The Future is Local:

Strengthening Local Collaboration for Sustainable Mangrove Conservation and Coastal Resilience in the Philippines

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IUFRO Working Party 9.03.06 – Biocultural Diversity (Division 9: Forest Policy and Economics)
Mangroves, Biocultural Diversity, and Livelihoods: Comparative Perspectives from Asia and Beyond
17 Nov 2026








Araceli Island, Northern Palawan

As much as 71-73 species are true mangroves found in 123 countries (FAO 2007; Spaliding et al 2010)

Of these, **39 species under 16 genera & 14 families can be found in the Philippines** (Primavera 2000, 2004)

Table 1 Number of subgeneric taxa in each true mangrove genera

Family	Genus	Number of species	Number of subspecies	Number of hybrids
ACANTHACEAE	*Acanthus*	2 (2)		
	Avicennia	8 (2)	4 (3)	
BIGNONIACEAE	*Dolichandrone*	1 (1)		
COMBRETACEAE	*Conocarpus*	1		
	Laguncularia	1		
	Lumnitzera	2 (2)		1
EUPHORBIACEAE	*Excoecaria*	3 (1)		
FABACEAE	*Cynometra*	1		
LYTHRACEAE	*Pemphis*	2 (1)		
	Sonneratia	6 (3)		2
MALVACEAE	*Camptostemon*	2 (1)		
	Heritiera	2		
MELIACEAE	*Aglaia*	1		
	Xylocarpus	2 (2)		
MYRSINACEAE	*Aegiceras*	2 (2)		
MYRTACEAE	*Osbornia*	1 (1)		
PELLICIERACEAE	*Pelliciera*	1		
PLUMBAGINACEAE	*Aegialitis*	2		
RHIZOPHORACEAE	*Bruguiera*	6 (4)		
	Ceriops	5 (2)		
	Kandelia	2 (1)		
	Rhizophora	6 (3)		4
RUBIACEAE	*Scyphiphora*	1 (1)		
Total 14 (11)	*23 (16)*	60 (29)	4 (3)	7 (0)

Note: Numbers inside the parenthesis are number of taxa present in the Philippines

Garcia, Malabrigo, Gevaña (2014)

Forest Science and Technology
2013, 1–8

Taylor & Francis
Taylor & Francis Group

Economic valuation for sustainable mangrove ecosystems management in Bohol and Palawan, Philippines

Antonio P. Carandang[a], Leni D. Camacho[a], Dixon T. Gevaña[a,c]*, Josefina T. Dizon[b], Sofronio C. Camacho[a], Catherine C. de Luna[a], Florencia B. Pulhin[a], Edwin A. Combalicer[a], Floribel D. Paras[a], Rose Jane J. Peras[a] and Lucrecio L. Rebugio[a]

Table 9. Total annual economic value.

Economic value	Banacon Island, Getafe, Bohol		Kamuning, Puerto Princesa City, Palawan	
Area (ha)	470.0		836.0	
Currency	US$	PHP	US$	PHP
Total market value	477,724.0	21,497,580.0	560,916.0	25,241,220.0
Estimated CVM value	8622.9	388,030.5	12,327.8	554,751.0
Recreational value	1850.0	83,250.0	62.0	2790.0
Total value	488,196.9	21,968,860.5	573,305.8	25,798,761.0
Value/ha	1038.7	46,741.5	685.8	30,861.0

DOI: 10.1080/21580103.2013.801149

Est. Total Present Econ value: USD 1,013 /ha



ECONOMY

Value of PHL mangroves declines sharply over two decades, World Bank says

October 27, 2021 | 10:01 pm

The asset value of Philippine mangroves declined 50% to $5.4 billion in 2018, from the $10.79 billion estimate in 1995

(Ref: World Bank : Changing Wealth of Nations 2021)

Source: bworldonline.com



Global mangrove cover (2020): 14.7 Mha

Loss Rate:
10,200 ha/yr

Source: GMW

Southeast Asia Mangrove: 4.95 M ha (34% global share)

Loss: 110,000 ha cover the past two decades

Philippine Mangrove: 311,400 ha

Loss Rate: ~330 ha/yr

Ambio
https://doi.org/10.1007/s13280-026-02481-0

KUNGL. VETENSKAPS-AKADEMIEN
THE ROYAL SWEDISH ACADEMY OF SCIENCES

Check for updates

PERSPECTIVE

Ambitious goals for global mangrove conservation and restoration

Mark D. Spalding, Steven W. J. Canty, Christopher J. Brown, Fernanda Achete, Gabin Agblonon, Khalid Hamid Ahmed Mohammed, Syed Ali Mohamed, Nessrine Alzahlawi, Virni B. Arifanti, Sreejith Kalpuzha Ashtamoorthy, Apri Susanto Astra, William E. N. Austin, Salomão O. Bandeira, Daniel T. I. Bayley, Mark A. Beeston, Ignace Beguin Billecocq, Sophie L. P. Benbow, Jewel N. Beneby, Nimai Bera, Anete Berzina-Rodrigo, Punyasloke Bhadury, Rebeca Biancardi Aleu, Nadia Desiree Bood, Wilder J. Borrero Avellaneda, Pete Bunting, Annadel S. Cabanban, Miguel Cañedo-Argüelles, Gustavo A. Castellanos-Galindo, Benjamin Christ, Alvise Dabalà, Craig Dahlgren, Ajanta Dey, Mauricio Diazgranados, Maria C. Diazgranados, Cheryl L. Doughty, Clare Duncan, Valentine Ebua, Melanie M. Esch, Lola Fatoyinbo, Andrés Fraiz-Toma, Daniel A. Friess, Samir Raj Gandhi, Dixon T. Gevaña, Anwesha Ghosh, Ajay Raghunath Govale, K. Anggi Hapsari, R. Taufan Harisam, Jorge A. Herrera-Silveira, Amandine Hersant, Lammert Hilarides,

nature reviews earth & environment
https://doi.org/10.1038/s43017-026-00838-3

Review article

Check for updates

Mangrove blue carbon in Southeast Asia

Daniel A. Friess[1], Radhika Bhargava Gajre[2], A. Aldrie Amir[3], Virni B. Arifanti[4], Toe Aung[5], Preeyaphat Chaiklang[6,7], Dixon T. Gevaña[8], San San Htay[9], Soon Loong Lee[10], Kay Khaing Lwin[11], Domingos Mook[12], Chhinh Nyda[13], Uday Pimple[14], Jay Mar D. Quevedo[15], Severino G. Salmo III[16], Sigit D. Sasmito[17,18], Zoë I. Shribman[1], Frida Sidik[4], Hien Thuc Trinh[19,20], Truong Van Vinh[21], Tuan Quoc Vo[22] & Zhen Zhang[1]

