

A group of approximately 12 people are in a white motorboat on a calm river. They are all wearing orange life jackets. Some are wearing hats and sunglasses. One person in the foreground is pointing towards the camera. The river is surrounded by lush green mangrove trees with visible roots. The water is a murky brown color.

CODESIGNING COMMUNITY LEARNING AND INNOVATION HUBS FOR ECOSYSTEM RESTORATION WITH LOCAL GOVERNMENT AND COMMUNITIES

**CASE STUDY
WWF CORAL TRIANGLE PROGRAMME**

Authors

Marivel Dygico
Angela Lim
Joan Pecson

Contributors

Kymry Delijero
Trisha Guzman
Jia Ling, Lim
I Wayan Veda Santiaji
Zoe Latumbo

Case study prepared by **WWF Coral Triangle Programme & WWF-Philippines**

WWF is an independent conservation organization, with over 30 million followers and a global network active through local leadership in nearly 100 countries. Our mission is to stop the degradation of the planet's natural environment and to build a future in which people live in harmony with nature, by conserving the world's biological diversity, ensuring that the use of renewable natural resources is sustainable, and promoting the reduction of pollution and wasteful consumption. Find out more at wwf.panda.org.

Funding partners



Suggested citation style:

WWF Coral Triangle Programme. 2024. *Codesigning Community Learning and Innovation Hubs for Ecosystem Restoration With Local Government and Communities*, 23 pp.

Layout by Christina Netta

© 2024

WWF® and ©1986 Panda Symbol are owned by WWF. All rights reserved.

The designation of geographical entities in this report, and the presentation of the material, do not imply the expression of any opinion whatsoever on the part of WWF concerning the legal status of any country, territory, or area, or of its authorities, or concerning the delimitation of its frontiers or boundaries. Published in 2024 by WWF – World Wide Fund For Nature (Formerly World Wildlife Fund), Gland, Switzerland. Any reproduction in full or in part must mention the title, the lead author, and credit the above-mentioned publisher as the copyright owner.

WWF Coral Triangle Programme, hosted by WWF Indonesia.

Graha Simatupang, Tower 2 Unit C 7th Floor,
Jl. TB Simatupang No.11, Jakarta

T: +62217829461

Visit: panda.org/coraltriangle

Follow: twitter.com/coral_triangle

Cover photography:

© Kymry Delijero / WWF-Philippines



CODESIGNING COMMUNITY LEARNING AND INNOVATION HUBS FOR ECOSYSTEM RESTORATION WITH LOCAL GOVERNMENT AND COMMUNITIES

A case study on actively listening and embedding community knowledge and voices in strengthening local governance in Bataraza and Balabac, Province of Palawan, Philippines

TABLE OF CONTENTS

1. Actively Listening & Embedding Community Voices in Local Governance	5
2. Community Learning & Innovation Hubs for Community-led Ecosystem Stewardship in the Coral Triangle	7
3. Learning and Innovation Hubs for Mangrove Restoration with Different Scopes and Levels in Palawan	12
4. Project Descriptions: Bataraza, Buliluyan, and Melville Community Learning Hubs	16
5. Lessons Learned	21
6. Challenges	25
7. Next Steps	26
8. Key Messages from Bataraza, Buliluyan and KNMSKK (Melville)	27
9. References	28

ACTIVELY LISTENING AND EMBEDDING COMMUNITY VOICES IN LOCAL GOVERNANCE



Figure 1: Royee Ponce de Leon, KPA Project Manager, explaining how mangrove wildlings are planted in restoration sites.
© Zoe Latumba/WWF-Philippines

MOTHER NATURE IS SPEAKING.

Induh gumih rukut ranting (mother nature) speaks through those who are closest to her. Indigenous coastal communities who have lived with her for generations, are dependent on her bounty for livelihood and good health, and dependent on her protection. But many of these communities do not have the resources, speed or scale to deal with the onslaught of a raging mother nature. The repeated battering of tropical cyclones, destructive winds, storm surges and floods—changing and intensifying climate conditions exacerbated by negative human activities — impact on the environment and ecosystems.

In November 2024, the Philippines was hit by a record four simultaneous typhoons—Kong-rey, Yinxing, Usagi and Man-yi—in the period of 10 days, destroying over 250,000

homes and displacing 200,000 people in 6 regions. More storms are to be expected up to January 2025, reports the Philippine Atmospheric, Geophysical, and Astronomical Services Administration. Typhoon season used to be between July and October, and the nation averaged 20 tropical storms a year, but weather patterns and extremes are changing (Pagasa, 2024).

Royee Ponce de Leon captured the attention of the WWF-Philippines’ team when he memorized the scientific and English names of some 40 mangrove species in the Philippines, after a training session. He had a natural curiosity and interest in mangroves, and extensive *kosoudan* (knowledge) of the area. He would ask endless questions when he came across different species which were new to him and learned to relate the local names of mangroves to the scientific and English names. He realised that

not all mangrove species were present in Bataraza where he has lived and fished for over 30 years; he had so much more to learn.

The municipalities of Balabac and Bataraza, respectively, have 6,038 ha of mangrove forest with 33 species and 7,890 hectares of mangrove forest with 22 out of 50 mangrove species in the world. Over 1,500 species depend on mangroves for their survival, and 15% are threatened with extinction (UNESCO, 2023). The loss of mangroves also threatens the livelihood and well-being of Indigenous families and their future generations.

Palawan's Indigenous families rely heavily on memory and learning to pass information down through generations—a shared and collective memory—their oral tradition. Royee has led the Kutunggan Puring Association (KPA) organisation and mangrove restoration project in Bataraza since 2023, and champions his community's mangroves, their livelihoods and wellbeing, and their future. Giving a voice to his community's needs and concerns and embedding their traditional knowledge into their mangrove restoration activities is important to him. And equally important, is for this knowledge to be incorporated into the governance and

*"Our Indigenous life has always been reliant on nature for sustenance. The mangroves supply us with food. Fish, shellfish, mud crabs, and tamilok (mangrove woodworm) are a staple source of protein in our diet. We breathe clean air from the oxygen filtered by the mangroves. Our ancestors have taught us **soud notiyagan** (traditional knowledge), to value and protect the environment, from the lands and forests down to the seas, so we will be spared from tsunami and other natural disasters."*

Royee Ponce de Leon, Project Manager, Kutunggan Puring Association, 2024



management of environmental resources and be shared widely.

Active listening—listen attentively, understand, respond, reflect and retain the information to design solutions—to the voices on the ground, who speak for nature, **is critical in co-designing community learning hubs that help embed community voices and knowledge in local governance for the environment.** Hence, the project team listens and is still consulting with Royee as one of the voices.

COMMUNITY LEARNING & INNOVATION HUBS FOR COMMUNITY-LED ECOSYSTEM STEWARDSHIP IN THE CORAL TRIANGLE

COMMUNITY LEARNING AND INNOVATION HUBS AIM TO INTEGRATE COMMUNITIES TO CO-DEVELOP SOLUTIONS IN STRENGTHENING MARINE AND COASTAL RESOURCE MANAGEMENT AND COMMUNITY RESILIENCE TO CLIMATE CHANGE IMPACTS.

