

3rd International Conference on Biodiversity and Sustainable Development 2025

Eco-Tourism Bridging Biodiversity and Inclusive Development / Langkawi, Malaysia / 27-28 November 2025



Mangrove Conservation Promoting Sustainable Ecotourism and Local Resilience in Southeast Asia

Prof. Dixon T. Gevaña
Director

With the Assistance:

For. Mirasol M. Guinto, Carla O. Melodillar & Nicole A. Nacionales

Forestry Development Center

College of Forestry and Natural Resources

University of the Philippines Los Baños

Email; dtgevana@up.edu.ph

Kilim Langkawi Mangroves

Stats: 3142 hectares

<https://kilimgeoforestpark.com/>



Mangroves trees of Kilim with limestone hills at the background and eagles preying for food.

CATASTROPHE | PHILIPPINES

Philippines: Sixth typhoon in a month brings deadly floods

11/18/2024

The Philippines is cleaning up after Super Typhoon Man-yi hit over the weekend, killing at least eight. Severe flooding is affecting some northern regions.



Super Typhoon Man-yi caused severe flooding in several regions

4 typhoons have hit the Philippines in just the past 10 days

It's the most active November on record after a slow start to the 2024 Pacific typhoon season that's now in hyper...

4 min



Five (5) countries in SEA made it to the Top 30 in the World Risk Index 2023

Rank	Country	WorldRiskIndex	Exposure	Vulnerability	Susceptibility	Lack of Coping Capacities	Lack of Adaptive Capacities
✓	1. Philippines	46.86	39.99	54.92	51.21	58.84	54.98
✓	2. Indonesia	43.50	39.89	47.43	45.46	50.59	46.38
	3. India	41.52	35.99	47.89	37.79	55.86	52.04
	4. Mexico	38.17	50.08	29.09	44.78	12.28	44.76
	5. Colombia	37.64	31.54	44.93	39.65	50.01	45.75
✓	6. Myanmar	36.16	22.43	58.28	52.14	58.83	64.54
	7. Mozambique	34.61	18.10	66.17	65.78	64.15	68.65
	8. Russian Federation	28.20	28.35	28.05	14.97	39.00	37.81
	9. Bangladesh	27.29	16.57	44.93	35.30	57.88	44.39
	10. China	27.10	64.59	11.37	14.75	11.54	8.63
	11. Pakistan	26.45	13.11	53.38	40.23	60.92	62.06
	12. Papua New Guinea	26.30	18.84	36.71	56.19	13.85	63.58
	13. Peru	25.55	16.65	39.22	27.28	46.96	47.10
	14. Somalia	25.09	8.55	73.63	67.49	82.11	72.02
	15. Yemen	24.39	9.12	65.24	60.26	69.29	66.50
✓	15. Viet Nam	24.39	26.73	22.25	21.55	12.50	40.90
	17. Madagascar	23.59	18.38	30.27	25.97	15.27	69.94
	18. Ecuador	23.58	14.57	38.15	26.41	44.16	47.60
	19. Bolivarian Republic of Venezuela	23.47	19.52	28.22	25.04	14.60	61.45
	20. United States of America	22.47	39.59	12.75	11.16	5.71	32.54
	21. Nicaragua	21.76	18.71	25.31	21.37	14.04	54.02
	22. Australia	21.54	31.21	14.87	8.12	14.54	27.85
✓	23. Thailand	21.09	14.32	31.07	16.01	48.79	38.38
	24. Japan	20.86	43.67	9.96	11.43	5.09	16.97
	25. Iran (Islamic Republic of)	19.72	12.49	31.12	19.92	57.99	26.08
	26. Canada	19.17	25.89	14.20	10.29	7.84	35.48
	27. Panama	18.82	15.89	22.29	26.40	10.81	38.82
	28. Egypt	17.76	10.74	29.38	11.85	46.49	46.04
	29. Honduras	16.79	8.82	31.95	39.35	14.55	56.97
	30. Turkey	16.17	8.90	29.38	12.63	48.58	41.34

Deadly Typhoon Kalmaegi makes landfall in Vietnam after storm's destructive path through the Philippines

The president of the Philippines declared a state of emergency on Thursday.

By [Rajeev Tyagi](#)

November 6, 2025, 9:59 PM

<https://abcnews.go.com>



Typhoon Kalmaegi leaves at least 188 dead in the Philippines ABC News' Britt Clennett reports on the latest as southeast Asia is gripped by one of the year's deadliest storms.

Thailand braces for heavy rain, flash floods, high waves and coastal storm surges

SATURDAY, AUGUST 30, 2025

<https://www.nationthailand.com/news>



IPCC AR6 (2021): HIGH CONFIDENCE on floods + storm surge

the combination of more frequent extreme sea level events (due to sea level rise and storm surge) and extreme rainfall/ riverflow events will make flooding more probable in coastal areas.

People, Communities and Government

as agent of deforestation, rehabilitation and conservation; recipient of ecosystem services



Mangrove's response to climate change; role in adaptation and mitigation



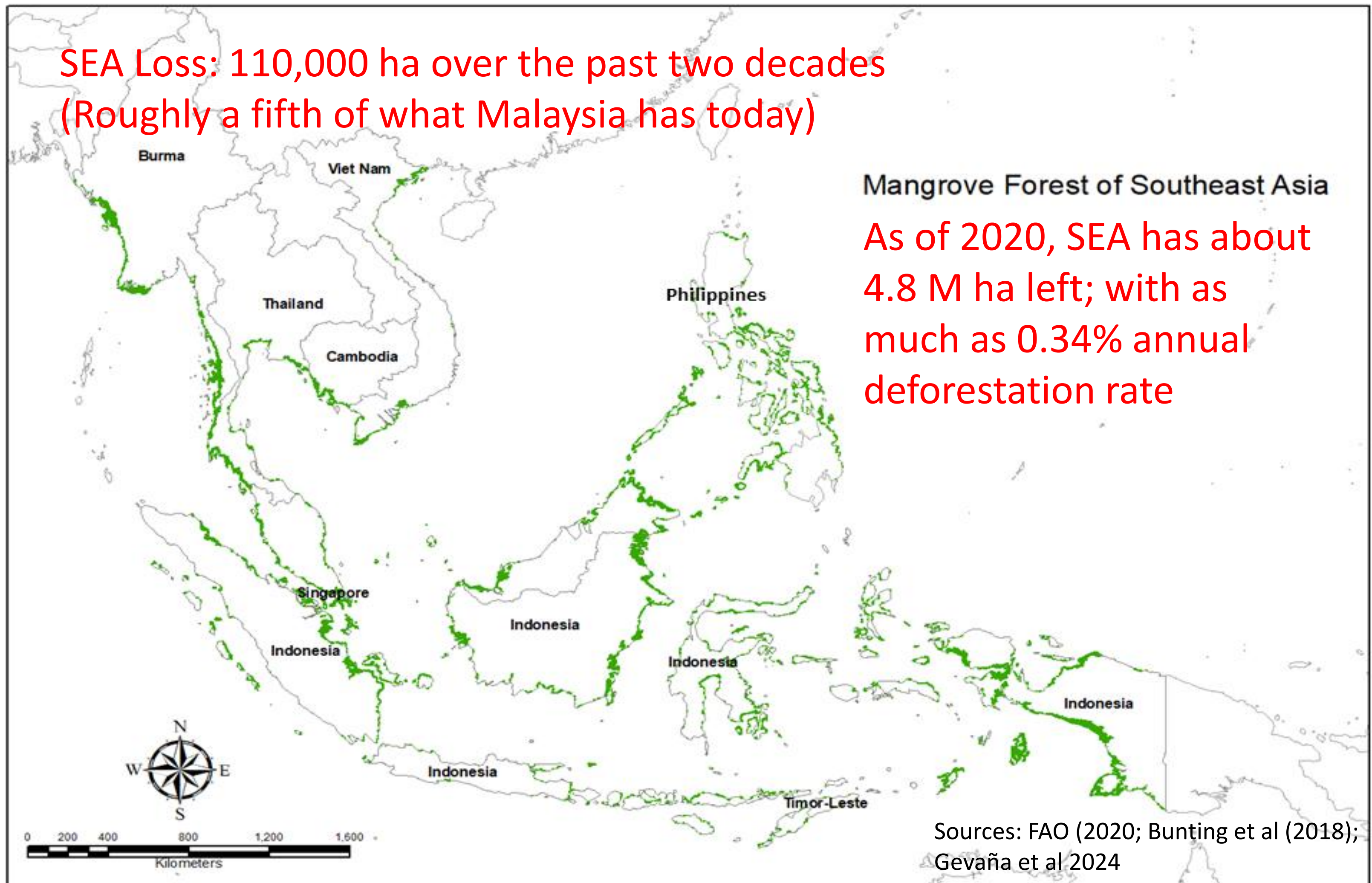
Climate change impacts on mangroves and coastal communities



Finding thriving solutions to arrest global mangrove deforestation remains a **big challenge**.