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Regional Studies in Marine Science

journal homepage: www.elsevier.com/locate/rsma



State of the Philippine mangroves: A review on current status and recommendations for achieving biodiversity and "blue carbon" targets

Severino G. Salmo III [a,*], Maria Elisa B. Gerona-Daga [b], Dixon T. Gevaña [c]

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[b] Department of Biology and Environmental Science, University of the Philippines Tacloban, Tacloban City, 6500, Philippines
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ENVIRONMENTAL ISSUES

More and more PH communities are creating coastal greenbelts. Why does this matter?

APR 29, 2025 7:08 PM PHT

JEE Y. GERONIMO



ALJAZEERA News World Cup Middle East Explained Opinion Video

Trending US-Israel war on Iran World Cup 2026 Tracking Israel's ceasefire violations Russi

News | Climate Crisis

10 years after Haiyan, are mangroves protecting Philippine coastal areas?

Mangroves create a natural breakwater but Manila is focused on man-made interventions to protect against future storms.

What stimulates the increasing local (LGU) interest on forest / mangrove conservation today?

Archipelagic thought / Local thought:

How can we best future-proof LGU-led mangrove governance to promote coastal resilience?


Del Carmen, Siargao (2019)



The Municipality of Del Carmen is requesting assistance for the rebuilding of health and education infrastructures, as well as livelihood support for farmers, fisherfolk, and small businesses affected by Typhoon Rai (local name Odette).

Turning conservation into opportunity:
The case of Del Carmen, Siargao

Del Carmen, Siargao was once known as the illegal mangrove cutting capital of the country. After a series of efforts by the LGU and various civil society organizations starting 2011, it has since transformed into a model of community-based conservation.

It is now the largest contiguous mangrove forest in the Philippines and was recently declared as a Ramsar Wetland of International Importance.

Some positive effects include:

1. Previously-apprehended illegal cutters were re-skilled to become wardens and protectors, providing livelihood opportunities to the community

2. Mangroves were largely acknowledged to have shielded the community from experiencing the full effect of Typhoon Odette, and other typhoons that passed through the province

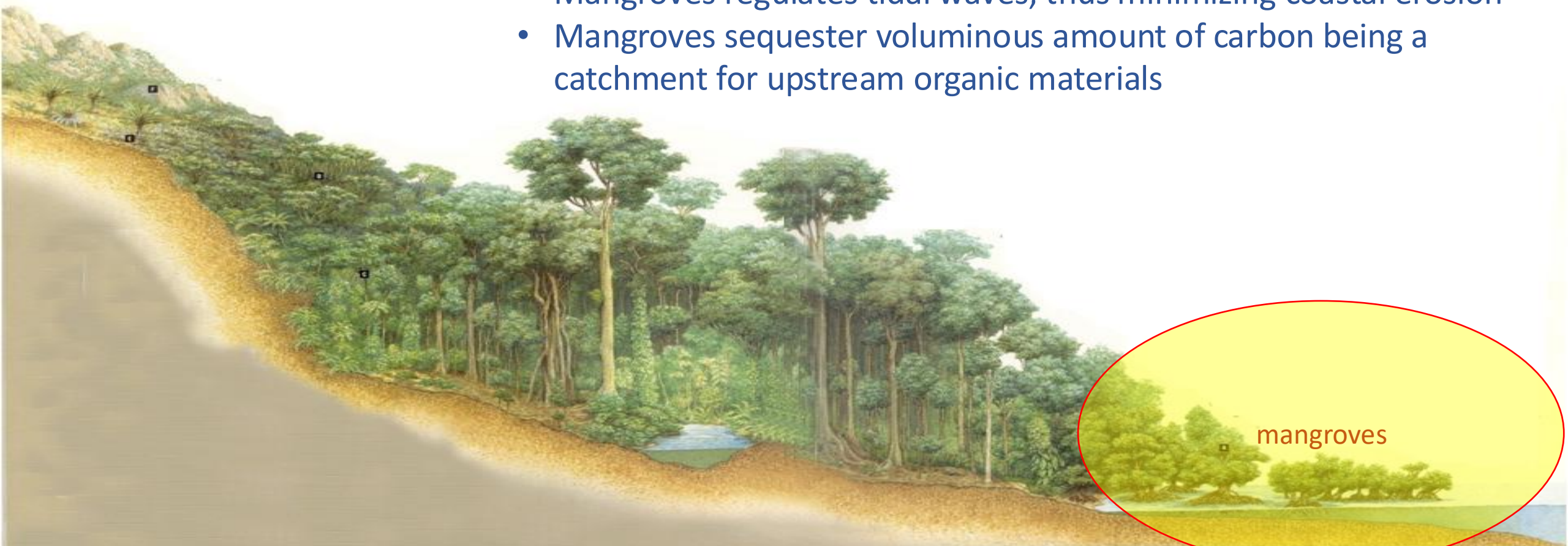
3. During the 2020 COVID-19 pandemic, a thriving marine ecosystem enabled over 3,000 tourism workers to turn to fishing to feed their families. It also continues to provide opportunities for crab-fattening and other aquaculture activities