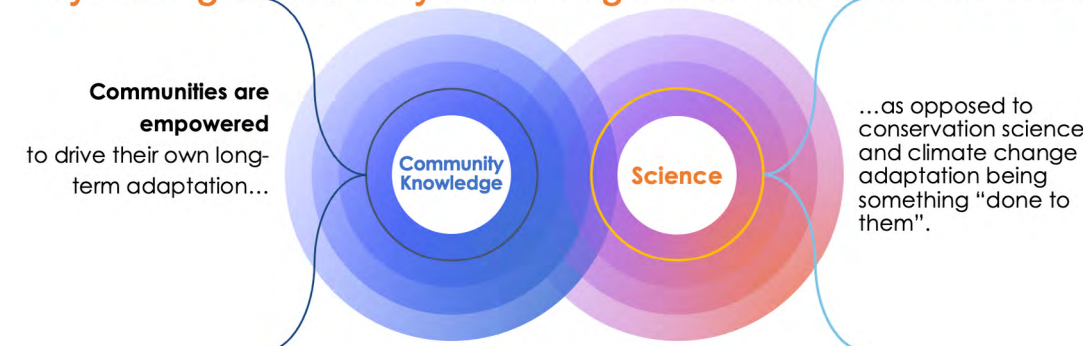
[WWF COASTAL COMMUNITIES INITIATIVE, 2022.](#)

Box 1: Codesigning Community Learning & Innovation Hubs for Ecosystem Stewardship

WWF works with local organizations or informal groups in the Coral Triangle to create a network of community learning and innovation hubs (CLIHs), to scale knowledge exchange and adaptive peer learning among coastal community groups. By integrating community needs with ecological conservation, the network aims to improve shared capacity for effective management of coastal and marine resources, build community resilience for climate change and other local to global threats, develop diverse and sustainable livelihoods, and safeguard food security for coastal communities.

Opportunities for local communities through co-creation

by linking community knowledge & conservation science:



Learning denotes teaching, which gives a sense that there will be formulated modules passed on to the 'learners' by the teachers. With access to better technology, self-learning (through an app or online course) is possible whereby creators of learning modules or the community that's sharing knowledge become the teachers/knowledge creators. Learning also points to understanding new concepts, frameworks, contexts, etc. but doesn't necessarily denote taking action or creating solutions.

Innovation is where action kicks in, where ideas informed by the learning can be developed into solutions that are then tested and importantly, allowed to fail—quickly if possible, so improved versions can be developed. Innovation as a concept allows for ideation, prototyping and tweaking.

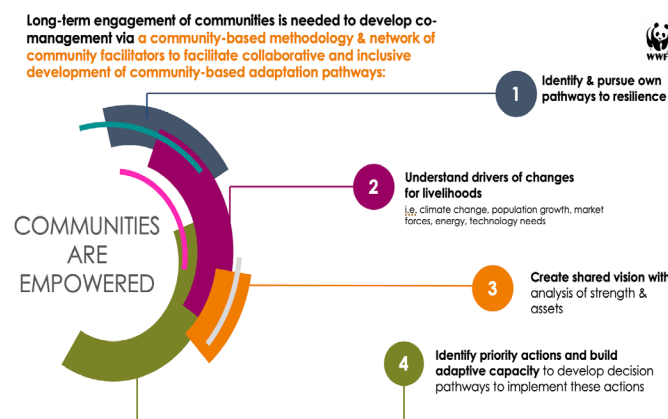
Open innovation hubs provide the space where multiple stakeholders within a locality and context—a coastal community area, marine protected area (MPA), and other effective area-based conservation measure (OECM)—commit their time to work together to conduct events and programmes, where learning, creativity and mutual value generation are discovered and implemented. Open innovation balances continuous engagement of all 'core parties' as well as result-oriented short-term engagement of non-core parties depending on the topics. Innovation is not purely a transaction between two parties but involves multiple stakeholders—including WWF, other NGOs, Coastal Community Organizations (CCOs), local communities, academics and technology partners—sharing and co-creating in a consortium model to achieve common goals by combining resources, expertise, and risk.

Bridging the gaps between community and other institutions



- bridging disconnected layers of governance
- promoting community-centric solutions
- amplifying the voice and role of coastal communities in becoming on-par with existing institutions in coastal resource management

Building a Network of Community Learning and Innovation Hubs in the Coral Triangle



The CLIH aims to integrate communities to co-develop solutions in strengthening marine and coastal resource management, and for community resilience to climate change impacts.

Long-term engagement with local communities is needed to develop co-management via a community-based methodology and network of community facilitators to facilitate collaborative and inclusive development of community-based adaptation pathways.

Empowered communities can:

- Identify and pursue their own pathways to resilience;
- Understand drivers of changes for livelihoods; i.e. climate change, population growth, market forces, energy, technology needs;
- Create shared vision with analysis of strength and assets;
- Identify priority actions and build adaptive capacity to develop decision pathways to implement these actions.

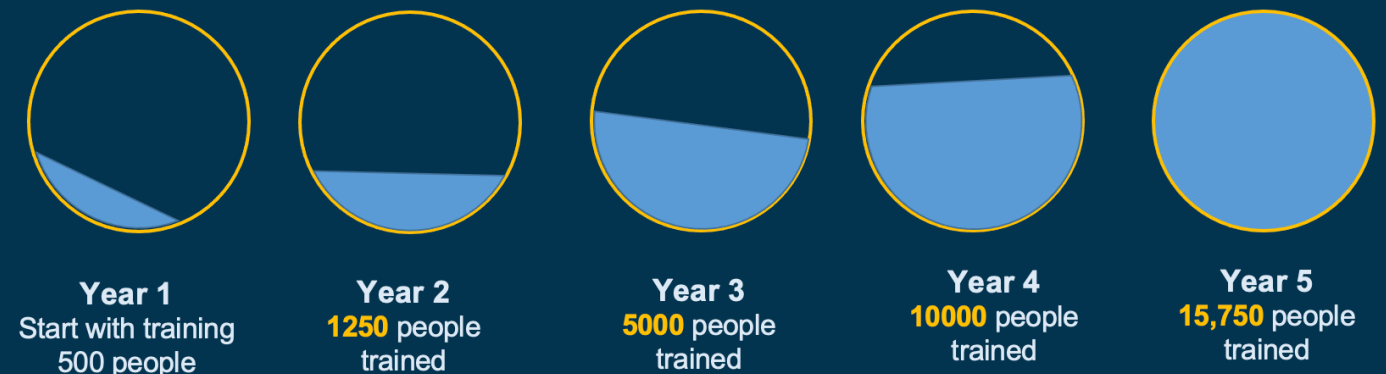
MEETING OUR AMBITIONS

MASSIVE SCALING OF CAPACITY TO ENABLE AN EXPANSION OF MARINE PROTECTED AREAS

We will take lessons learnt in creating a wider network of Learning and Innovation Hubs, which could become connected to proposed networks of *Marine Centres of Excellence (CoE)* - a key feature of the Coral Triangle's new 5-year strategic plan.