SEA Loss: 110,000 ha over the past two decades
(Roughly a fifth of what Malaysia has today)

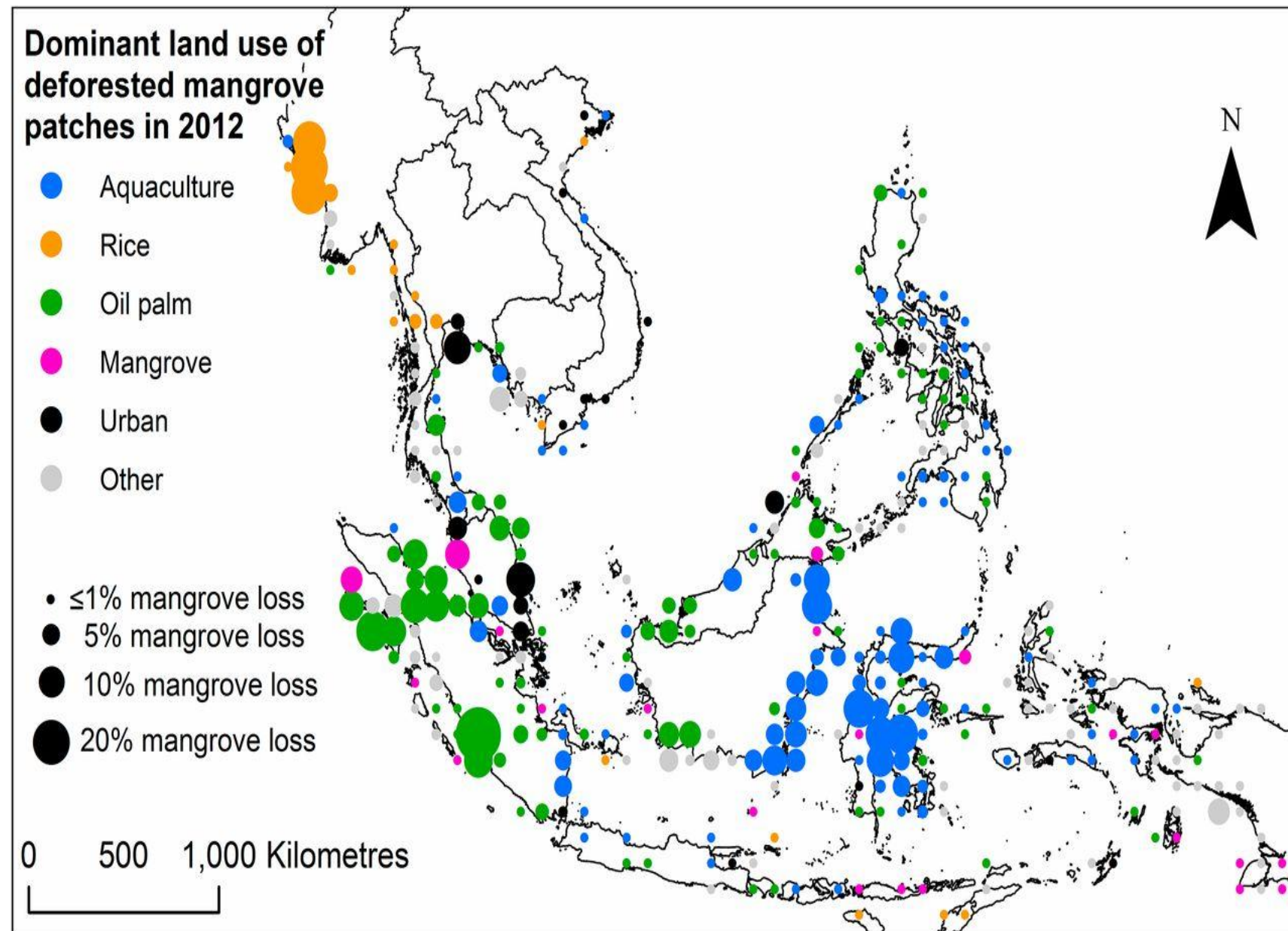


Mangrove Forest of Southeast Asia

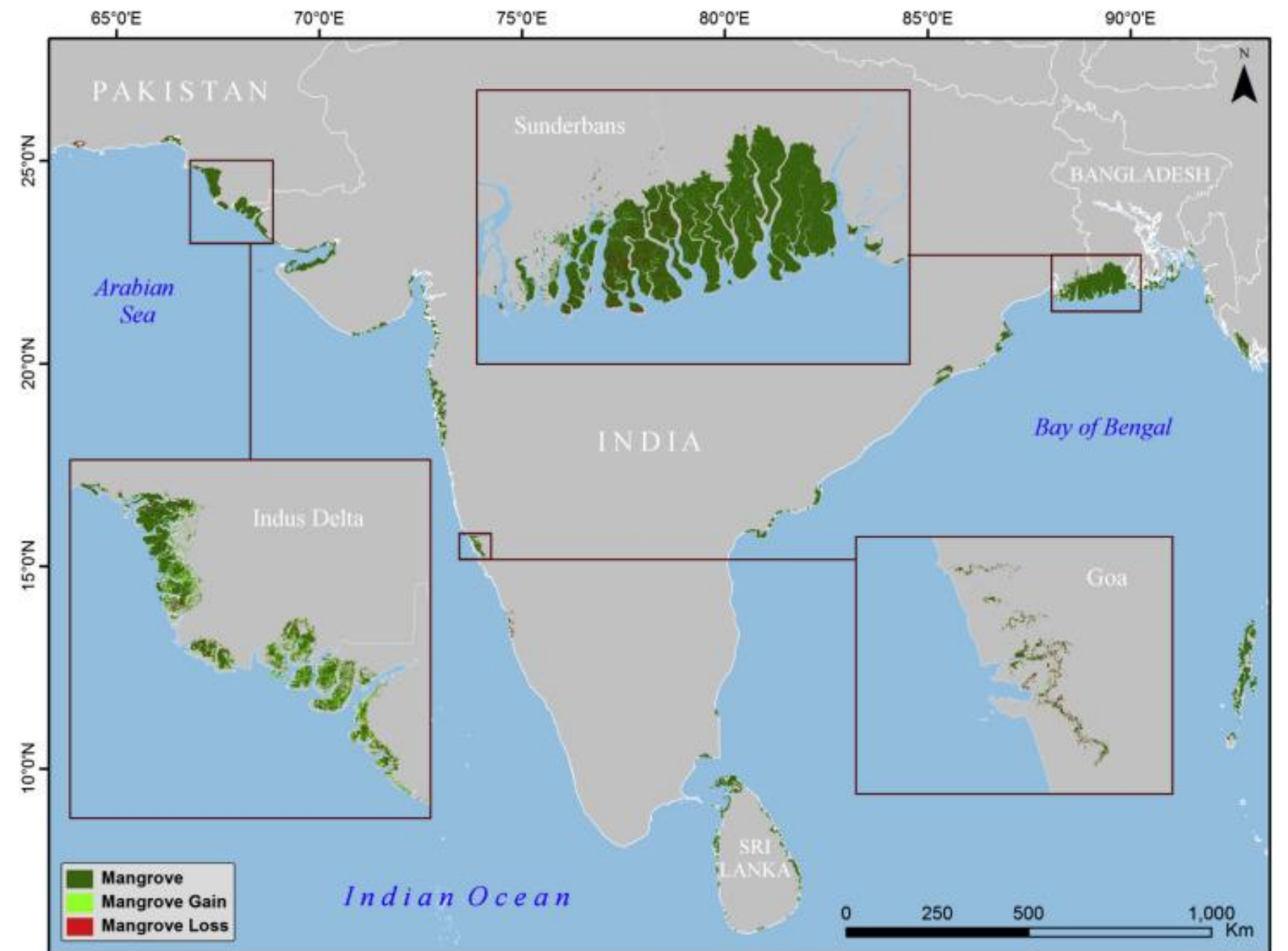
As of 2020, SEA has about 4.8 M ha left; with as much as 0.34% annual deforestation rate

Sources: FAO (2020; Bunting et al (2018); Gevaña et al 2024

Increasing and improving efforts to detect, monitor and understand mangrove cover changes in the region and better



Ref: Richards and Fries (2016) doi: 10.1073/pnas.1510272113



Ref: Giri et al (2015) doi.org/10.1016/j.jenvman.2014.01.020



Anthropogenic activities

- harvesting for domestic use
- bonsai-making and collecting bark as tanning agent
- pig raising
- trampling over seedlings and saplings from collecting edibles
- pollution
- illegal cutting, mangrove clearing / destruction for reclamation projects, aquaculture and salt farms
- grazing
- docking of boats
- risk of tapping mangrove resources for rayon in the future (previously tapped before)
- Land subsidence



Soil Erosion and Siltation

- results to massive losses in mangrove plantations and natural forests
- unsustainable agriculture practices and garbage pollution resulting to red-soil runoff
- Mining resulting to siltation



Land conversion

- Aquaculture
- Small-scale agriculture
- Lands for recreation, tourism and dams



Arm conflicts

- damages some mangrove sites



Policy and governance issues

- passive behavior of some LGUs re: mangrove rehabilitation
- unclear policy objectives; regional development strategies triggering mangrove deforestation
- weak law enforcement and compliance
- uncoordinated process for approvals and decisions on mangroves
- unclear or conflicting policy objectives
- Ministry of Forestry can only prosecute if an illegal activity is occurring



Non-native species invasion

- introduction of non-native diseases

Challenges

to Mangrove Restoration and Rehabilitation in Asia-Pacific

Philippines Malaysia Indonesia India Japan China Vietnam Bangladesh Myanmar Singapore Fiji



Natural disturbances

- strong and frequent cyclones and typhoons, strong waves, storm surges, and abrasion
- pests and diseases, and natural predation
- species intolerance to salinity and tidal inundation
- flooding



Pool of knowledge

- Limited studies that assess the cause of degradation and insufficient communication
- Policy gaps requiring feasibility assessment, monitoring and enforcement through multi-disciplinary approaches



Urbanization

- Resettlements and construction of infrastructures, dikes and tide embankments
- Coastal reclamation and backfilling



Climate Change

- Increased occurrence and intensity of cyclones on tropical coasts
- Sea level rise



Technical problems

- wrong choice of species for planting
- lack of labor and resources, and inappropriate use of financial resources
- costly reforestation on bare beaches and integration with human-made fish reefs
- low survival rate of seedlings
- planting malpractice - seafont and seagrass planting
- space unavailability
- CBFM participants in mangrove areas cannot avail incentives (such as land tenure) compared to CBFM participants of terrestrial forests
- Overlapping of ownership
- Ambiguity in land tenureship, accessibility and ownership rights to mangrove area & resources

Understanding the root causes of mangrove deforestation

Drivers, pressures, state, impacts, and responses to mangrove deforestation and degradation.
 Gevana et al (2024)
https://doi.org/10.1007/978-3-031-69553-7_19

Driver

Socio-economic Impacts

- population
- local and national policies and institutions
- coastal land use plans
- local perceptions, culture and traditional knowledge

Bio-physical Impacts

- Habitat quality
- Geological hazards
- climate change

Response

- Mangrove restoration and protection
- Community-based mangrove management
- Strengthening policies and local institution
- Securing local and international conservation funds
- Climate-proofing mangrove management plans