Source: Green Destinations

Everything is connected…

- Upland forests capture rainwater, recharge ground water
- Good upland cover keeps soil from eroding, keeps healthy habitat
  - Eroded sediment are trapped and filtered by mangroves thus protecting coral reefs
  - Mangroves regulates tidal waves, thus minimizing coastal erosion
  - Mangroves sequester voluminous amount of carbon being a catchment for upstream organic materials

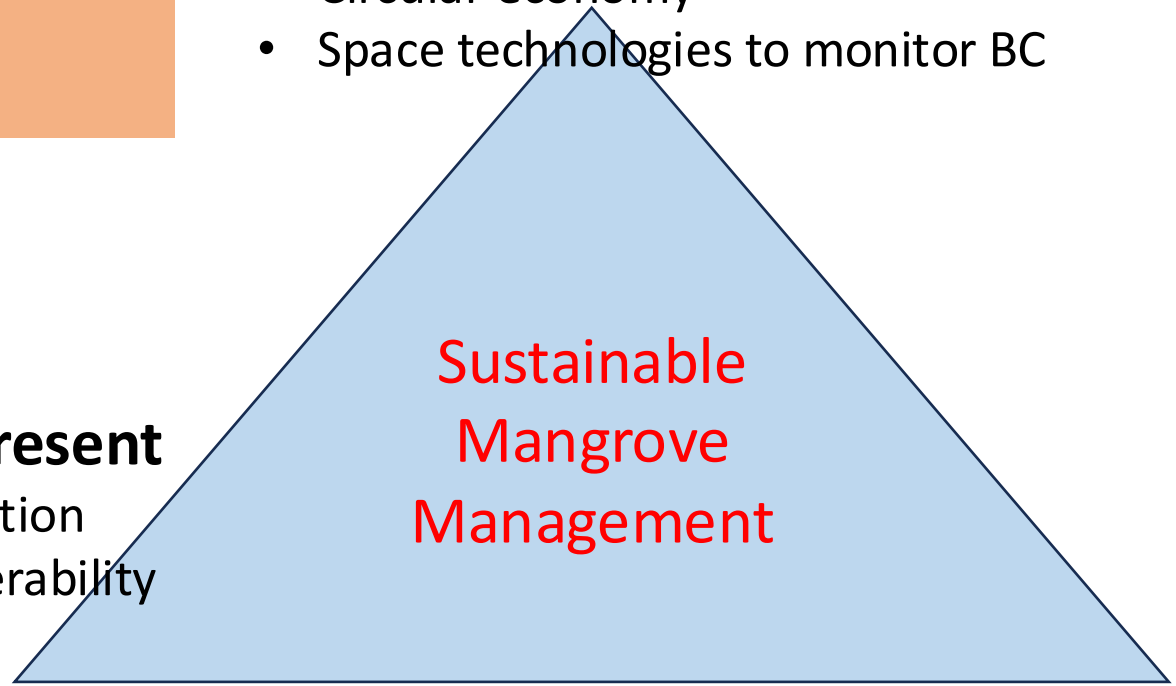


Futures triangle of Philippines Mangrove Governance

Gevana (2026)

Pull of the Future

- Adapting to sea level rise
- Carbon neutrality
- Green-gray technologies
- A.I; big data analytics
- Circular economy
- Space technologies to monitor BC



Push of the Present

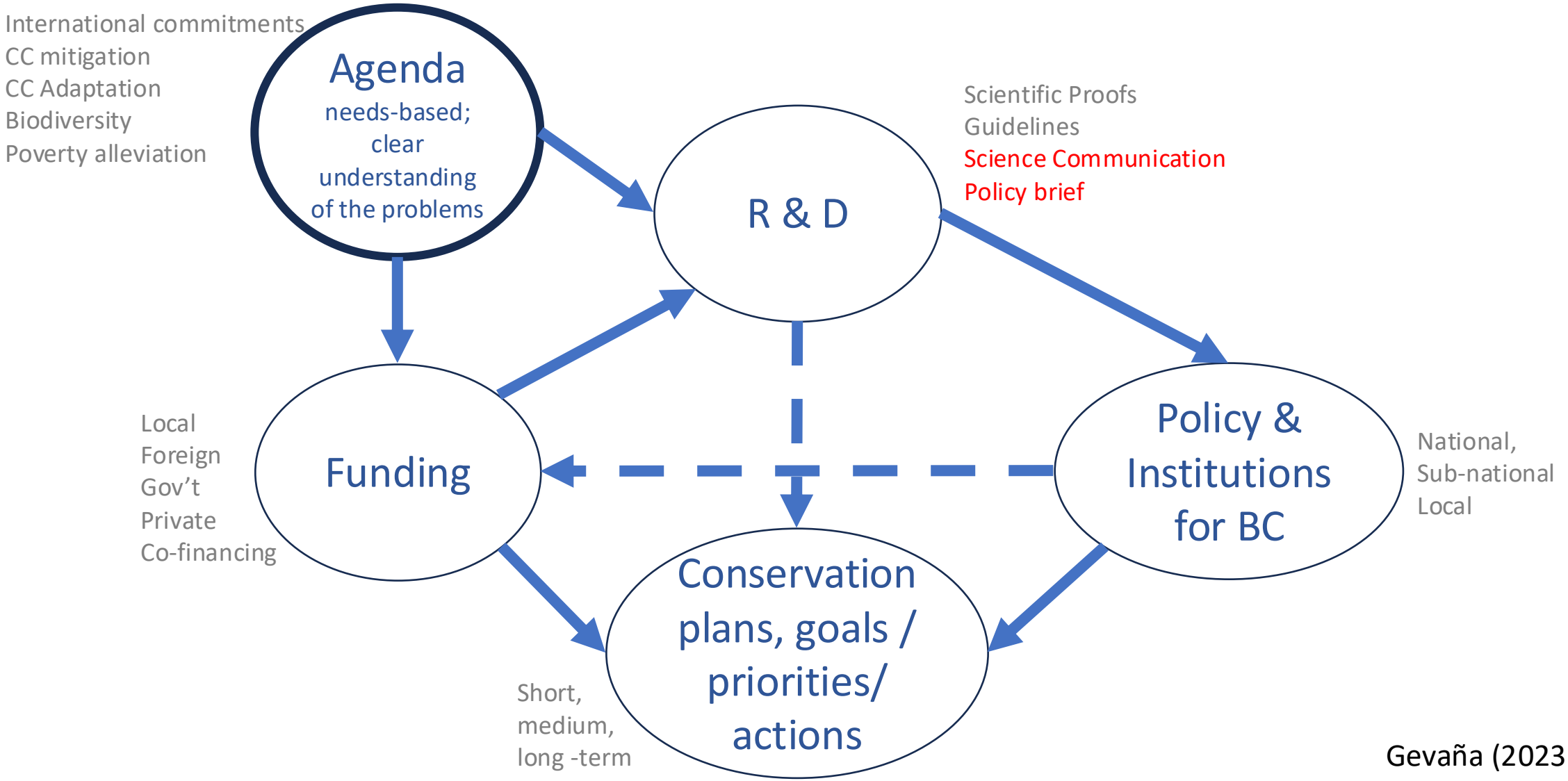
- Growing coastal population
- Increasing coastal vulnerability
- NbS / BC Finance
- Geopolitics
- Need for climate change mitigation
- Biodiversity targets
- Increasing awareness about mangroves

