, several scenarios have already raced through her head. “I knew it would be a difficult job since it entailed looking after 41 coastal barangays. Besides, I was bothered by frequent reports of kidnapping and piracy in the areas. There Is also the fact that I am a Muslim woman.”

Dimaporo promptly turned down the offer and politely refused succeeding attempts to convince her to accept the post.

A Forester Tests the Waters

Despite being a forester by profession (Dimaporo has a Bachelor of Science in Forestry degree), she was not confident that she would make the grade.



On the Go. As PASu of Dumanquillas Bay, Dimaporo is always on the move, consulting stakeholders from the local government, people's organizations, and local government agencies regarding PAMB concerns.

“I was quite sure that I wasn’t fully qualified for the position because I had little background on coastal and marine resources management. But Mr. Zayas kept insisting that they couldn’t find anyone in the office more qualified than me for the slot.”

Assured by officials of the Department of Environment and Natural Resources (DENR) that there was nothing to worry about, she went over the offer again and again. Then, in September 2009, her office in Guipos received a special order signed by the DENR regional director, which designated her as PASu. It was a move that took her by surprise.

Dimaporo reluctantly accepted the post after Zayas assured her that he would be helping her every step of the way.

She is the first to admit that matters related to the sea were not discussed thoroughly when she was a forestry student at the Mindanao State University (MSU) in Marawi City. Until she joined the DENR, she had not seen for herself what a mangrove stand looked like.

One issue that also raised a bit of concern was the fact that she didn’t know how to dive or even swim. “During my first year as PASu,” she recalls with a laugh, “I was forced to take scuba diving lessons because it was part of my job description.”

Learning on the Job

Under the Implementing Rules and Regulations of *Republic Act No. 7586, The National Integrated Protected Area System (NIPAS) Act*, nationally managed protected areas must have a PASu to be designated or appointed by the regional director upon the recommendation of the Protected Area Management Board (PAMB).

The PASu’s primary role is to oversee and facilitate the implementation of the general management plan and operations within his or her area of concern. A PASu also has specific duties and responsibilities, including law enforcement, the issuance of permits and certifications, collection of fees, and submission of progress reports.



1

EAFM PLAN for Dumanquillas Bay

Lindley

Ben

Roger

Med

Wawa

Alyce

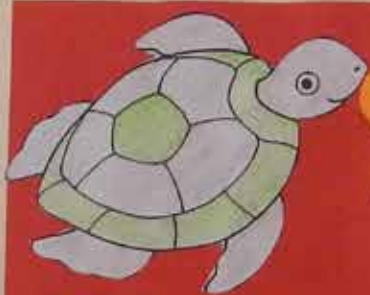
Fuse

AJ

Grace

Baida

IDB



Sustainable management
of rich biodiversity for
Long-term benefits of
Dumanquillas Bay
communities





Under Threat. Pelagic species like sardines are among Dumanquillas Bay's major marine resources. However, heavy fishing effort and illegal fishing practices are putting severe pressure on sardine populations.

As the project's pilot EAFM site, CTI-SEA organized an Essential EAFM training for LGUs of the six municipalities and conducted a 12-month stock assessment study of major sardine species. The findings show that exploitation levels are above the optimum and while sardine populations are still relatively stable, actions need to be made to protect sardine stocks.

Dimaporo knew that her new job was not a walk in the park. But she braced herself to meet the challenges head on. One of her first major activities was to facilitate meetings of the PAMB, a body chaired by the DENR regional director and composed of officials from the provincial and municipal governments, barangay leaders, representatives from government agencies, and other stakeholder groups.

The PAMB serves as the decision-making body for different areas of operation in the protected area under its supervision. During its first two meetings, the PAMB of the Dumanquillas Bay Protected Landscape and Seascape (DBPLS) failed to reach a quorum, so no major decisions or resolutions were passed.

With no background on basic office or clerical procedures like preparing minutes of the meetings, she fumbled, but charged it all to experience. "It was a challenge to coordinate with the PAMB as I didn't have a staff for the first five or six years, nor a vehicle provided by the office. I definitely had to do things on my own at times."

On many occasions, she recalls, she would take the *habal-habal* (modified motorcycle), come rain or shine, to go to remote municipalities to deliver official letters and monitor activities since there was no one to whom she could delegate the chores.

Still, she persevered. To address the problem of low turnout during PAMB meetings, she sent interviewers to go around the six



municipalities to ask residents about their thoughts on the DBPLS. Many said they were for its retention as they believe it is useful in addressing illegal and unsustainable forms of resource extraction in their localities. The response proved to be an eye opener, and encouraged Dimaporo to do better.