CoEs are meant to target upper levels of government institutions (policy makers, local government leaders, MPA managers and staffs etc), the academia (marine science, social science, etc) and industries (tourism, fisheries, waste management etc), and focus on promoting global standards in MPA and fisheries management, strengthening governance, leveraging multidisciplinary leadership, and building capacity

A potential trajectory for MPA Centres of Excellence – supporting Aichi Target 11



Source of data: WWF, 2024

Who speaks for nature

“WHO SPEAKS FOR NATURE? WE ARRIVED AT THE VIEW THAT THE WORLD’S INDIGENOUS PEOPLE ARE BEST PLACED TO SPEAK FOR NATURE.”

WORLD ECONOMIC FORUM, 2023.

Harnessing the wisdom and knowledge of coastal communities. In Southeast Asia, indigenous coastal communities have long existed alongside mangrove forest ecosystems—home to rich biodiversity and local cultures that carry knowledge and experiences about the practical management of biodiversity, ecosystem services and the cultural and spiritual significance of nature (Buenavista and Purnobasuki, 2023). The current threat is not just to the mangrove ecosystems but also to the indigenous and local knowledge systems, which are slowly fading (Fernández-Llamazares et al., 2021).

Nature-based solutions—tackling societal problems by protecting, managing and restoring natural ecosystems—are crucial to climate resilience. Guidelines, frameworks and standards have been designed to support the development, assessment and promotion of climate actions. Governance tools must evolve to include the rights and voices of Indigenous peoples in their criteria and indicators, from the local communities’ standpoint and using their knowledge system.

Indigenous peoples account for 5% of the world’s population, but effectively manage a third of the earth’s landscapes; lands that coincide with areas holding 80% of the terrestrial biodiversity and 40% of protected areas and ecologically intact landscapes. Most are in good or fair ecological condition today, a testament to the effectiveness of long-term indigenous stewardship in managing complex natural environments (World Economic Forum, 2023).

Active listening requires us to listen attentively to the community, understand what they are saying, respond and reflect on what they are saying, and retain the information to codesign solutions that are

specific to the community. This is especially true for communities with oral traditions who communicate through storytelling, legends, myths and dance repeated over generations.

The WWF-Philippines team learned that “... actively listening to what the community needs and their aspirations is very time consuming, and requires a lot of patience and the ability to interpret nonverbal cues”, says Trisha Guzman, Communications and Training Coordinator of WWF-Philippines in Palawan.

The Molbog community’s **oral traditions** are communicated through myths and legends. Much of the traditions that relate to mangroves and the environment are mentally recorded by oral repositories, sometimes termed as “**walking libraries**”. These traditions are accounts of the way things are—the natural order of things—and about how they should be. It helps the community educate the young and teach important lessons about life and the past. The Molbog are distributed across Bataraza and Balabac Island in southern Palawan and Banggi Island in Borneo, with a population of 30,176 in 2012 (NSO, 2010).

Takashi Tsuji’s (2022) research from 1999–2017 in Bataraza—through observations, interviews and collection of marine shellfish—revealed that the Molbogs have a sophisticated language and culture expressed through their oral literature which is strongly connected to the natural world. His research identified the Molbogs’ system of folk taxonomy—vernacular naming system—for shellfish. He collected 30 family and 55 species of shellfish—based on scientific taxonomy—that the Molbog folk taxonomy identified is linked to nomenclature (64%), material culture (22%) and folk beliefs (15%) (Tsuji, 2022).

WWF, our donors, governments, and partners rely on a culture of written records and accounts, yet oral tradition remains the dominant mode of communication in the 21st century, despite increasing rates of literacy (Britannica, 2024). A key consideration for the team is how to incorporate different styles of communication in a learning hub, and benefit from the experience gained through first-hand practical knowledge of these communities that ensures retention and assumes an active role for the community, to fulfil a clear and important function in the communities that maintain them. Oral traditions depend on

multiple, distributed inputs and ultimately derive their strength from their ability to change and adapt. The teams’ added value are technology and science, including smart phones and social media to support new virtual walking libraries.

Lasting significance. When funding runs out and when we leave the community, the aim is to leave them with lasting significance—so they can continue to coexist with their natural environments, be adaptable and continue to be relevant.

Figure 2: Molbog Indigenous People from KNMSKK measuring a mangrove’s diameter at breast height (DBH).
© Kymry Delijero/WWF-Philippines



LEARNING AND INNOVATION HUBS FOR MANGROVE RESTORATION WITH DIFFERENT SCOPES AND LEVELS IN PALAWAN

After listening to diverse groups—fishers, farmers, housewives, merchants, students, teachers, local government workers and politicians—a Community Learning and Innovation Hub (CLIH) Framework (Figure 3) for Bataraza and Balabac was developed, built on a sound foundation of community knowledge, good governance principles and innovative science.

The initial focus of these learning and innovation hubs was on mangrove restoration. However, understanding the inter-relationship between ecosystems and human wellbeing made it natural to expand the scope to cover coastal marine environments and associated, socioeconomic and cultural concerns which eventually defined the purpose of CLIHs—for knowledge exchange and adaptive peer learning among coastal communities to:

- Integrate community needs with ecological conservation;
- Improve shared capacity for effective management of coastal and marine resources;
- Build community resilience for climate change and other local to global threats;
- Develop diverse and sustainable livelihoods and safeguard for food security.

Beyond supporting long-term restoration, the hubs would serve as an evolving space for communities to bridge disconnected layers of governance, promote community-centric solutions, and amplify the voice and role of coastal communities



Above: BLIH Exhibit at Bataraza Town Center
© Trisha Guzman/WWF-Philippines
Below: CLIH at Brgy. Buliluyan, Bataraza
© Kymry Delijero/WWF-Philippines

in becoming on-par with existing institutions in coastal resource management.

This codesigning follows the approach of the Coral Triangle network of community learning and innovation hubs (Box 2).

Box 2: Implementing the Framework for Community Learning and Innovation Hubs (CLIHs) in Bataraza

Success Factors

The framework guided the establishment of CLIH at several levels and was codesigned with corresponding partners. The Bataraza Learning and Innovation Hub (BLIH) was codesigned with the Bataraza municipal government, its satellite in Buliluyan with the *barangay*¹ government in Bataraza and the *Kosombilugan Ngoni Molbog Suku Ka'ay Koboh'kowan* (KNMSKK) Learning Centre in Melville with the Molbog Indigenous people in Balabac island.

While the BLIH is physically located in Bataraza, its reach extends beyond the local government administrative boundary, and serves and supports not only the Bataraza communities but also the coastal communities in Balabac.

Training and Education

- Conducted training/capacity needs assessment through consultation with various stakeholders, and a local communication and capability-building programme was developed.
- 28 workshops/meetings/training were organized in support of the establishment and operation of the BLIH in 2024.