Pressure

Socio-economic Impacts

- coastal population growth
- overexploitation
- land use conversion

Bio-physical Impacts

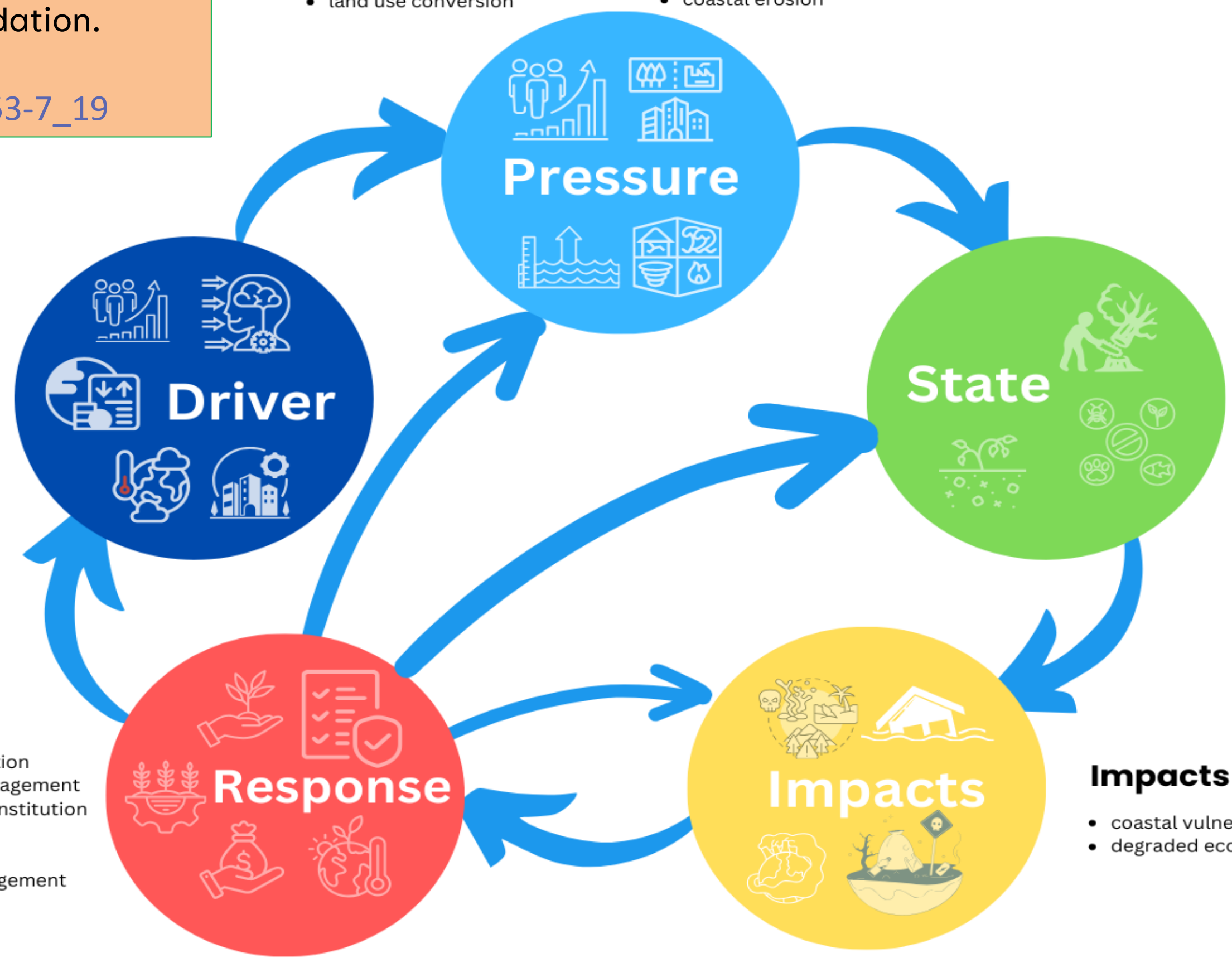
- coastal development/ reclamation
- sea level rise
- coastal erosion

State

- Deforestation
- Degradation
- Biodiversity loss

Impacts

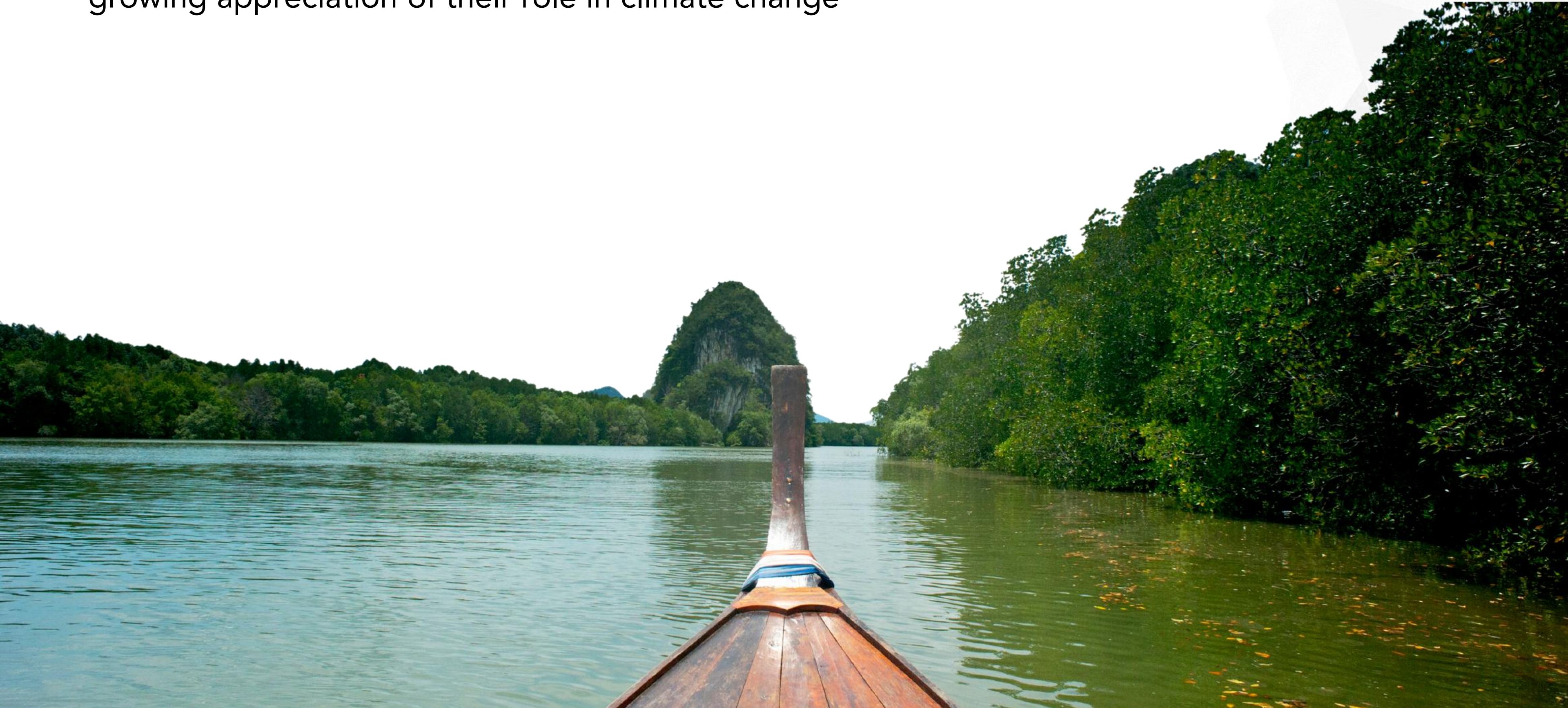
- coastal vulnerability
- degraded ecosystem