Weight if the Past:

- Land use conversion leading to deforestation & biodiversity loss
- Coastal ecosystem degradation
- Least prioritized mangrove conservation
- Tenurial issues
- Overlapping policies and mandates

Future-proofing Local Mangrove Governance

1. Capitalize on LGU's strategic roles and contributions in identifying real problems on the ground



Gevaña (2023)

2. Establish clear (national) policy direction/s to guide LGUs.

Republic of the Philippines
DEPARTMENT OF THE INTERIOR AND LOCAL GOVERNMENT
DILG-NAPOLCOM Center, EDSA corner Quezon Avenue, Quezon City
www.dilg.gov.ph

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Signature
Date 07.04.25
Time 4:18 PM
RECORDS SECTION
BLGS-2025-09-05
2025-07-04-20

MEMORANDUM CIRCULAR
NO. 2025–066

TO : **ALL COASTAL CITY MAYORS AND MUNICIPAL MAYORS, DILG REGIONAL, PROVINCIAL AND CITY DIRECTORS, CITY AND MUNICIPAL LOCAL GOVERNMENT OPERATIONS OFFICERS, AND OTHERS CONCERNED**

SUBJECT : **GUIDELINES FOR LOCAL GOVERNMENT UNITS ON THE ESTABLISHMENT, MANAGEMENT, AND PROTECTION OF COASTAL GREENBELTS**

DATE : JUL 03 2025

DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES
KAGAWARAN NG KAPALIGIRAN AT LIKAS NA YAMAN

FEB 24 2026

DENR Administrative Order.
No. 2026 – 05

SUBJECT : **GUIDELINES GOVERNING THE ESTABLISHMENT, REGISTRATION, AND MONITORING OF VOLUNTARY FOREST CARBON CREDIT PROJECTS IN FOREST LANDS, PROTECTED AREAS UNDER NATIONAL INTEGRATED PROTECTED AREAS SYSTEM (NIPAS), AND ANCESTRAL LANDS/DOMAINS**



National Blue Carbon Action Partnership

In partnership with the World Economic Forum, the national government is now implementing the **National Blue Carbon Action Partnership (NBCAP).**

Collaborative efforts of researchers, local communities, and policymakers are key to creating science-based solutions and locally-led approaches to build a resilient community and sustainable livelihood.

18 JUN 2025

A Science-Policy Forum towards Future-proofing Livelihoods and Technologies to Conserve Mangroves




Preparing livestream...
OPEN FORUM Q &A


SPECIAL THANKS TO OUR SPONSORS
MANGROVE BLUE CARBON ROADMAP TO 2030 AND BEYOND:
A SCIENCE-POLICY FORUM TOWARDS FUTURE-PROOFING LIVELIHOODS AND TECHNOLOGIES TO CONSERVE MANGROVES
18 June 2025 | Century Park Hotel 599 P.Ocampo St., Malate Manila, 1004 Metro Manila
We, the participants of this landmark "Mangrove
Livelihoods and Technologies to Conserve Mangrove
the global response to climate change.
We likewise pledge our support for future-proof initiatives
communities.


AGOS
DRAFT ROADMAP
Output from the Inaugural Workshop last March 2024
Preparing livestream...
Mapping of BC ecosystems: extents and change
Final Blue Carbon Roadmap and Policy Frameworks
At least 6 KBA priority sites assessed of C stocks and sequestration rates and GHG emissions per bioregion (hosted in the marine stations)
Mapped BC changes
DRAFT NATIONAL BC ACTION PLAN MILESTONES
Launching of the Blue Carbon Watch
Formation of the NBCAP Secretariat
Finalization of the BC Roadmap (starting from the mangrove roadmap)
Submission of the Executive Order on Blue Carbon Conservation
2025
2026
2030


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MANGROVE
BLUE CARBON

GLOBAL MANGROVE ALLIANCE PHILIPPINES

Republic of the Philippines
Department of Environment and Natural Resources
Biodiversity Management Bureau