Connecting Science and Community

- The basic BLIH framework (Figure 2) is a model and so is dynamic and changes to respond to the needs of the community.
- After several community consultations, the BLIH framework was revised. It aims to integrate communities to co-develop solutions in strengthening marine and coastal resource management, and community resilience to climate change impacts. The BLIH serves as an enabling platform for local resource managers to take on conservation challenges (e.g. habitat restoration, local waste management or preventing plastic leakage, species protection and sustainable small-scale fisheries) that answer community needs.
- Likewise, it would serve as an evolving space for communities to bridge disconnected layers of governance, promote community-centric solutions, and amplify the voice and role of coastal communities in becoming on-par with existing institutions in coastal resource management. Through a learning-by-doing approach, the BLIH was co-created between and among government, civil society, academe, business, and other private entities or stakeholders. These areas of collaboration were classified into three groups that form BLIH's strategic pillars:

1. Interactive community learning;
2. Knowledge development, management and production; and
3. Information, education, and advocacy (Figure 3).

¹ A *barangay* is the smallest unit of government in the Philippines and is the native Filipino term for a village or municipality.

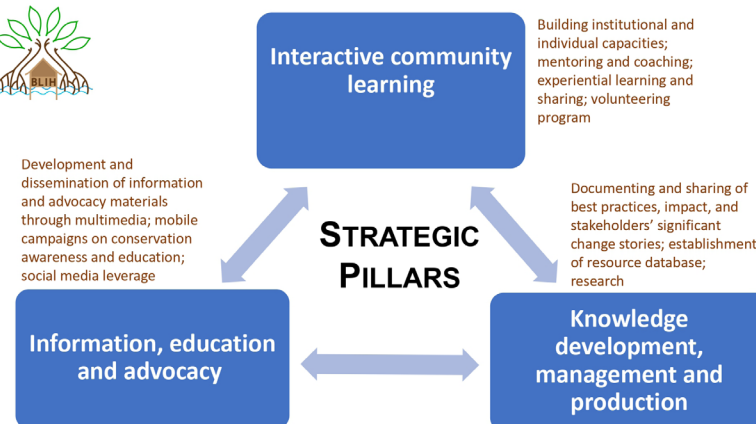
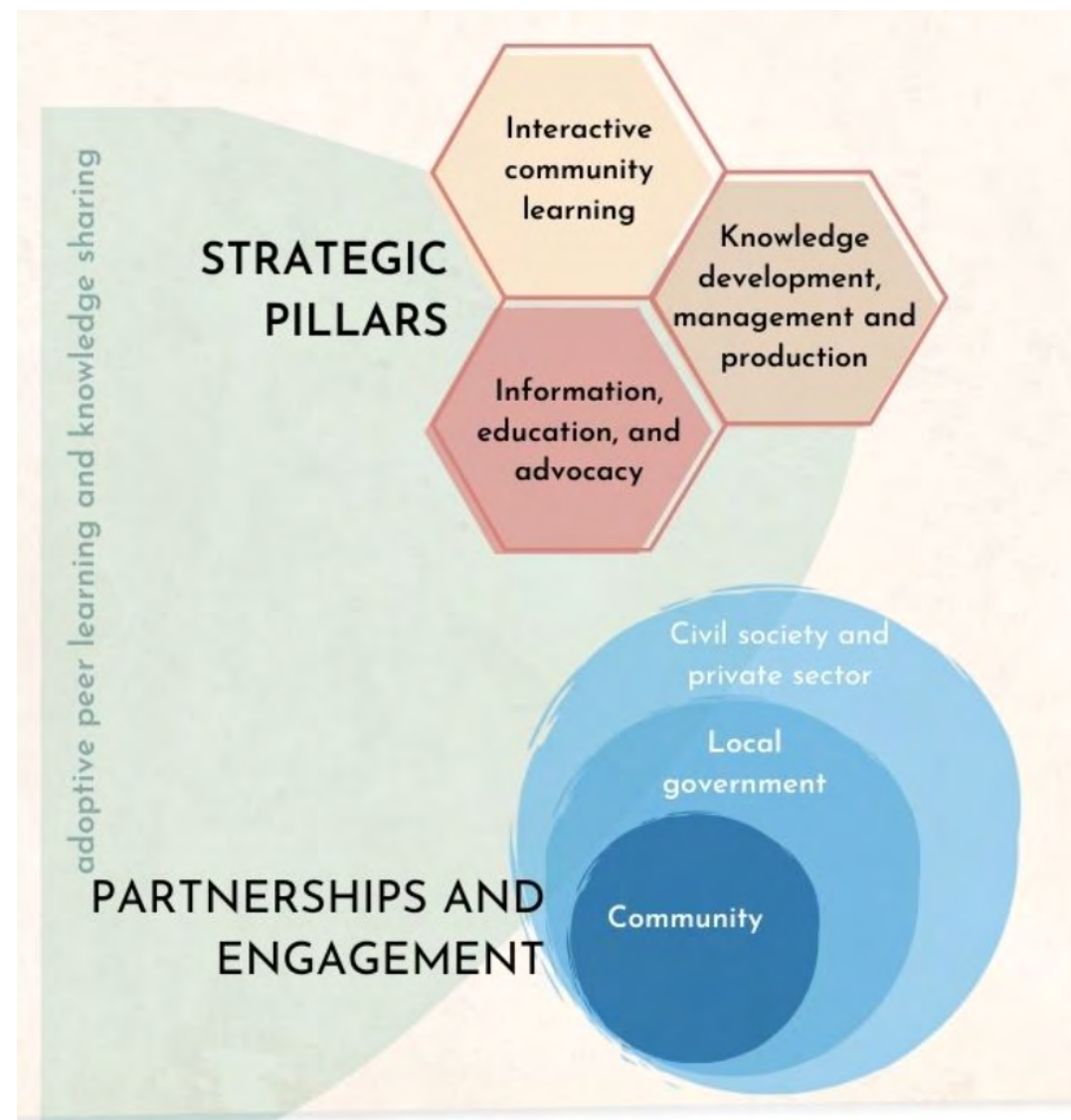


Figure 3 (Upper): Basic framework (Source: Epson Project Brochure).
Figure 4 (Below): BLIH revised framework (Source: WWF-Philippines)

- At the Community and Learning Innovation Hubs, the communities learned **species identification, why mangroves are important, technical and practical skills to plant, maintain and monitor the growth of mangrove species.**
- Five sites were delineated and marked on the ground for mangrove restoration (3 sites in Bataraza-Tagnato, Puring and Buliluyan; 2 sites in Balabac)
- WWF staff initially suggested using coconut husks to plant mangrove seedlings, which is more eco-friendly than plastic bags but it was not a good option as the coconuts floated when the tide came in. **The local community in Bataraza then suggested using buri palm (*Corypha utan*) woven baskets** that are weighed down by mud soil and degradable. Income can be earned by the women supplying the woven baskets.
- Two livelihood activities initiated in consultation with the people's organizations in Balabac and Bataraza are mud crab culture and sea cucumber culture.
- Champions identified:
 - Habiron P. Bacar, previous *barangay* Captain of Melville and coordinator for the Molbog Indigenous Community Conservation Area, facilitated the Molbog tribe to improve their access to partnership, and initiated the setup of the *Kosombilugan Ngoni Molbog Suku Ka'ay Koboh'kowan* (KNMSKK) Learning Centre in Melville.
 - Melanie C. Pineda, a board member of KPA, also leads the Puring Women's Association that supplies woven baskets to the nursery for holding mangrove seedlings.