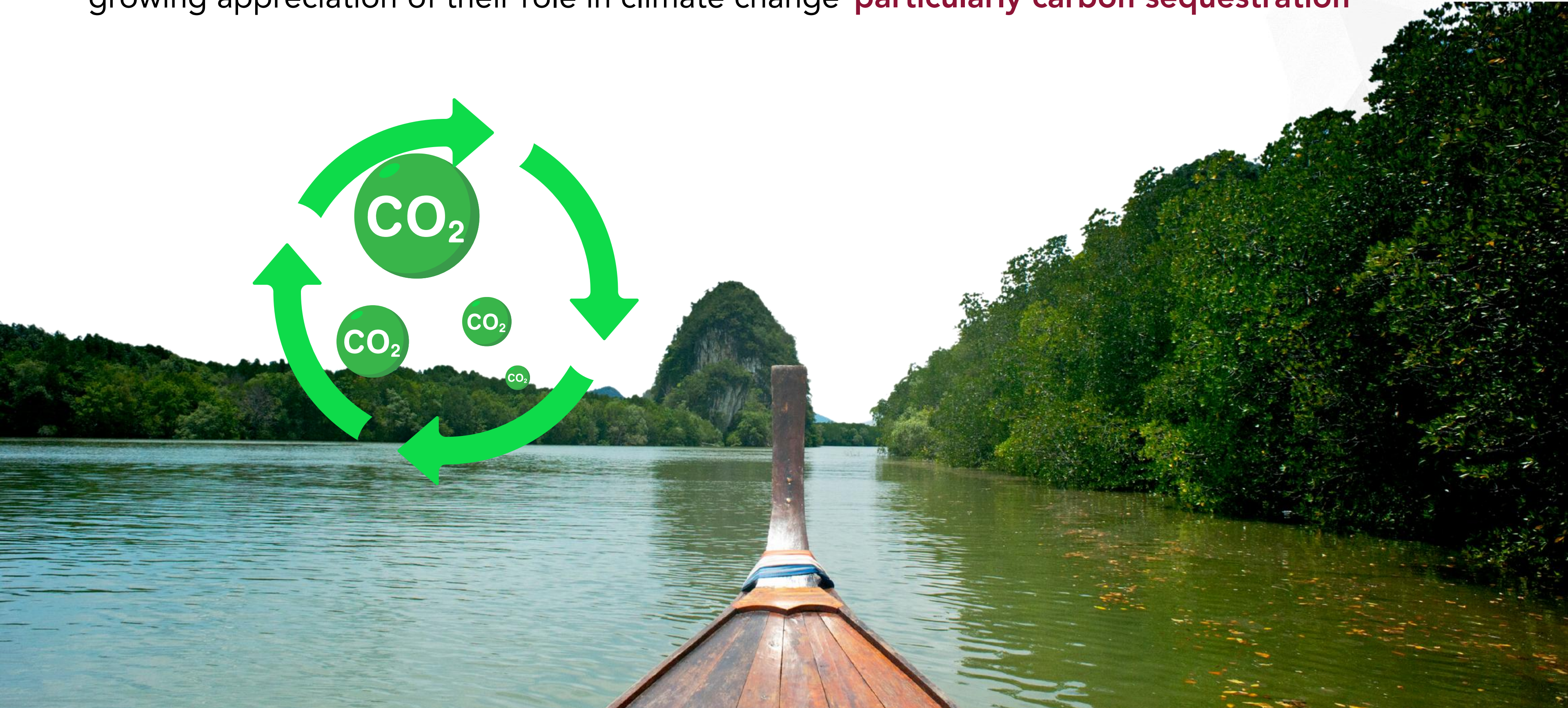
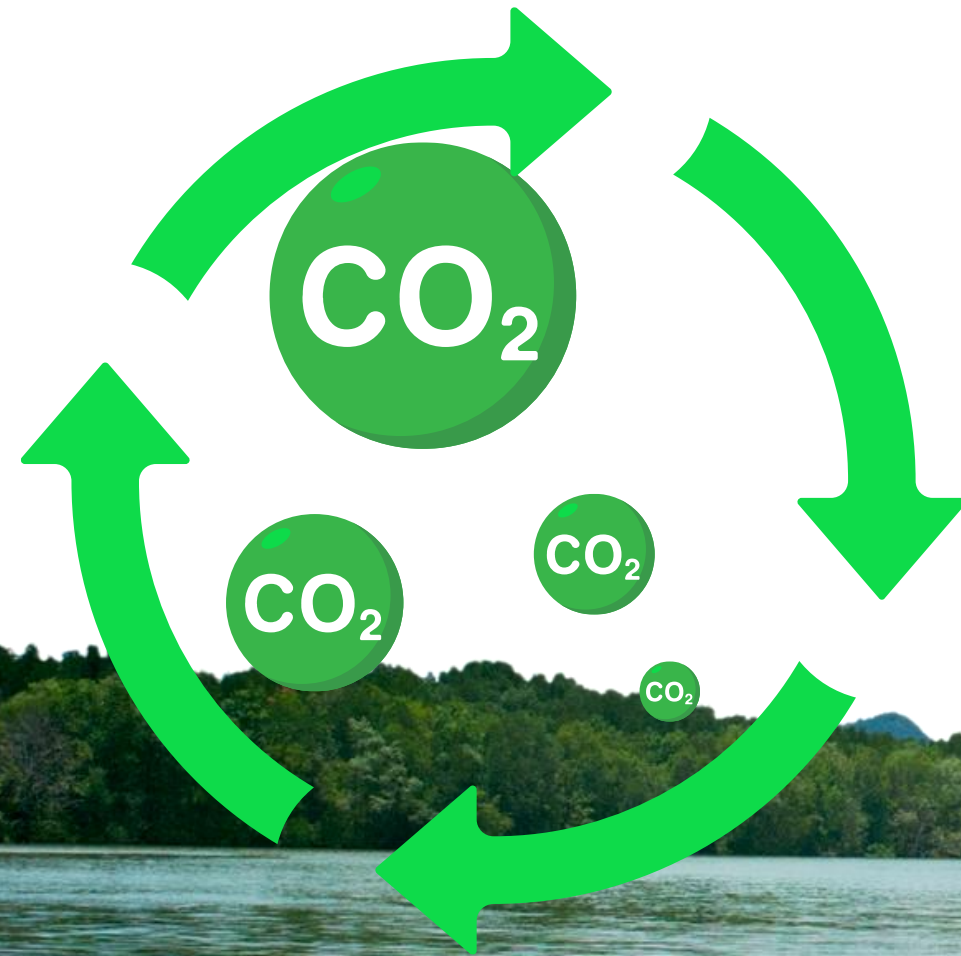
Pursuing mangrove conservation / restoration is needed to promote coastal integrity and resilience.



Over the past two decades, much of the interests in mangrove restoration are driven by the growing appreciation of their role in climate change



Over the past two decades, much of the interests in mangrove restoration are driven by the growing appreciation of their role in climate change **particularly carbon sequestration**



Carbon stocks and fluxes in Asia-Pacific mangroves: current knowledge and gaps

Sahadev Sharma^{1,*}, Raghab Ray², Christopher Martius³ and Daniel Murdiyarso^{3,4}

¹ Institute of Ocean and Earth Sciences, Universiti Malaya, Kuala Lumpur, Malaysia

² Atmosphere and Ocean Research Institute, The University of Tokyo, Kashiwa, Chiba, Japan

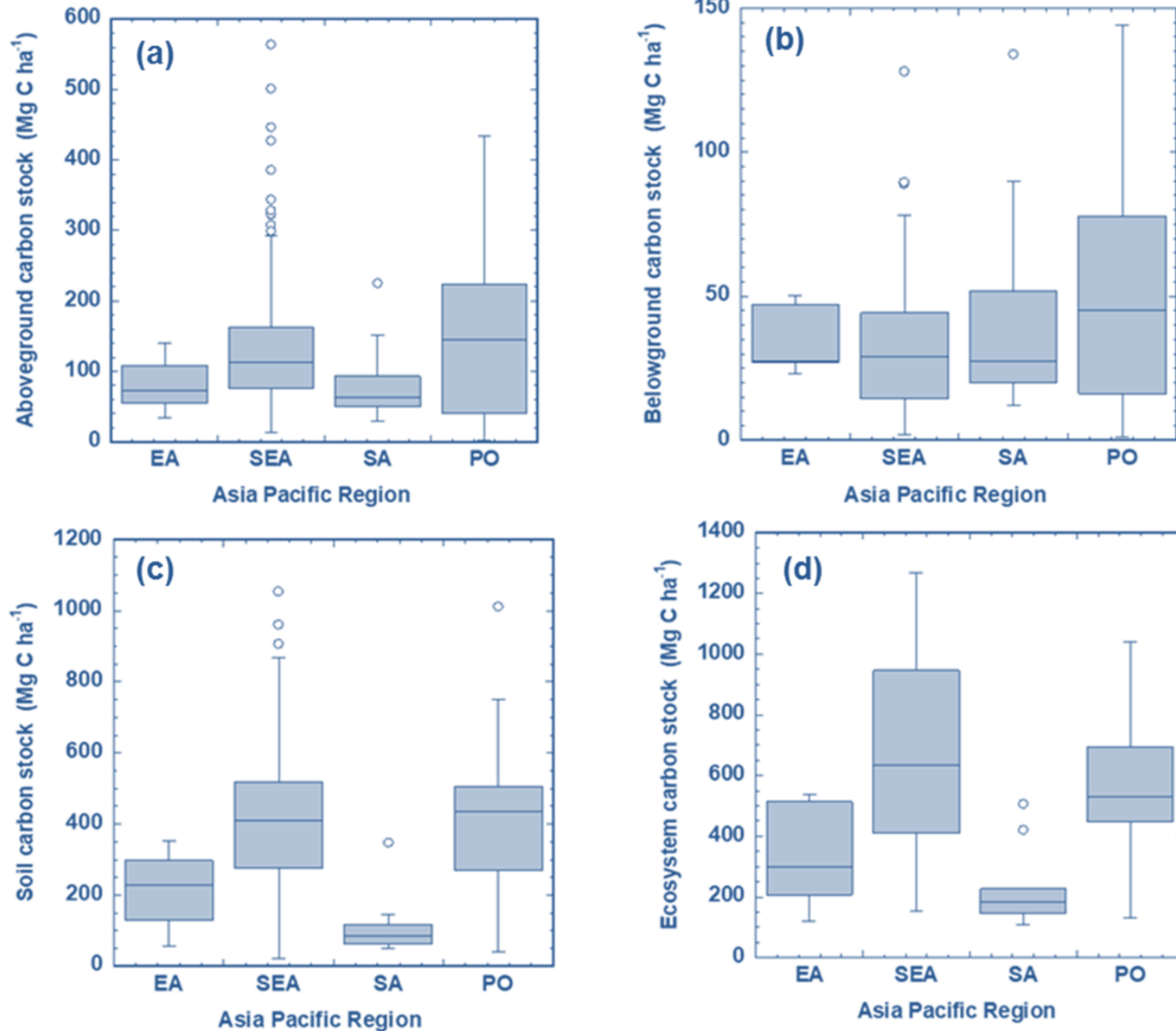
³ Center for International Forestry Research, Jl. CIFOR, Situgede, Bogor 16115, Indonesia

⁴ Department of Geophysics and Meteorology, IPB University, Kampus Darmaga, Bogor 16680, Indonesia

* Author to whom any correspondence should be addressed.

E-mail: ssharma.shell@gmail.com

Keywords: blue carbon, stock, flux, biogeochemistry, Asia-Pacific mangroves, global climate change