PHILIPPINE MANGROVE CONFERENCE

PHILIPPINE MANGROVE CONFERENCE

Ensuring Accountable Pathways for Resilient Communities

March 24-26, 2026

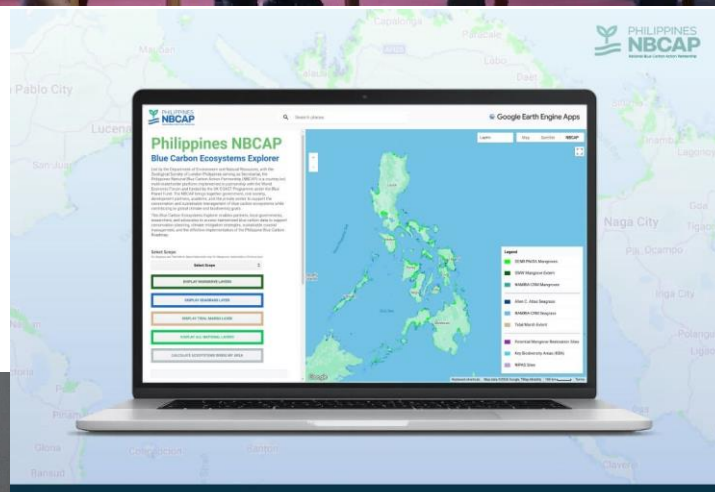
An Inaugural National Event by the Global Mangrove Alliance Philippines and the DENR Biodiversity Management Bureau

CONSERVATION INTERNATIONAL · ZSL · Wetlands International · WWF · rare · Mangrove Matters PH · OCEANA Protecting the World's Oceans · Forest Foundation Philippines · OCEANUS CONSERVATION