"Our mangrove ecosystem affords us food such as shells, woodworms, fish, and crabs. Non-timber products like pandan and buri leaves can be woven into bags, mats, and baskets, as an alternative livelihood source to supplement our daily needs. Instead of relying on destructive activities that destroy our ecosystem, create ecological imbalance, and contribute to global warming, we can utilize our resources wisely by engaging in biodiversity-friendly enterprise."

Melanie C. Pineda, President of Puring Women's Association and one of the board of directors of Kutunggan Puring Association BLIH Facebook, March 2025.



Community Development

- Economic benefit: Alternative sources of income are introduced.
 - A communal ferrocement water tank was built, with 3 craftsmen trained in installation and maintenance, for the Mangrove Association (KNMSKK) in Melville. The craftsmen can earn additional income by installing water tanks in other sites.
 - A crab culture facility was established with crab cage demonstration units and crab traps. The sale of crabs to tourist restaurants in Melville can generate income.

- The KNMSKK invested in a satellite internet system, Starlink, in response to the basic need for communication in the isolated community. The WiFi use is available to the entire community at a cost ranging from PHP200-500 per day, thus generating revenue for the association to use in other projects.
- The KNMSKK is registered as a legal people's organization with a bank account and official business address. It was awarded a subgrant to set up the Learning Centre and members have demonstrated capability to mobilize themselves based on their local and traditional beliefs.
- Similarly, the Kutunggan Puring Association (KPA) was awarded 2 subgrants to facilitate mangrove restoration training with community partners in Tag-nato and Buliluyan, and to monitor and maintain restoration sites.
- Long-term collaboration
 - The KPA assisted the Bataraza local government in providing the seedlings and preparing the planting sites for the mangrove tree planting activity in Barangay Puring during the Civil Service Month celebration in 2024. Initial site monitoring showed a 64% survival rate, and the association has committed to monitor and maintain the mangrove plants within the restoration sites.

Social Benefit: Knowledge and Cultural Impacts

- Starlink provides connectivity not only among local community members in Melville, but also with their friends and family out of the *barangay* and with the rest of the world.
- Improved communication is important for sharing information and learning mangrove restoration, and especially for emergency cases.
- Learning materials produced in the Alternative Learning System (ALS) writeshop, integrate science and traditional practices, and serve as localized resources for facilitators. Local cultural and traditional beliefs were recognized in the codesign of the restoration projects.
- Also produced are:
 - a. A [Field Guide](#) to the Mangrove Species in Bataraza and Balabac, Palawan
 - b. A [Training Manual](#) on Mangrove Restoration (in Filipino and English)

Results and Achievements

WWF's holistic approach to community-led conservation to support sustainable and inclusive natural resource management is guided by a 5-point plan²:

1. Co-management and access rights secured in national policy
2. Co-management/community governance arrangements operationalised
3. Management is informed by community-led monitoring or local knowledge
4. Effective ecosystem protection and restoration
5. Community resilience enhanced through diversified, climate resilient, alternative livelihoods

The coastal communities in Bataraza made initial progress on its coastal management plan and recognized the community's importance, but no formal policy was developed. Community governance arrangements met three of four criteria (from 5-point plan indicators), though funding mechanisms remain weak. Resource assessment was minimal, with limited data collection and traditional knowledge



Figure 5: Women from Barangay Buliluyan, Bataraza pose during their regular monitoring and maintenance of mangrove restoration sites. © Kymry Delijero/WWF-Philippines

integration, resulting in few management measures. Only limited spatial management or protection/restoration was underway, in early phases of implementation. Alternative livelihood options have been explored, but no new businesses were established (WWF ACCLC, 2022).

In Balabac, moderate progress was also made in recognizing the importance of the community without developing formal policies. Community governance arrangements have achieved success in three of four criteria, though one area remains underdeveloped. A data collection system incorporating local ecological knowledge, enabled basic fish stock assessments that inform limited management measures. Spatial management and restoration efforts remain in the early phases. Several small-scale alternative livelihood prototypes have been trialled—including mud crab and sea cucumber cultures—but these remain limited in economic impact (WWF ACCLC, 2022).

The next step could be to have updated assessments of both Bataraza and Balabac projects based on the 5-point plan, and make a comparison with the results from 2022 to measure achievements.

Sources of data: WWF-Philippines, 2022 and 2024

²For more on the 5-point plan and scaling strategy, read [WWF Coastal Communities Initiative Impact Report 2020–2030 – Scaling Toward a Healthy Ocean and Resilient Coastal Communities](#)

PROJECT DESCRIPTIONS: BATARAZA, BULILUYAN, AND MELVILLE COMMUNITY LEARNING HUBS

Bataraza Learning and Innovation Hub (BLIH)

Launched in January 2023, the BLIH started with 11 partners operating at the municipal level. They signified their commitment through an Memorandum of Understanding (MOU) which enables the Municipal Mayor to call on all government, non-government and private entities operating in Bataraza to cooperate and be involved in implementing agreed activities.

The activities were based on the Ocean Governance Project funded by the European Union and co-financed by Epson under its partnership with the WWF Coral Triangle Programme, WWF-Indonesia and WWF-Singapore. The entry point was mangrove restoration but does not preclude other coastal and marine ecosystems

found in the Bataraza and [Balabac](#) project sites.

In Southeast Asia, the Philippines with 356,000 ha of mangroves (Gevaña, 2018) is one of the top mangrove loss hotspots in the world, estimated at 0.5% per year. It also exhibits the second-highest cultural diversity with 110 Indigenous groups (Buenavista and Purnobasuki, 2023).

Consultations for the establishment of BLIH started in July 2022 with the support of the Municipal Mayor and leaders in the three *barangays* of Tagnato, Puring and Buliluyan, which were selected because of the relatively good mangroves but also because these areas showed evidence of deforestation due to illegal cutting.

Figure 6: Unveiling of the BLIH exhibit at the Bataraza Town Center. © Trisha Guzman/WWF-Philippines



"The establishment of the Bataraza Learning and Innovation Hub will significantly impact the local community. It will provide space where individuals can pursue lifelong learning and personal development, reducing barriers to education and knowledge access. By nurturing a spirit of curiosity and innovation, the Hub is helping Bataraza for the challenges of the modern world while celebrating their unique cultural heritage."

Imelda C. Clores,
Sangguniang Bayana³ Secretary, Municipality of Bataraza, 2025.

Buliluyan (Satellite) Learning and Innovation Hub

Developing CLIH at *barangay* level.

In Bataraza, the CLIH was initially developed at the district level (local government's strong interest, ideal scale, district level ability to reach more than one community). A *barangay* is the smallest unit of governance in the Philippines, where existing local administration structures and roles are already familiar to the communities. Developing the CLIH at the *barangay* level and potentially attaching to its structure, would ideally help to sustain it for the longer term, to ensure the CLIH remains accessible to communities and is focused on

strengthening community roles in ownership, in particular to foster an interest and enthusiasm for sharing their knowledge.