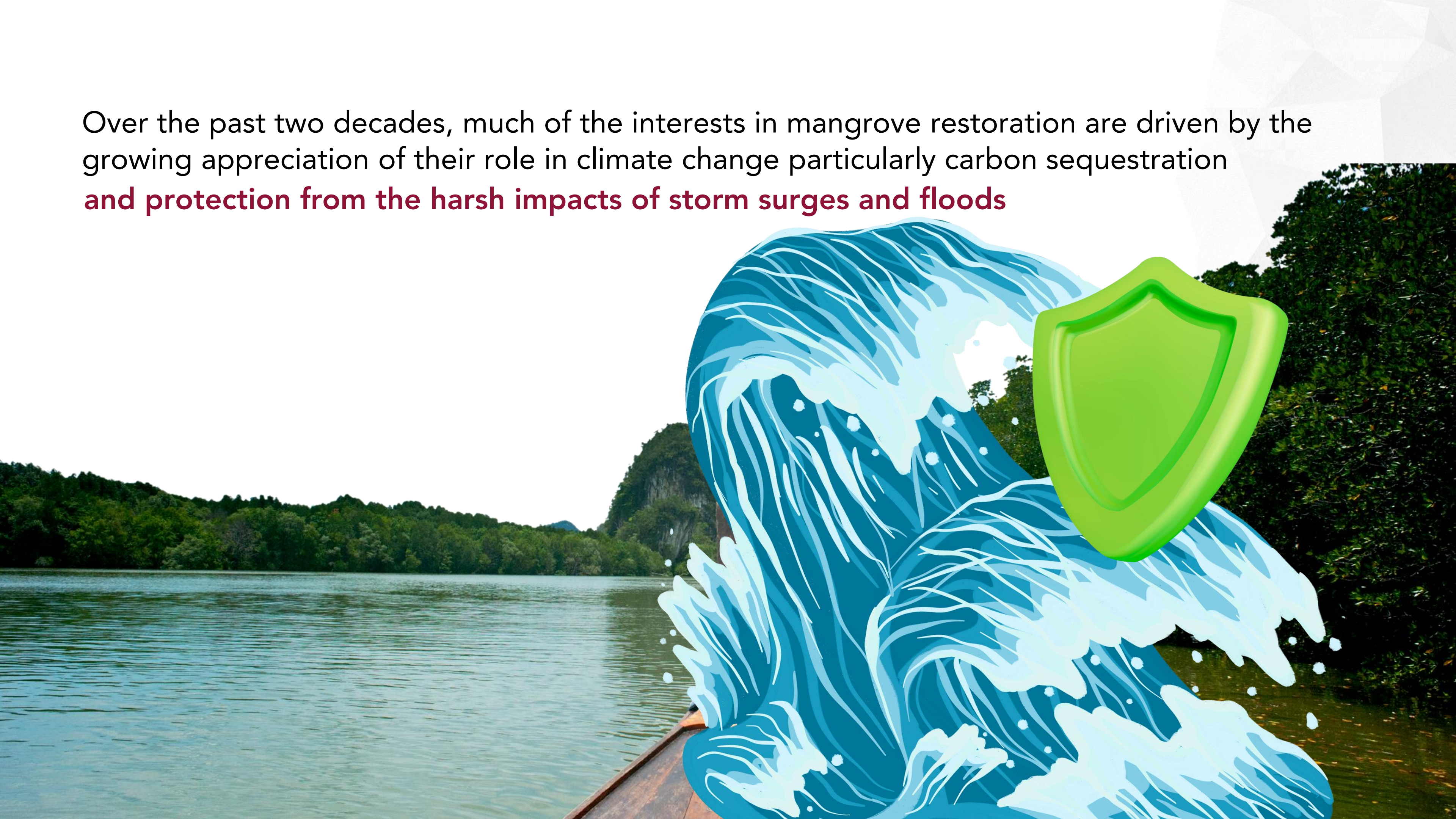


Total mangrove area: 68 493 km²
Carbon stock range: 109 and 1269 Mg C ha⁻¹

Richer blue carbon stocks in SEA

Figure : (a) aboveground carbon stocks, (b) belowground carbon stocks, (c) soil carbon stocks, and (d) ecosystem carbon stocks in the Asia-Pacific region (EA: East Asia, SEA: Southeast Asia, SA: South Asia and PO: Pacific Ocean).

Over the past two decades, much of the interests in mangrove restoration are driven by the growing appreciation of their role in climate change particularly carbon sequestration **and protection from the harsh impacts of storm surges and floods**



DISASTER RECOVERY

A town saved by mangroves

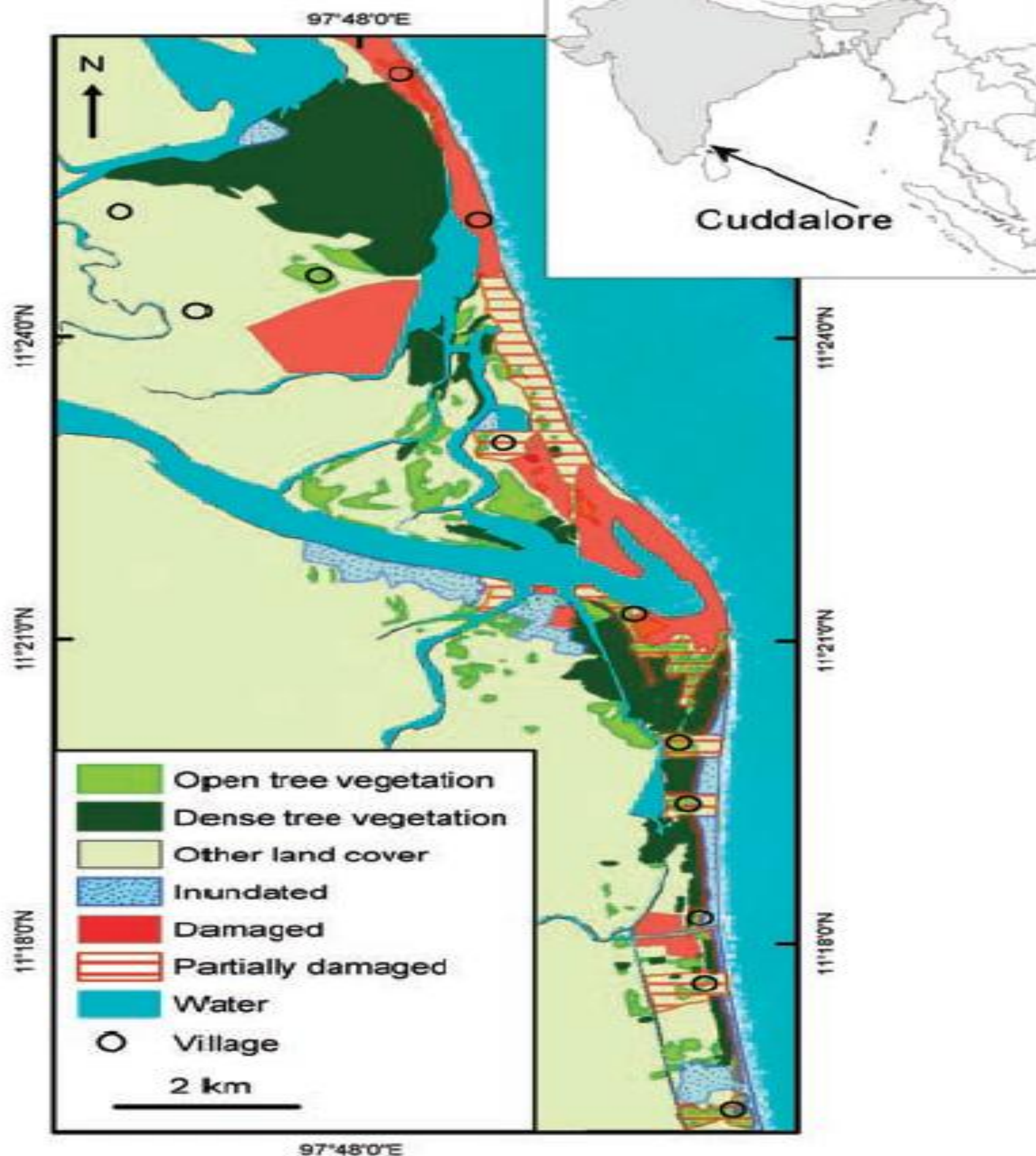
Palompon could've been any other devastated town after Super Typhoon Haiyan ravaged the area. The town was spared; all thanks to their mangroves

When Haiyan struck, Palompon **faced storm surges of up to 3.6 meters high**. The highest structures in the town's shoreline were only 2 stories (approximately 6.6 meters) tall.

A mangrove plantation, located in an island a few hundred meters from the shoreline buffered the full impact of the waves.

"The mangroves saved us," Oñate said.





The Asian Tsunami: A Protective Role for Coastal Vegetation

Finn Danielsen,^{1*} Mikael K. Sørensen,² Mette F. Olwig,²
 Vaithilingam Selvam,³ Faizal Parish,⁴ Neil D. Burgess,^{5,6}
 Tetsuya Hiraishi,⁷ Vagarappa M. Karunakaran,³
 Michael S. Rasmussen,² Lars B. Hansen,² Alfredo Quarto,⁸
 Nyoman Suryadiputra⁹

www.sciencemag.org SCIENCE VOL 310 28 OCTOBER 2005

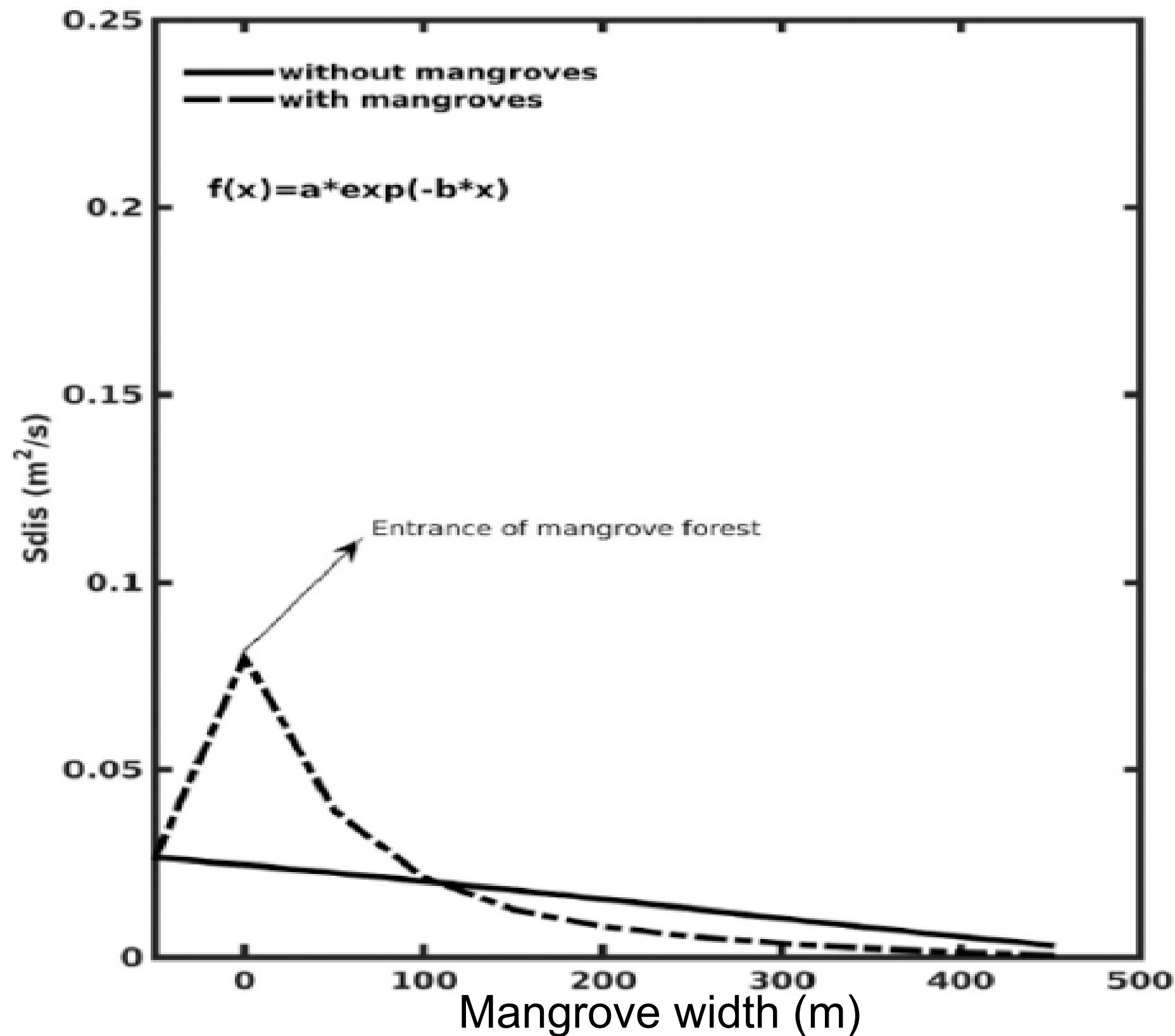
Fig. 1. Pre-tsunami tree vegetation cover and post-tsunami damages in Cuddalore District, Tamil Nadu, India.