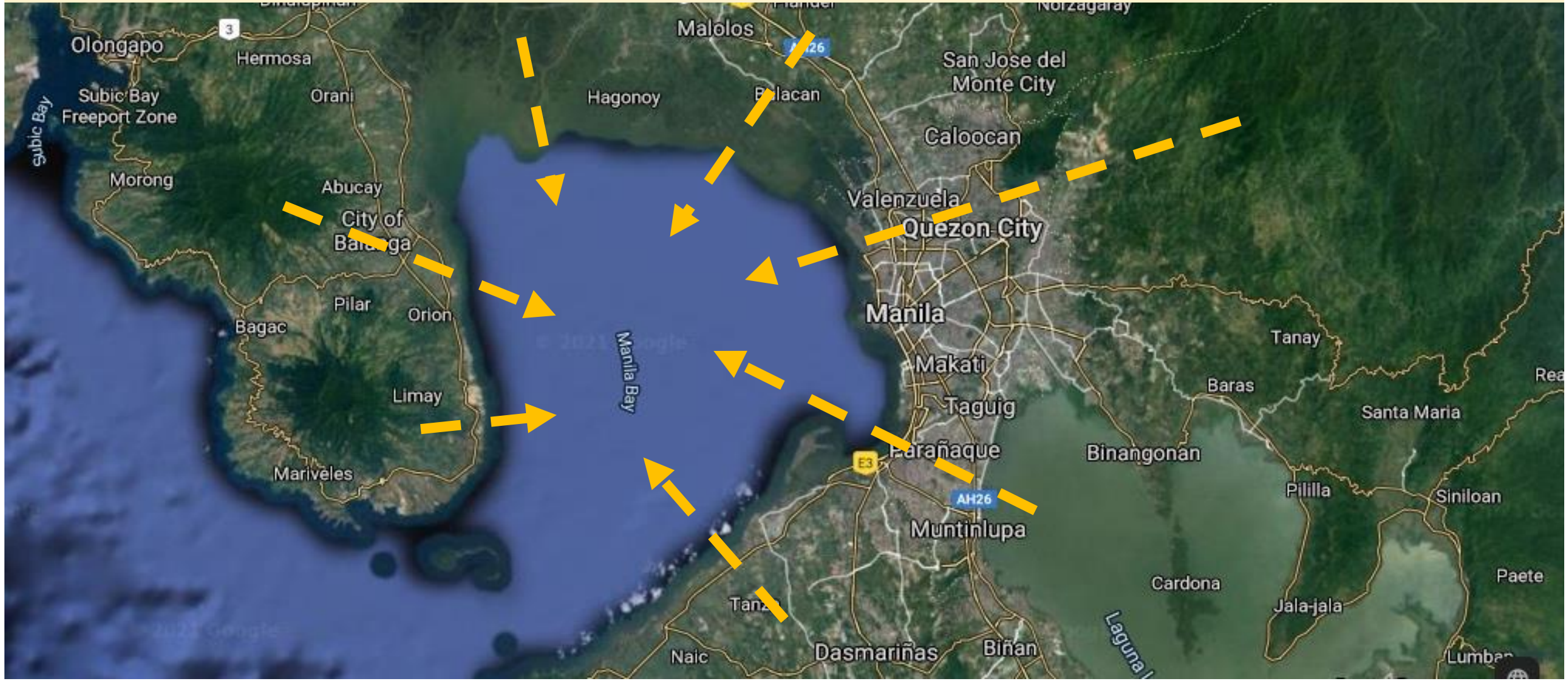


Philippines NBCAP

Blue Carbon Ecosystems Explorer

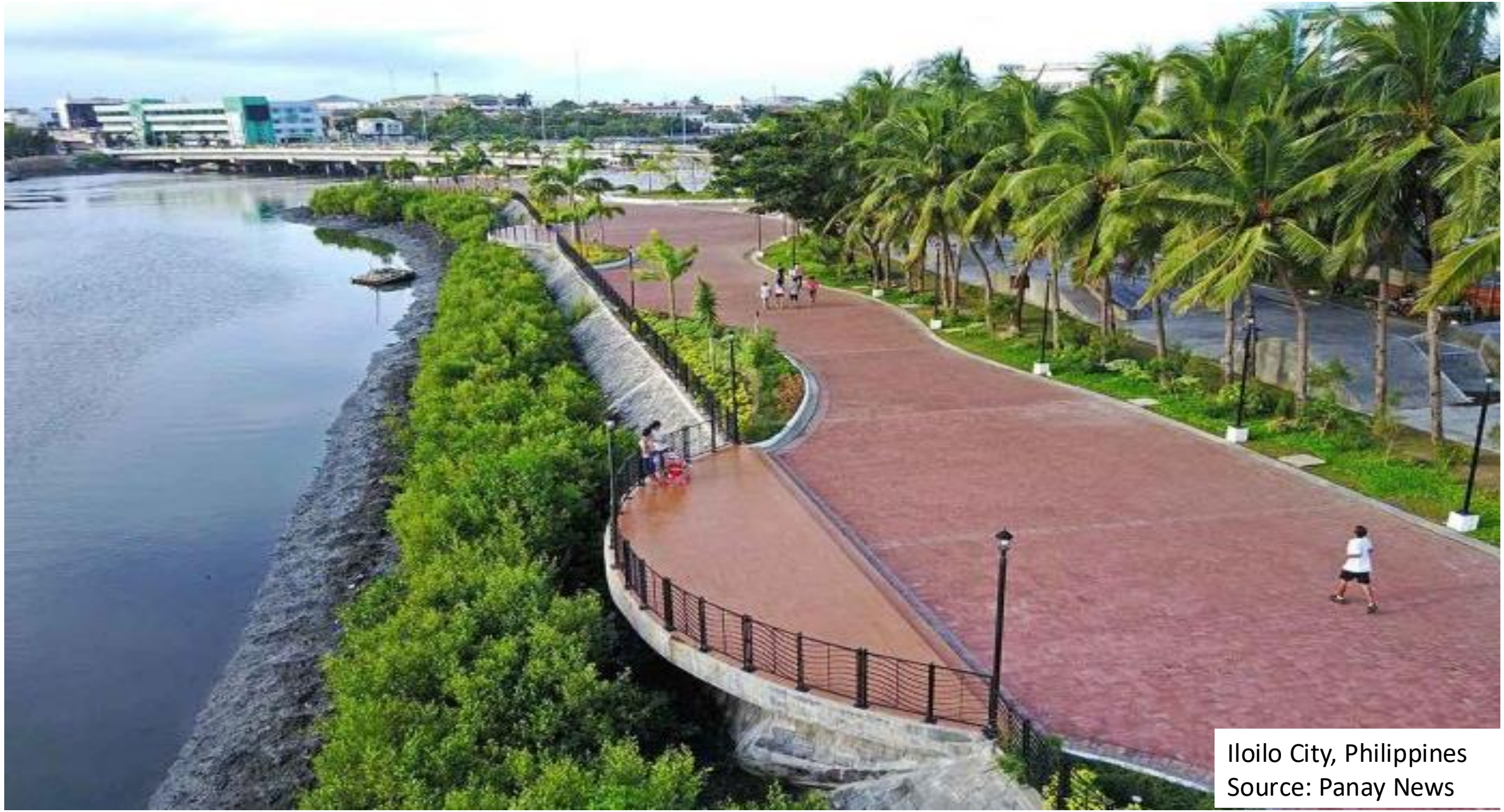
This explorer enables partners, local governments, researchers, and advocates to access harmonized blue carbon data to support conservation planning, climate mitigation strategies, sustainable coastal management, and the effective implementation of the Philippine Blue Carbon Roadmap.

3. Integrated watershed (ridge-to-reef) based approach in local development planning– LGU does the land use development planning and decision-making.



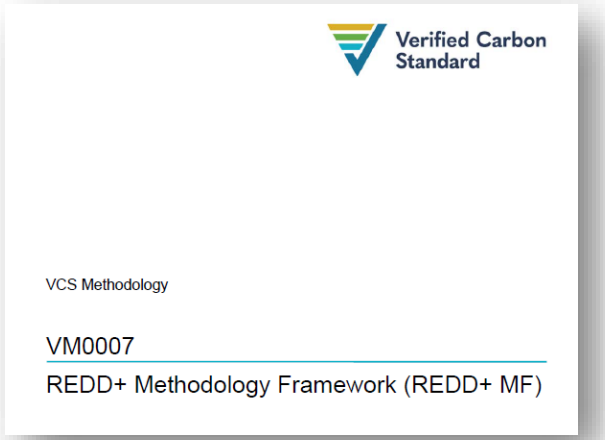


Recife City, Brazil
Source: iucn.org



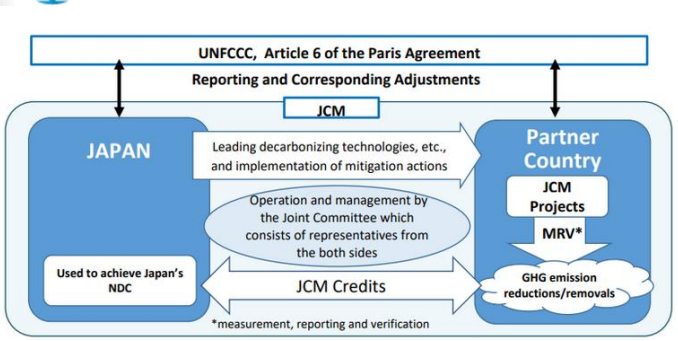
Iloilo City, Philippines
Source: Panay News

4. LGUs should know their options: mangrove-related investments and projects.









ISO 14064-2 for quantifying GHG emissions at the project level

We seemingly have limited and decreasing areas to restore, and they are competing with other development interests.

LGUs need to be knowledgeable bout their mangrove/coastal resources, and how these translate to opportunities.