Subsequently in July 2023, the BLIH Buliluyan was launched as a satellite hub in Barangay Buliluyan, Bataraza. Strategically positioned at a key port that serves both local communities and tourists traveling to nearby islands, the facility houses essential training materials, knowledge resources, and relevant public information for the surrounding areas.

Figure 7: WWF-Philippines, together with Epson, celebrates World Mangroves Day in Bataraza, Palawan (Source: WWF-Philippines, 2023)



³ Legislative arm of the local government of Bataraza

The KNMSKK Learning Centre for Molbog Communities, Melville



Figure 8: The Kosombilugan Ngoni Molbog Suku Ka'ay Koboh'Kowan (KNMSKK) Learning Centre (Source: KNMSKK, 2023)

Realizing the long-term benefits of community learning concepts in the lives of the isolated Molbog tribe, the *Kosombilugan Ngoni Molbog Suku Ka'ay Koboh'kowan* (KNMSKK) established a Learning Centre (LC, Figure 8) in Barangay Melville in February 2023, with EU Ocean Governance and Epsom funding. KNMSKK is a people's organization created with support from the mangrove restoration project and duly registered with the Philippines's Department of Labor and Employment. The LC aims to provide an inclusive learning opportunity for surrounding Molbog communities by enriching indigenous knowledge and cultural values while embracing innovation and digital advancement.

KNMSKK has constructed a multipurpose building as a one-stop shop to serve

basic community needs. Its business services include providing residents with a 24/7 internet connection through Starlink-powered WiFi access and a retail store for household commodities. On top of these income-generating enterprises, KNMSKK has extended the house building to accommodate community learning initiatives. Initially, the association has set up a mini-library of educational materials and a reading area for interested adult community members and students. In collaboration with WWF-Philippines and the Department of Education Balabac District's Alternative Learning Programme, the association is co-developing contextualized learning materials for adult learning, which will also serve as supplemental education materials in the *barangay* school and other Molbog communities.

LESSONS LEARNED

Implementing good governance.

Legal Basis—Under Presidential Proclamation 2152 signed in 1981, the entire province of Palawan is a mangrove swamp forest reserve. Cutting of mangroves is prohibited but there has been no management plan to operationalize this protection status. Starting on a strong foundation with the law in place, the Bataraza and Balabac municipal governments and WWF-Philippines were able to introduce ways to operationalize the protection of mangroves through collaborations within the CLIHs.

Participatory, Consultative and Consensus-oriented—The concept of CLIH has been in existence informally. In the Philippines, everyone is usually invited for workshops, to discover and leverage on each other's strengths. The community members of the hubs should involve the active/vocal members to help gather groups and lead on the activities.

Responsive and Inclusive—The hub should be able to reach out to all levels of the communities, and include the youth and women. They are working together with us, and we need to take into account their concerns and feed into/incorporate these into the hub's pillars, activities and site action and operational plans.

Proof of flexible and adaptable concept. The concept of the CLIH should be flexible and adaptable in its development and implementation. Given that the hub is meant to serve and eventually become led by the community, it needed to be developed based on the opportunities available in the area of implementation. The WWF-Philippines team learned to listen actively and be open to different ideas and perspectives, and were willing to consider alternative approaches in consultation with the community.

Sustaining the CLIHs. The hubs need to find solutions for long-term sustainable financing, so as not to be reliant on government budgets or CSOs/NGOs.

For long-term sustainability, capability building, and communications and business plans are being developed through training and learning exchanges with local partners and WWF offices in the Sulu Sulawesi Seascape. Empowering local leadership with long-term direction, coupled with a practical strategy and clear course of action, will enable the core community facilitators to continue facilitation and implementation of the hubs.

Established and registered as people's organizations, the KNMSKK and KPA have bank accounts, and their members are mobilizing themselves to receive funds and create income for their activities.

Enabling factors. Finding the right partners, right skills and knowledge, and willingness to work together on shared goals is critical for implementing CLIHs (Box 3).

Box 3: Establishing Collaboration and Partnerships with Key Stakeholders, Critical for Community Learning and Innovation Hubs

Local agencies/organizations have identified their contribution, roles, and responsibilities in a Memorandum of Understanding (MOU) signed in July 2023.

Government/Agencies

- Department of Education - Bataraza District 1
- Office of the Municipal Mayor
- Office of the Sangguniang Bayan
- Municipal Environment and Natural Resources Office (MENRO)
- Municipal Tourism Office (MTO)
- Municipal Agriculture Office (MAO)
- Municipal Economic & Enterprise Development Office (MEEDO)
- Public Information System of Bataraza (PIS)
- Municipal Planning & Development Office (MPDO)

Academe

- Palawan State University - Bataraza Campus
- Department of Education - Bataraza District
- Mindanao State University

NGO

- WWF

Local Community Group Champions

- Kutungan Puring Association (KPA)—partnership for mangrove restoration, 100 ha, Bataraza; 26 members (20 males, 6 females)
- *Kosombilugan Ngoni Molbog Suku Ka'ay Koboh'Kowan* (KNMSKK) Melville, Balabac; 20 members (15 males, 5 females)
- Buliluyan Mangrove Planters; 42 members (28 males, 14 females)
- Tagnato Mangrove Planters; 29 members (20 males, 9 females)

The two main community groups, KPA and KNMSKK, were established to help develop sustainable actions and innovations for mangrove restoration. As community dwellers, they possess traditional and local knowledge which, coupled with scientific knowledge, provide effective and efficient ways of addressing the challenges in mangrove restoration.

One of their innovations is the use of natural and sustainable materials—coconut husks and small baskets woven from buri palm leaves—as containers for mangrove seedlings. The use of natural containers prevents the use of plastic bags that could end up being waste which pollute the land and seas.

Private Sector

- [Project Zaccheus Marketing Cooperative](#) is a grassroots-driven tech company that seeks impact-focused opportunities to eradicate poverty by optimizing innovations and developing a servant leadership culture. The company is a hybrid model community-based driven enterprise registered both as a corporation and cooperative. Some of their projects include: Eco Kolek (Empowered Community Waste Pickers); Farm Konek (Empowered Farmers); Juana Fresh (Empowering Impact Vendors); and Seaside Tailors (Empowered Coastal Dwellers).
- [Kwentong Arkipelago](#) is an environmental non-profit organization working to empower and mobilize Filipino youth to become stewards of nature, champions of sustainability, and catalysts of lasting positive change through community-building and environmental storytelling. Their project, *Saribuhay: Storytelling for a Greener Tomorrow*, utilizes storytelling as a tool for education and empowerment in addressing Balabac's significant environmental challenges, such as habitat loss and sustainable conservation practices.
- This collaboration has led to contributing technical inputs on the storybook *Si Sally at Sari-saring Buhay* (Sally and Our Shared Home), a Tagalog-English children's storybook highlighting the biodiversity of Balabac, and what children can do to help protect their environment. Aside from this, experiences from the mangrove ecosystem restoration were shared in a capacity-building workshop with elementary teachers focusing on the challenges to Balabac's natural heritage.

Bataraza Database

Dubbed as the 'local Google' of Bataraza, the online database was opened to the public in January 2025. Created by the BLIH, this pioneering local initiative features a search engine loaded with a wealth of information, such as updates, community news, and learning materials on developmental programme planning and conservation.