Wave attenuation in presence of mangroves: A sensitivity study for varying bottom slopes

Parvathy K G and Prasad K Bhaskaran

Abstract

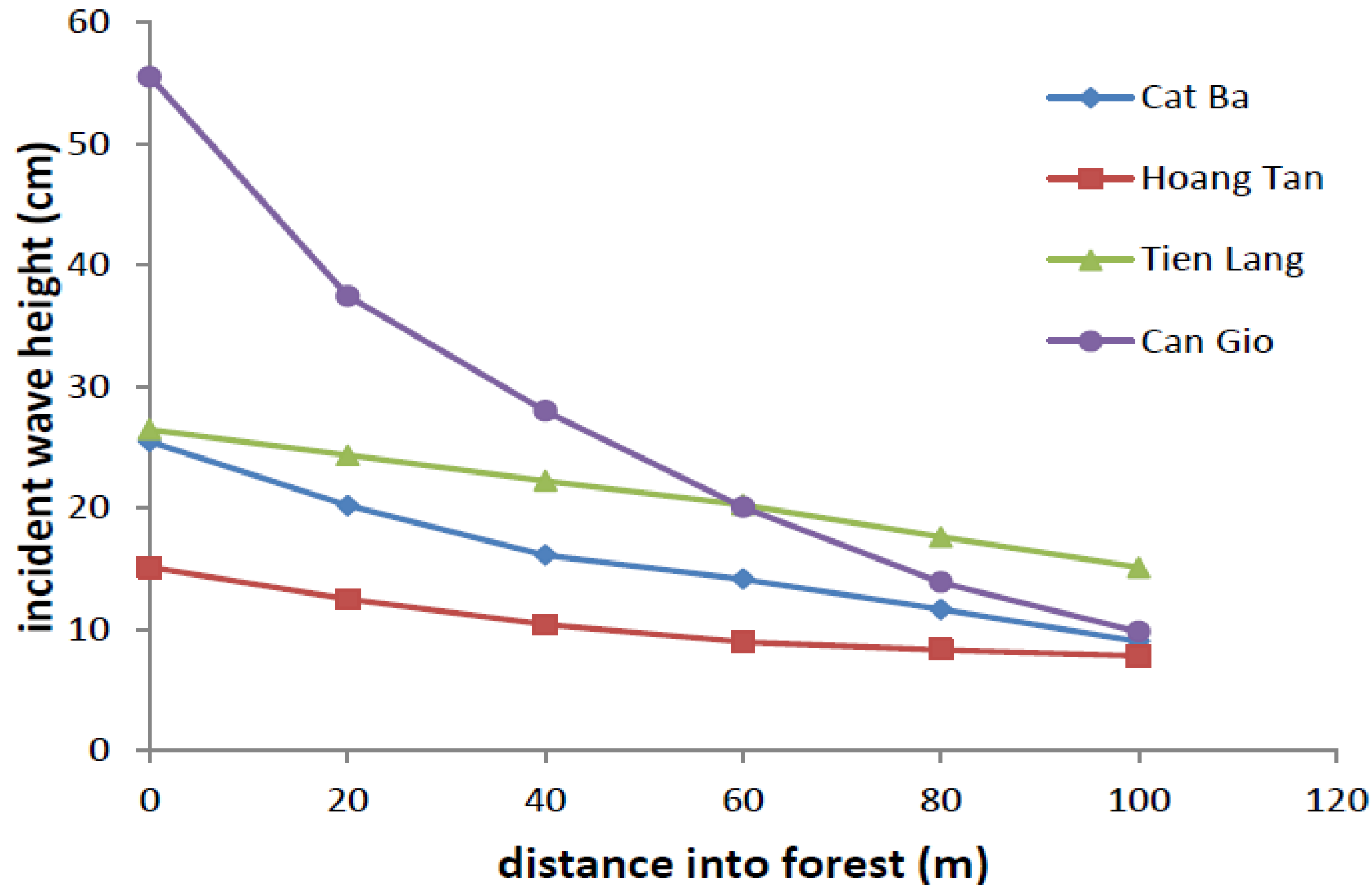
Mangroves thrive in the intertidal areas (interface between land and sea) of tropical and sub-tropical belt and play an important role in overall attenuation of nearshore waves. Multiple interactions of waves with mangrove trunks and roots and bottom friction are the two primary mechanisms responsible for wave attenuation in mangrove forests. Earlier studies, comprising both analytical and experimental, reported an exponential decay in wave height for waves propagating over vegetation with idealized bottom topography and a few on sloping bottom. But hardly studies have attempted to characterize the wave attenuation by vegetation over varying seabed slopes since mangroves generally grow luxuriantly on gradual topography having large tidal amplitudes. Nowadays, several studies are being carried out on development of artificial mangroves to reduce the coastal hazard risks; thenceforth, there is an imperative requirement to study the wave damping characteristics of mangroves on varying seabed slopes. Consequently, this study performs



Dissipation on mild slope (left) and steep slope (right)

Significant wave force reduction

Parvathy and Prasad (2017)



Significant wave height reduction

Figure 4. The variation in wave height with distance travelled through mangrove forests in 4 sample locations in Vietnam, from Bao (2011). Regression equations for these 4 locations were as follows: Cat Ba: $H_x = 24.9 e^{-0.01x}$, $R^2 = 0.99$; Hoang Tan: $H_x = 14.3 e^{-0.007x}$, $R^2 = 0.97$; Tien Lang: $H_x = 27.2 e^{-0.006x}$, $R^2 = 0.98$; and Can Gio: $H_x = 54.8 e^{-0.02x}$, $R^2 = 0.99$ (Bao, 2011).

Mangrove conservation has further opened good opportunities for developing local livelihoods and income sources.



Among which is through **mangrove ecotourism**, which has become more popular in Malaysia, Indonesia, Singapore, Thailand, Vietnam and the Philippines.



Across Southeast Asia, a growing body of literature highlights the economic, ecological, cultural, and governance benefits of mangrove ecotourism.



Ecotourism has emerged as a **strategic, nature-based approach to mangrove conservation**. It not only enhances environmental awareness and supports biodiversity protection but also contributes financially to mangrove restoration and protected area management (Palacios Peñaranda et al., 2024).

Nature-based Solution



In Malaysia, ecotourism initiatives in Marudu Bay have **improved the socioeconomic conditions of rural communities**, providing jobs that help retain local residents (Musa et al., 2020)



Source: perantau channel (Youtube)

Ecotourism sites also serve as **sanctuaries for rescued wildlife, promote environmental education, and foster public support for conservation** (Fairuz & Zin, 2024).



Source: the perpetual saturday

**MATANG MANGROVE
ECO-EDUCATIONAL CENTRE**



In Indonesia, mangrove ecotourism offers **direct financial benefits, livelihood diversification, and expanded entrepreneurship opportunities** while **strengthening local skills and cultural empowerment** (Vipriyanti et al., 2024).



Source: Taman Wisata Alam Angke Kapuk

In Singapore, mangrove ecotourism contributes to cultural ecosystem services such as **sense of place, recreation, and aesthetic enjoyment** (Friess, 2015; Thiagaraj et al., 2015).



Source: The Straits Times

In Thailand, participatory community-based ecotourism has demonstrated strong outcomes for **income generation, cultural preservation, and strengthened community cohesion** (Treephan et al., 2019).



Source: Charlie & Luke

It has also **encouraged conservation & restoration to harbor enormous biodiversity and reduce vulnerability to disasters** (Swangjang, 2021).



Source: Tourism Authority of Thailand

In Vietnam, mangrove ecotourism has transformed local livelihoods by **improving environmental quality, restoring mangrove landscapes, and generating incomes** from guiding visitors, often surpassing earnings from aquaculture (UNDP, n.d; WWF, 2017).



Source: Le Thanh Tung

Communities report **stronger appreciation of their environmental responsibilities** and a reinforced **commitment to protecting forests and biodiversity** (WWF, 2017).