The Asia Foundation

Philippine Marine Economy– A Platform for the Future



Three pathways to marine economic resilience

Buhay
Disaster resilience
Reduce exposure to coastal hazards

Kabuhayan
Ecosystem services
Support livelihoods & sustainable use

Kayamanan
Blue carbon markets
Climate finance and mitigation

A RESILIENT LOCAL MARINE ECONOMY
An LGU that can withstand and recover from the shocks faced by its coastal environment

Guidebook for Resilient Local Marine Economic Development in the Philippines

...but more work is needed to sufficiently enable and empower LGUs to take action

01	What do LGUs have?	• Guidance from DENR on conducting mapping activities and baseline assessment • Coordination with NCIP, DENR, and respective PAMB on stakeholder consultations
02	What can they do?	• Technical guidance from NGAs, SUC/LUCs, and private sector
03	How can they do it?	• Assistance in financing early-stage project development for blue carbon, especially from domestic financing facilities, as well as funding for large scale livelihood or conservation opportunities

5. Manage expectations; focus on creating tangible and lasting (economic) benefits for the local communities

Contents lists available at ScienceDirect

Environmental Science and Policy

journal homepage: www.elsevier.com/locate/envsci

A materialist-idealist divide? Policy and practice in participatory mangrove rehabilitation in the Philippines

Clarissa D. Ruzol*, April Charmaine D. Camacho, Lorena L. Sabino, Josephine E. Garcia, Dixon T. Gevaña, Leni D. Camacho

Department of Social Forestry and Forest Governance, College of Forestry and Natural Resources, University of the Philippines Los Baños, Philippines

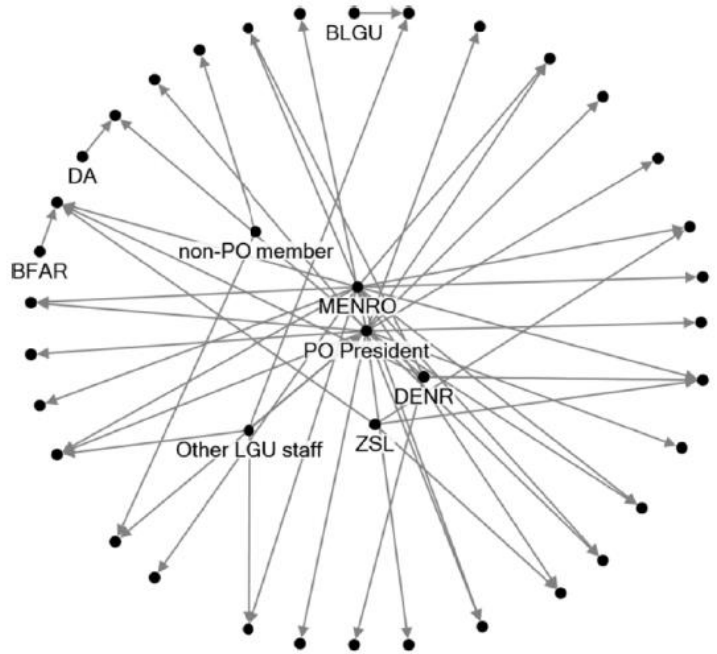
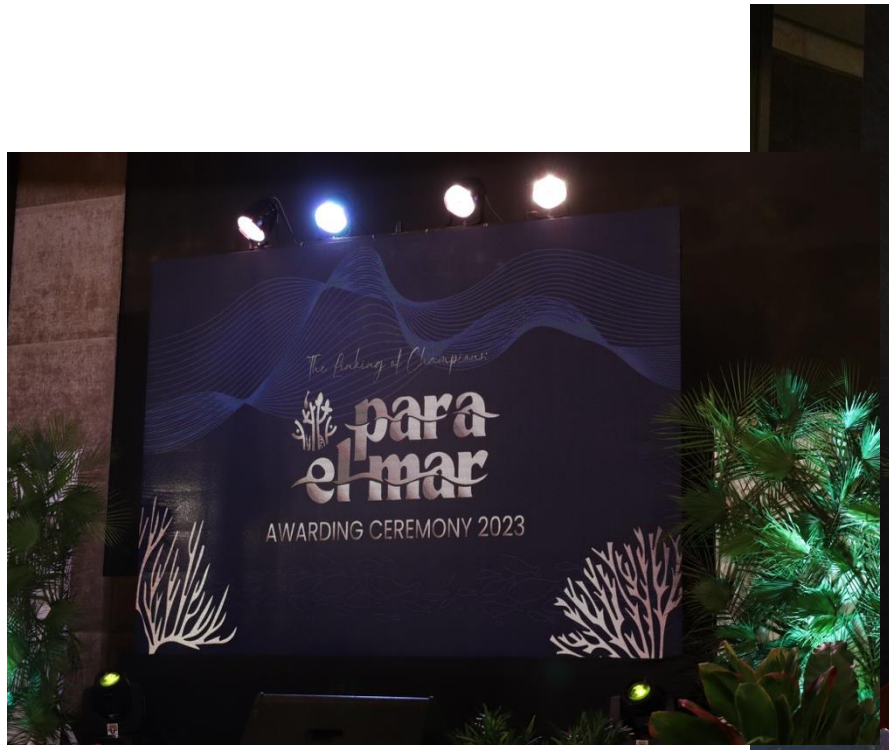


Fig. 3. Mangrove information network among members of the people's organization in the Katunggan Ecopark.

Long-term sustainability would come to emerge when tangible benefits are perceived as instrumental to human wellbeing.

Policies should look beyond the conventional measures of success and consider the transforming network among interest groups.

6. Sustain and promote local mangrove initiatives and champions.





7. Promote local policy innovations at the LGU level that will assert their leadership role over mangrove project development.

Republic of the Philippines
PROVINCE OF SURIGAO DEL NORTE
MUNICIPALITY OF DEL CARMEN

Office of the Sangguniang Bayan

ORDINANCE NO. 141
(Series of 2025)

ORDINANCE ESTABLISHING BLUE CARBON CONSERVATION AREAS (BCCAs) IN THE MUNICIPALITY OF DEL CARMEN, SURIGAO DEL NORTE, PROVIDING FOR THEIR MANAGEMENT, REGULATION, AND PARTICIPATION IN CARBON TRADING, AND FOR OTHER PURPOSES



LGU-Del Carmen Siargao

p-ISSN: 3028-0052 | e-ISSN: 3028-0060 | ISSUE No. 2026-S1 (Special Issue)

FOREST OF THE FUTURE

Policy Brief Series

A biannual publication of the Forestry Development Center, College of Forestry and Natural Resources, University of the Philippines Los Baños



Forest Foundation Philippines
Let's grow together.