"The BLIH database launch is the first here in Bataraza. We thank everyone for their efforts, our partners—the provincial government, all our divisional sectors and WWF. This would not have materialized if it were only us working. Hence, we need to help each other. We need to keep pace with the modern world. Bataraza is a leading municipality in Palawan, and that's why we need to keep up, especially in the education sector, with our universities and the Department of Education."

Abraham M. Ibba,
Mayor, Municipality of Bataraza, BLIH Database Launch, January 2025

According to SB Secretary of the municipality, Imelda C. Clores, the BLIH database should be fully embraced, as it is a product that Bataraza has the advantage over other municipalities. The learning itself would be embraced by the members as well. The Hub has enabled different offices within the municipality to contact and work with each other on issues other than the usual under our government mandates (Year-end BLIH meeting, December 2024).

Specific Knowledge and Training Needs Provided

The community initially identified skills and knowledge about mangroves as the necessary 'science', including species and ecology, outplanting method, nursery establishment, monitoring, and maintenance of restoration sites through citizen science.

The project is on target meeting training needs with:

- Workshop/meeting/trainings: **34** (April 2022 to December 2023: 20; January to March 2024: 8; May to Oct 2024: 6)
- Community members/community groups involved in restoration/monitoring: **117** members (83 males, 34 females) in 4 community groups
- Participants contributing to restoration/monitoring: **211**
- Youth that are part of BLIH: **80** students (elementary and junior high).

Source of data: WWF-Philippines, 2024

Figure 9: Bataraza and Balabac partners from the local government, village leaders, and Indigenous People groups participate in a mangrove learning exchange study in Puerto Princesa Subterranean River National Park—one of the two UNESCO World Heritage sites found in Palawan. © WWF-Philippines



CHALLENGES



Figure 10: Gairel presenting at the Sulu Sulawesi Seascape Community Learning Exchange in Semporna, Sabah, February 2025. © Angela Lim/WWF Coral Triangle Programme

Social application of the framework at the community level, municipal level wherein the term learning hub is identified as a 'physical structure' is a challenge. The BLIH MOU signatories are identified as another informal group/technical working group to facilitate short-term projects and activities. This is being addressed through monthly meetings, stressing the importance of action points for each member during those meetings, and by putting a system in place among the BLIH MOU signatories.

Action points during BLIH meetings are often not met or achieved without follow up from non-government officers or key BLIH members present. There should be a formal directive which is aligned with the member organization's chain of command/authority.

Need to identify motivated community champions (individuals or people's organisations). Working in remote areas such as Balabac Island is physically, mentally and psychologically challenging for WWF officers. Motivated and experienced project officers play a key role, but a motivated community organizer on the ground is just as important. It is challenging to have

a dedicated WWF project officer who can spend extended periods of time in these sites. To ensure consistency in project implementation, it is important to have local facilitators or community organizers on the ground who can work closely with WWF officers.

To meet this challenge, in addition to the community champions, Habiron and Melanie, Royee was appointed KPA project manager in Bataraza and Gairel Bakkaw Edem as KNMSKK project manager in Melville. Aptly named, Gairel's middle name is Bakkaw, which means *boh'kow* or mangrove, given by his *lolo* (maternal grandfather). Traditionally, his *lolo* used mangrove bark to tan or colour cloth made from other tree bark. Now, with his newly acquired knowledge of mangroves, Gairel is leading the KNMSKK to restore mangroves in Melville.

Funding. The availability of funds for collaboration under the BLIH is often dependent on the Project's cost. BLIH members, who are under government offices, could help by getting funding budgeted early in their budgeting season for the calendar year.

NEXT STEPS

Advocate to connect with other coastal community groups, as well as initiate the network of learning hubs in the entire Palawan (started with Melville, Balabac; Bataraza; then Bulliluyan).

Apply the CLIH framework at the provincial level. While the EU Ocean Governance Project officially ended in Palawan, it did pave the way for a corporate partner, Epson, to continue the initiative. Due to all stakeholders' willingness and interest, they were able to be a part of another project—the Oceans 5, in relation to 30 x 30 goals where 30% of coastal and marine areas should

be protected. Through this, the Bataraza community will not only contribute to the national and global targets, but also establish a bridge or connector across all stakeholders.

Future application of the CLIH framework will be scaled up at the provincial level—an opportunity to influence policy at a higher level—and has the potential to scale out and cross borders to neighbouring countries. Palawan and a large part of the Philippine archipelago are part of the Sulu Sulawesi Seascape where the health of the local marine and mangrove ecosystems can have a

"Bringing together international organizations, business groups, the academe, civil society organizations, national and local government units, and community members to collaborate on solutions for environmental concerns is a win-win for everyone, especially nature."

Joan Pecson,
Project Manager of WWF-Philippines in Palawan, 2024



ripple effect on neighbouring countries of Indonesia and Malaysia.

As a prototype model that has been tested and replicated successfully, the Bataraza Learning and Innovation Hub can be offered to the Palawan Council for Sustainable Development (PCSD) or the Palawan provincial government as a hub for coastal communities in southern Palawan to learn about mangrove management and other related

issues. Coastal communities in Palawan dependent on fisheries and tourism for livelihoods face similar threats to their associated ecosystems, like seagrass and coral reefs, and from climate change and plastic waste.