Source: Le Thanh Tung

In Philippines, active community involvement **enhances environmental protection, cultural heritage preservation, and the effectiveness of ecotourism governance** (Legarde et al., 2025)



Source: Keith Anthony Fabro

Tourism has also long served as a **driver of biodiversity conservation, supporting alternative livelihoods, strengthening protected area management, and emphasizing the need for proactive, sustainable tourism policies** (Catibog-Sinha, 2010)



Source: Nicole Joseph Polo

Benefits of Mangrove Ecotourism

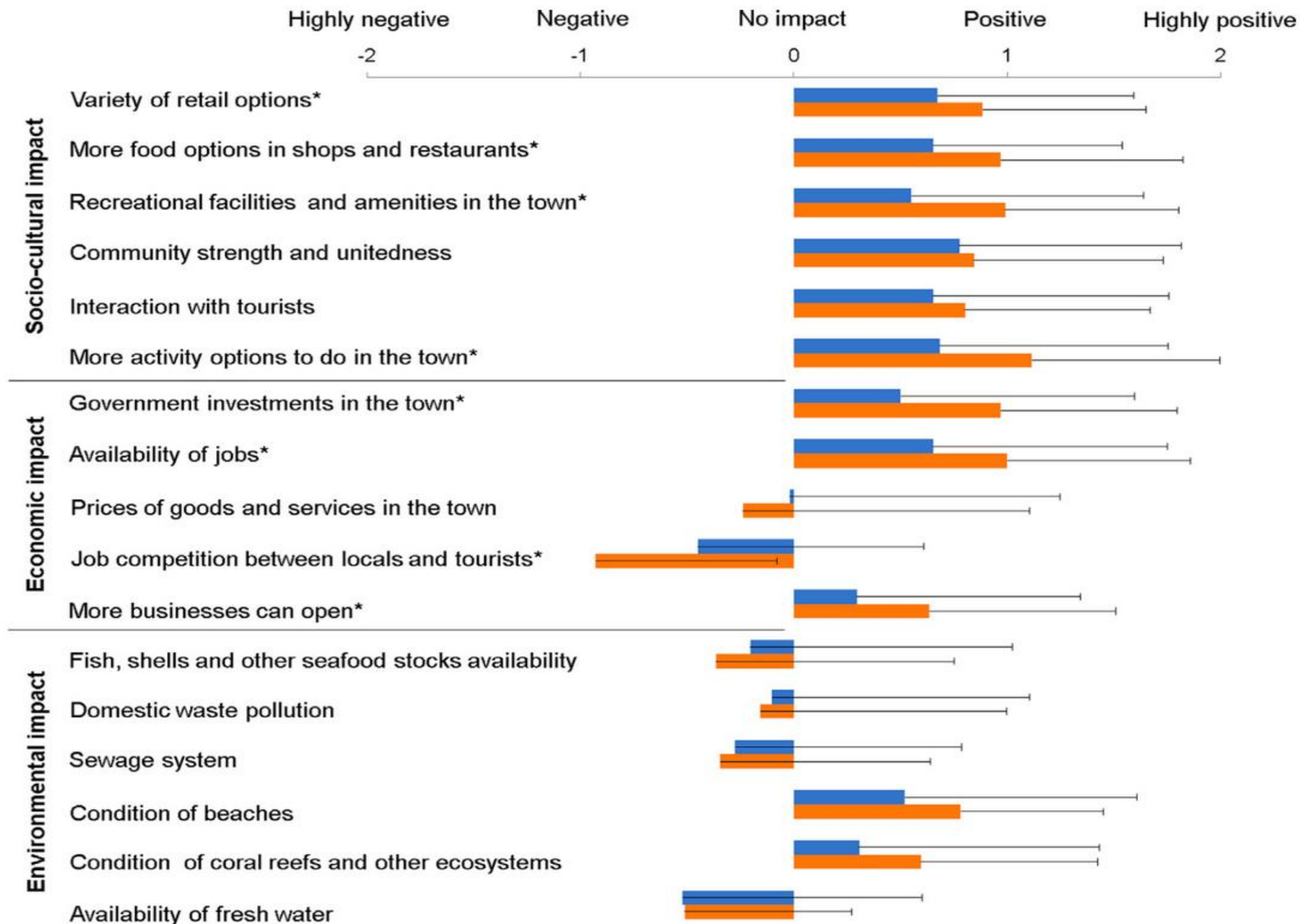


Fig. 2. Comparison of means of perceived impact of tourism between the municipalities of Busuanga ($n = 98$, blue bars) and Coron ($n = 96$, orange bars) using Mann–Whitney U test. Impacts with * indicates that difference of means is statistically significant at $p < 0.05$. (For interpretation of the references to color in this figure legend, the reader is referred to the web version of this article.)

Use values of Mangroves

Table 5. Use values of mangroves in Argao, Cebu, Philippines (ha: 130.52)

Category	Use values	Economic value	Total production cost	Net value	%
Direct use	Fish	143,067,210.00	8,220,000.00	134,847,210.00	44.30
	Mollusks and shells	24,387,025.00	2,200,000.00	22,187,025.00	7.29
	Crab	4,165,590.00	237,000.00	3,928,590.00	1.29
	Shrimp	2,816,320.00	120,000.00	2,696,320.00	0.89
Indirect use	Carbon sequestration	876,114.00	-	876,114.00	0.29
	Nursery/habitat	166,413,000.00	39,156,000.00	127,257,000.00	41.80
	Coastal protection	11,420,000.00	-	11,420,000.00	3.75
	Employment	504,000.00	-	504,000.00	0.17
Optional	Ecotourism	1,299,000.00	649,500.00	649,500.00	0.21
	Firewood	440.00	220.00	220.00	0.007
	Goat feed	12,720.00	6,360.00	6,360.00	0.002
	Nipa thatch	3,600.00	1,800.00	1,800.00	0.001
Total:		354,965,019.00	50,590,880.00	304,374,139.00	100.00

Rosales, R.J.C., Libranza, L.R., Roble, J.F.Z., Jucdong, F.M.B., Jumawan, M.C., Empeño, S., Flores, C.M., Dumdum, J., Cortes, S.T., Retubado, Z.A.Z., Lorca, A.S., Almagro, J.J.N. (2025). Economic valuation of a protected mangrove forest in Southern Cebu, Philippines. *Biodiversitas* 26 (5), pp. 2448-2459. DOI: 10.13057/biodiv/d260541

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

^aCollege of Forestry and Natural Resources, University of the Philippines Los Baños, College, Laguna, Philippines; ^bCollege of Public Affairs and Development, UP Los Baños, College, Laguna, Philippines; ^cDepartment of Forest Sciences, College of Agricultural and Life Sciences, Seoul National University, Seoul, Korea

Table 9. Total annual economic value.

Economic value	Banacon Island, Getafe, Bohol		Kamuning, Puerto Princesa City, Palawan	
	US\$	PHP	US\$	PHP
Area (ha)	470.0		836.0	
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

Benefits of Mangrove Ecotourism

ECONOMIC

- Generates income & alternative livelihoods
- Creates jobs and supports local entrepreneurship
- Improves community welfare (education, health, amenities)
- Stimulates local infrastructure & tourism-related investment



Benefits of Mangrove Ecotourism

ECONOMIC

- Generates income & alternative livelihoods
- Creates jobs and supports local entrepreneurship
- Improves community welfare (education, health, amenities)
- Stimulates local infrastructure & tourism-related investment

ECOLOGICAL

- Supports biodiversity conservation & habitat protection
- Enhances mangrove restoration and water quality
- Strengthens climate resilience (storm/flood protection)
- Promotes sustainable resource management & environmental compliance



Benefits of Mangrove Ecotourism

ECONOMIC

- Generates income & alternative livelihoods
- Creates jobs and supports local entrepreneurship
- Improves community welfare (education, health, amenities)
- Stimulates local infrastructure & tourism-related investment

ECOLOGICAL

- Supports biodiversity conservation & habitat protection
- Enhances mangrove restoration and water quality
- Strengthens climate resilience (storm/flood protection)
- Promotes sustainable resource management & environmental compliance

SOCIAL

- Encourages strong community participation & governance
- Preserves culture, traditions & local identity
- Provides education and environmental awareness
- Builds community pride, cohesion & well-being

Benefits of Mangrove Ecotourism

ECONOMIC

- Generates income & alternative livelihoods
- Creates jobs and supports local entrepreneurship
- Improves community welfare (education, health, amenities)
- Stimulates local infrastructure & tourism-related investment

ECOLOGICAL

- Supports biodiversity conservation & habitat protection
- Enhances mangrove restoration and water quality
- Strengthens climate resilience (storm/flood protection)
- Promotes sustainable resource management & environmental compliance

SOCIAL

- Encourages strong community participation & governance
- Preserves culture, traditions & local identity
- Provides education and environmental awareness
- Builds community pride, cohesion & well-being

ECOTOURISM STRENGTHEN

BIODIVERSITY OUTCOMES

Ecotourism strengthens biodiversity outcomes by **financing habitat restoration, promoting environmentally responsible behavior, and advancing multiple SDGs** related to life on land and below water (Palacios et al., 2024).



Source: Mohammad Yunus

However, **ecotourism can also potentially threaten biodiversity** due to infrastructural developments, over-tourism, improvement of and expansion of ecotourism facilities, unregulated harvesting and encroachment, road openings, among others (Morales, et al., 2014).



Source: Teguh Suprayitno/Mongabay Indonesia

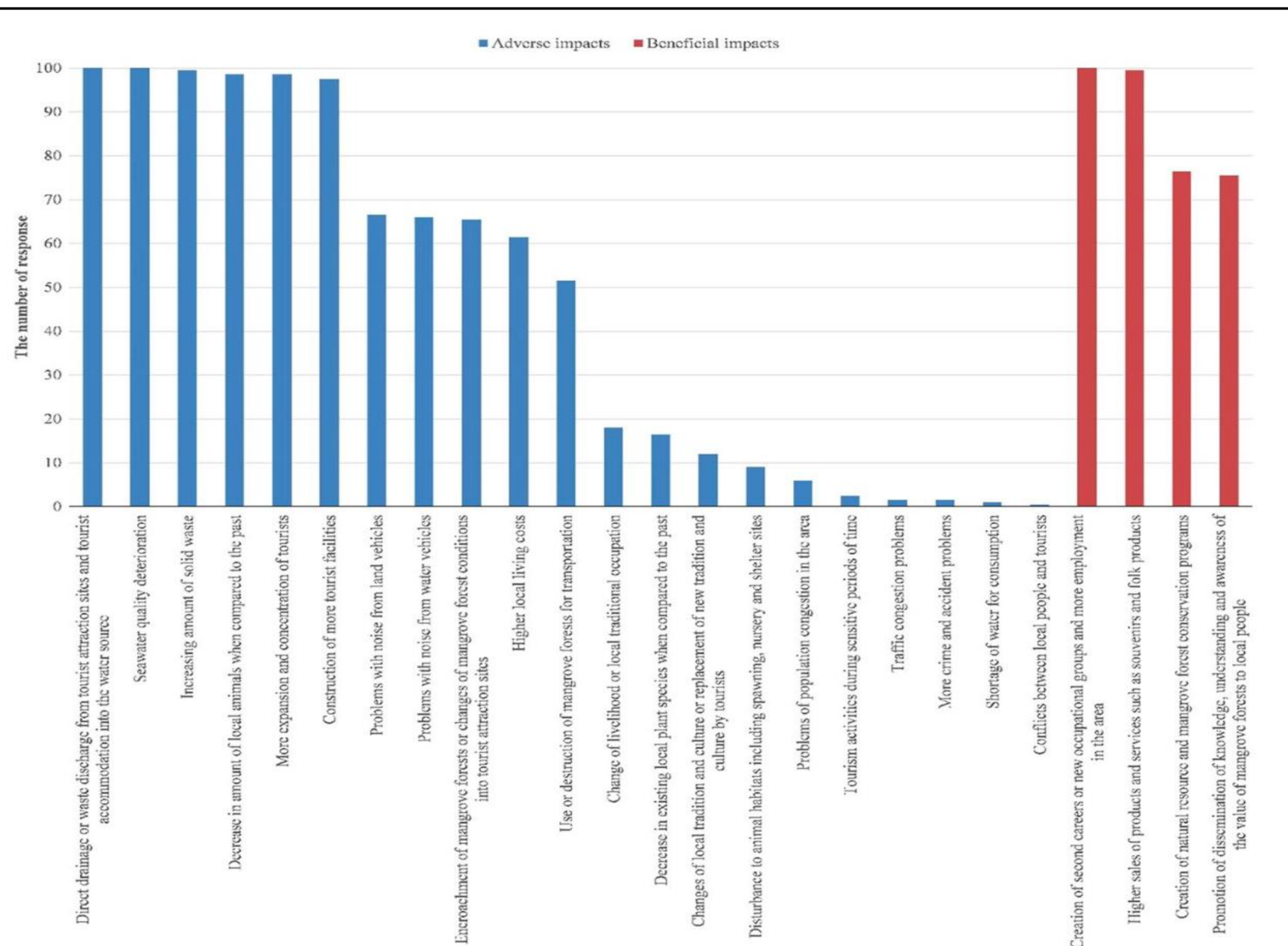


Fig. 6 Local community responses toward ecotourism. Remarks: ■ Adverse impacts, ■ Beneficial impacts