Developing a Policy for Mainstreaming the Effective Implementation of Devolved Forest Management Functions to Local Government Units

Forest Devolution for Change

01 Review of Policy
Review of of Policy Analysis on Devolution of Forest Management Functions (Tanggol Kalikasan, 2023) and other pertinent existing policies.

02 Policy Analysis
Policy Analysis of the existing pertinent policies and study conducted by Tanggol Kalikasan in 2023.

03 Inter-agency coordination
Consultation and coordination with relevant government agencies and other groups.

04 Interim TWG
An interim technical working group (TWG) composed of technical experts and representatives from key bureaus and offices was convened.

05 Draft Policy
Based on the analyses and inputs gathered, a preliminary draft of the policy was developed.

06 Policy Consultation
A national-level consultation was conducted to solicit feedback from regional offices, LGUs, organizations, and other stakeholders.

07 Revisions
With the help of interim TWG, technical refinements, clarifications, and revisions were made to address sectoral concerns and align the policy with operational realities.

08 Finalization of Draft Policy
The policy was finalized following iterative revisions, validation by the TWG, and alignment with institutional directives.

09 RIA
The final version of the draft policy will be undergoing Preliminary Impact Assessment and endorse to DENR-FMB & DILG-BLGD for Regulatory Impact Assessment.

10 Policy Endorsement
The final version of the draft policy and the RIA will be endorsed to DENR-FMB and DILG-BLGD.

11 Advocacy
Co-develop a policy brief and disseminate.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The CGSEA project is supported by Social Science Research Thematic Grant (SSRTG) MOE2021-SSRTG-021
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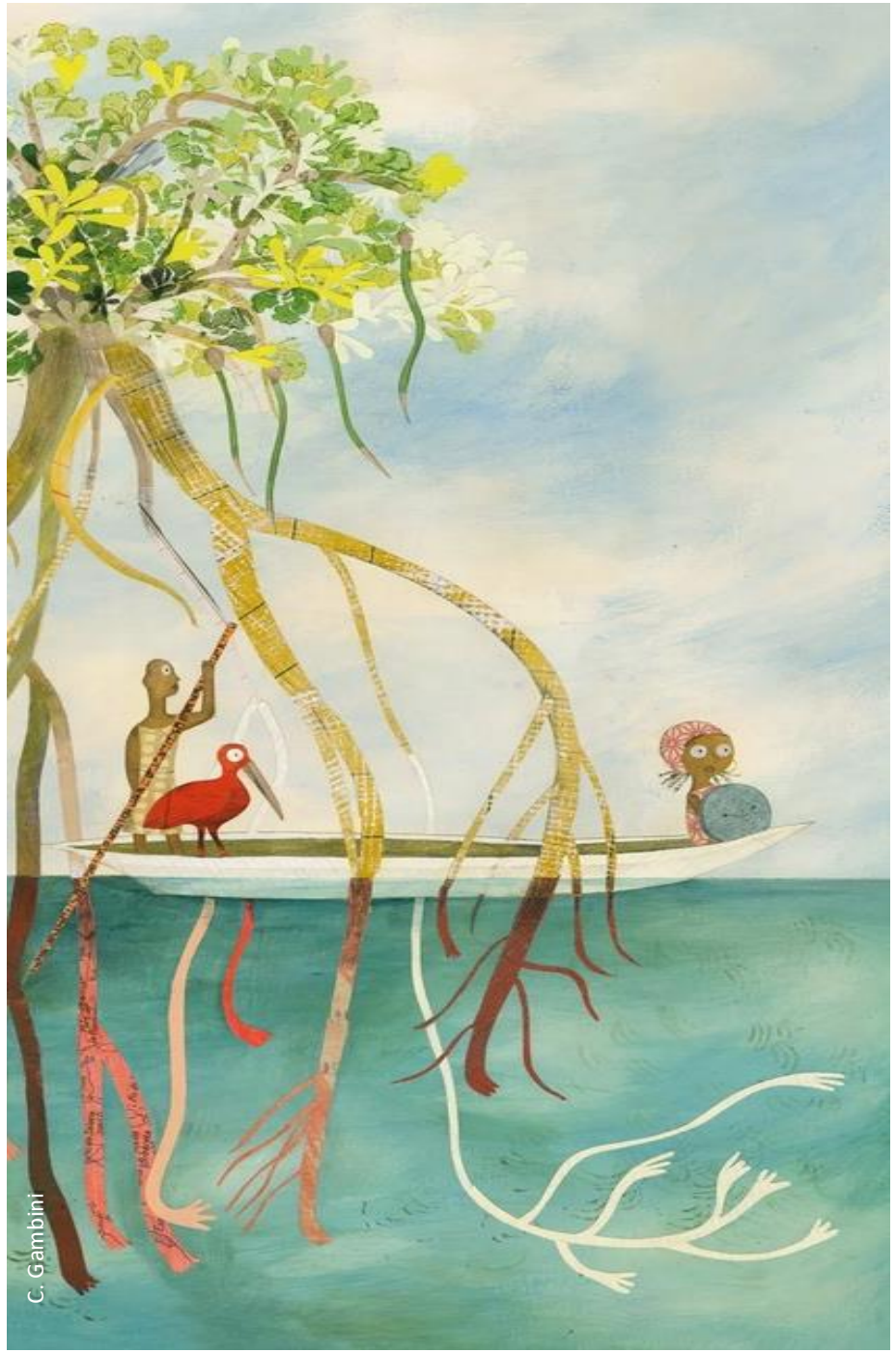
Dedicated to our future generations who will stand up and commit in the cause of ensuring healthy forests and planet, for a greener and resilient future.



Banacon Island / Gevana (2013)



Thank you.

To God be the glory.

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