KEY MESSAGES FROM BATARAZA AND BALABAC

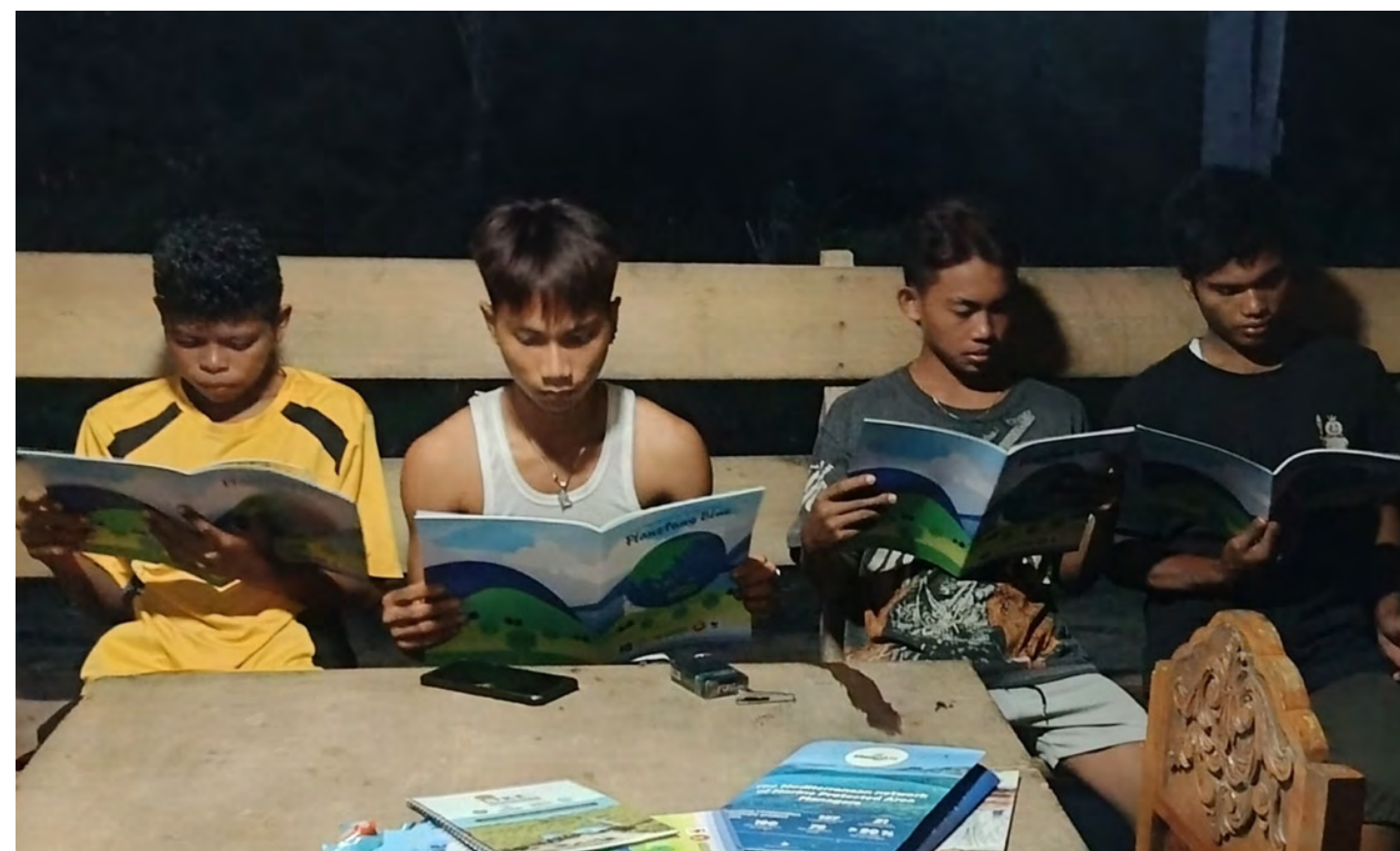


Figure 11: Molbog Indigenous People in Melville, Balabac, browsing the Planetang Blue—a youth-oriented workbook on marine conservation developed by the Tubbataha Management Office. © Joslan Onding/KNMSKK

We have a Community Learning and Innovation Hub framework that works for different scopes and levels of governance. In the Indigenous communities of Palawan, the transmission of knowledge relies on skilled leaders like Royee and Gairel who play a crucial role in shaping the narrative and learning points, adapting it to the local audience and site conditions, and to ensure the continuous transmission of knowledge down through generations—the communities' collective memories and learning that contribute to the preservation and restoration of mangroves and natural resources. More importantly, **through collaborations and codesigned community learning and innovation hubs**, these communities have a platform to be heard and an opportunity to **embed their knowledge and voices in strengthening local governance for ecosystem restoration in Palawan.**

REFERENCES

- Bataraza Learning and Innovation Hub. n. d. Bataraza Learning & Innovation Hub Facebook. Bataraza Learning and Innovation Hub, Bataraza, Palawan.
- Bataraza Learning and Innovation Hub. n. d. BLIH framework. Bataraza Learning and Innovation Hub, Bataraza, Palawan.
- Foley, J. M. 2024. Oral tradition. Britannica. <https://www.britannica.com/topic/oral-tradition>
- Buenavista, D. and Purnobasuki, H. 2023. People and Mangroves: Biocultural Utilization of Mangrove Forest Ecosystem in Southeast Asia. *Journal of Marine and Island Cultures* 12. doi: 10.21463/jmic.20
- Fernández-Llamazares et al. 2021. Scientists' Warning to Humanity on Threats to Indigenous and Local Knowledge Systems. *Journal of Ethnobiology* 41. doi: 10.2993/0278-0771-41.2.144
- Gevaña, D. 2018. Mangroves and Climate Change: Prospects and Challenges in Blue Carbon Governance in the Philippines. UPLB Centennial Professorial Lecture and SEARCA Agricultural Development Seminar Series (ADSS). University of the Philippines Los Banos, Republic of the Philippines.
- National Statistics Office (NSO). 2010. The 2010 Census of Population and Housing Reveals the Philippine Population at 92.34 Million. Philippine Statistics Authority, Republic of the Philippines.
- Philippine Atmospheric, Geophysical and Astronomical Services Administration. n. d. Tropical Cyclone Information. Department of Science and Technology, Republic of the Philippines. <https://www.pagasa.dost.gov.ph/climate/tropical-cyclone-information>
- Tsuji, T. 2022. Oral Literature on Shellfish among the Molbog of Southern Palawan in the Philippines. ResearchGate.
- UNESCO. 2023. An Inside Look at the Beauty and Benefits of Mangroves. UNESCO. <https://www.unesco.org/en/articles/inside-look-beauty-and-benefits-mangroves#:~:text=Of%20the%20over%201%2C500%20species,worsening%20for%20most%20of%20them>
- World Economic Forum. 2023. What centring indigenous knowledge really means when it comes to nature-based solutions. <https://www.weforum.org/stories/2023/04/what-centring-indigenous-knowledge-really-means-when-it-comes-to-nature-based-solutions/>
- WWF. 2020. Community Learning and Innovation Hubs: A model for community-led ecosystem stewardship in the Coral Triangle [powerpoint]. WWF, Gland, Switzerland.
- WWF-Philippines. 2024. Bridging Communities and Government Towards Ecosystem Restoration at Local, National and Regional Scales: Regional Dialogue Report_Nov22-24. WWF-Philippines, Puerto Princesa, Palawan.
- WWF-Philippines. 2024. Participatory M&E Epsn April 2024 report. WWF-Philippines, Puerto Princesa, Palawan.
- WWF-Philippines. 2024. Quarterly Report May–Oct 2024. WWF-Philippines, Puerto Princesa, Palawan.
- WWF-Philippines. 2023. EU Ocean Governance Participatory Monitoring and Evaluation Report, 14Sep2023. WWF-Philippines, Puerto Princesa, Palawan.
- WWF-Philippines. 2022. WWF Accelerating Coastal Community-Led Conservation (ACCLC) Questionnaire 2022 for Balabac. WWF-Philippines, Puerto Princesa, Palawan.
- WWF-Philippines. 2022. WWF Accelerating Coastal Community-Led Conservation (ACCLC) Questionnaire 2022 for Bataraza. WWF-Philippines, Puerto Princesa, Palawan.

OUR MISSION IS TO CONSERVE NATURE AND REDUCE THE MOST PRESSING THREATS TO THE DIVERSITY OF LIFE ON EARTH.



Working to sustain the natural
world for the benefit of people
and wildlife.

together possible™ panda.org

WWF Coral Triangle Programme, hosted by **WWF Indonesia**.

Graha Simatupang, Tower 2 Unit C 7th Floor,

Jl. TB Simatupang No.11, Jakarta

T: +62217829461

Visit: panda.org/coraltriangle

Follow: twitter.com/coral_triangle

For contact details and further information, please visit our international website
at wwf.panda.org