The meeting that followed saw more PAMB members in attendance, including a key DENR official and four of the six town mayors. A resolution was also passed, stating that the six municipalities would take turns hosting the quarterly PAMB meetings.

Since then, the board has passed several resolutions, including the creation of committees on enforcement, rescue, and conflict resolution; the imposition of users' fees; and plans for the development of potential structures/areas for ecotourism and business.

"I believe that mainstreaming the PAMB's functions has enlightened its members about how important the bay is to their everyday lives," Dimaporo says. "Eventually, each municipality passed at least one ordinance related to DBPLS."

Expanding Roles

Aside from reviving the PAMB's interest in the bay, Dimaporo has checked off several projects on her to-do list. She has facilitated resource assessment sessions with the help of newly hired technical

staff, important stakeholder consultations, awareness campaigns, and habitat rehabilitation or restoration programs such as the deployment of a biodiversity monitoring system.

This is not to say that everything was smooth sailing from that time on. Dimaporo still had to deal with attendance issues and difficult PAMB concerns, which often led to sleepless nights and stress at the workplace.

Among the duties of a PASu is to make regular monitoring visits to the sites and to establish the presence of the office in the area. Being visible reinforces trust, which, in turn, makes negotiations with stakeholders—and the implementation of activities—easier.

It is a formidable task, especially in a place like Dumanquillas Bay, where no monitoring trip is undertaken without proper coordination because of the volatile peace and order situation. Kidnappings and extortion at sea are real dangers that take place in some coastal areas.

Fortunately, in her eight years as PASu, Dimaporo has forged a good working relationship with local government officials and other coastal stakeholders in the six municipalities.

“I need to be on good terms with site-based contacts as they provide me with details about what’s happening in their areas, especially the security situation. I make sure that I coordinate with them first as a precautionary measure before making monitoring trips,” she says.

Ready for the Challenges Ahead

Building Strengths. CTI-SEA supported PAMB meetings and organized many training programs to enhance the capacity of the PAMB on fisheries management. Trainings on law enforcement, market denial, livelihood for POs, organizational development, EAFM, and others were conducted for different stakeholder groups.

Long after she has accepted the fact that Dumanquillas Bay is where she belongs, Dimaporo soon faced a new dilemma. In 2015, she was ready to resign from her post because a new DENR rationalization plan that would give her new opportunities, came her way.

“I was ready to pack up, but the PAMB passed a resolution saying they wanted me to stay. I realized that the Board has started to





develop an appreciation for DBPLS, and I knew it would be wrong for me to leave,” she admits.

Dimaporo has drawn up a plan, which suggests that she is staying for the long haul. Among her proposals is the setting up of an information center for the bay. Another is facilitating the establishment of security detachments on the islands of Cabog, Nipa-Nipa, and Muyong—a joint venture of the DBPLS municipal governments. She will also continue to link with potential development partners and look for ways to further strengthen the PAMB.

Still, Dimaporo is aware of the impermanence of the moment, and she believes that it would not be premature to scout for her replacement when the time comes.

“I’m looking forward to grooming that person who will take over when I go,” she says, as she remembers the last eight years working with the stakeholders of Dumanquillas Bay. “Of course, I’d still like to help those who will be involved in the DBPLS and guide whoever replaces me. But I’m not yet ready to leave. I’m like a mother who refuses to leave her child, in this case the PAMB, until it can stand on its own.”

When she eventually leaves to take on a new role at DENR, she will do just fine, whether it is up in the forests or back at sea.



A Personal Touch. PASu Dimaporo makes it a point to monitor projects not just of the LGU and People’s Organizations but also those of schools involved in CTI-SEA’s Heroes of the Environment campaign. She relays her insights and findings in the PAMB meetings that she facilitates.





A young child with dark hair and a bright smile is holding a white spiral-bound notebook. The child is wearing a green and white striped shirt. In the background, there are colorful papers (yellow, pink, blue) and a wooden structure. The sign on the notebook reads: WE ❤️ THE CORA TRIANGLE

WE ❤️
THE CORA
TRIANGLE



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It was a genuine pleasure to write this photobook which, in a way, serves as a colorful account of our five-year journey with the Coral Triangle Initiative – Southeast Asia (CTI-SEA), otherwise known as RETA 7813.

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The CTI-SEA Philippine Project Management Unit (PMU)