Local residents of Palawan, Philippines, have varied perceptions on mangrove ecotourism.

Those who benefit from these tourism activities tend to have positive perceptions, while others (especially those who have first hand experience to its adverse impacts) have negative perceptions, including **loss of mangroves due to reclamation** and pressure on blue carbon ecosystems which result to loss of valuable services (Quevedo, et al, 2021).

Mangrove loss and reclamation gains in Singapore (1820-present)

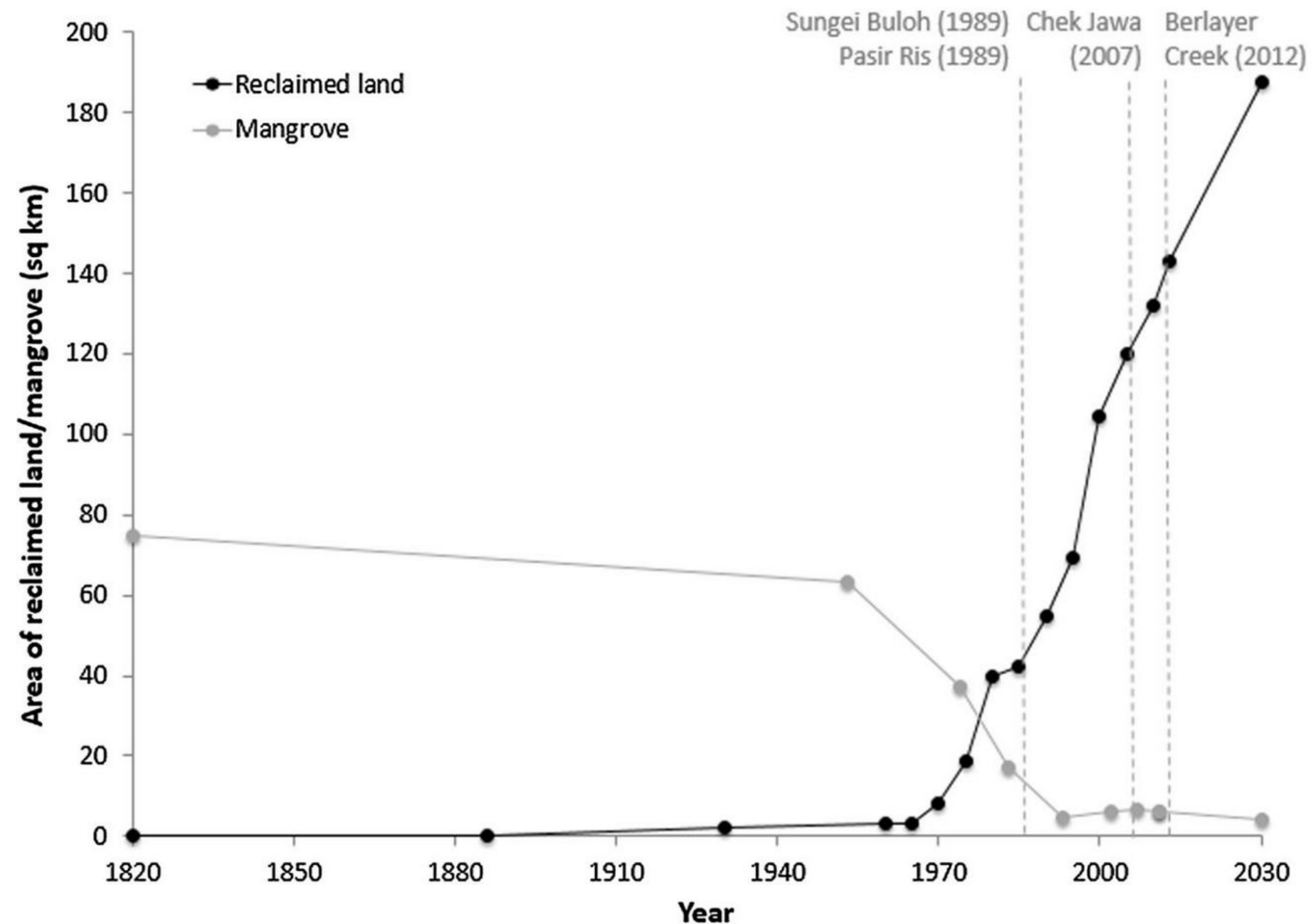


Fig. 1 Mangrove loss and land reclamation gains in Singapore from 1820 to the present day, and the dates when key accessible mangroves areas were opened to the public. Sources for land reclamation area: Chia and Chou (1991); Singapore Department of Statistics. Sources for mangrove area: Corlett (1992); Hilton and Manning (1995); Yee et al. (2010); Lai et al. (2015); Tan and Friess, *unpublished data*

Thiagaraj, J., Shermaine, K., Wong, M., Richards, D., Friess, D. (2015). Historical and contemporary cultural ecosystem service values in the rapidly urbanizing city state of Singapore. The Royal Swedish Academy of Sciences. DOI 10.1007/s13280-015-0647-7

This is where governance comes in.

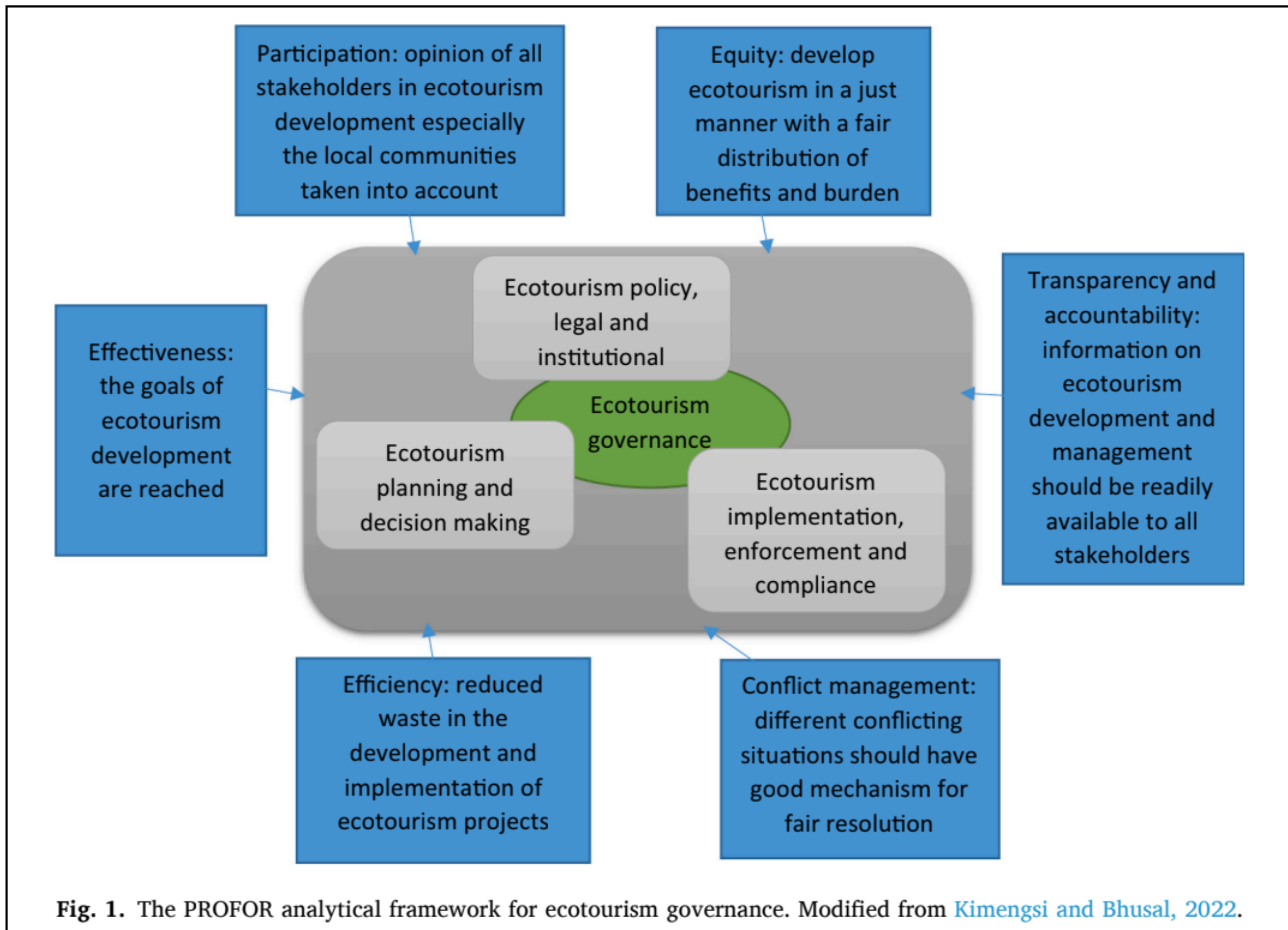


Source: Teguh Suprayitno/Mongabay Indonesia

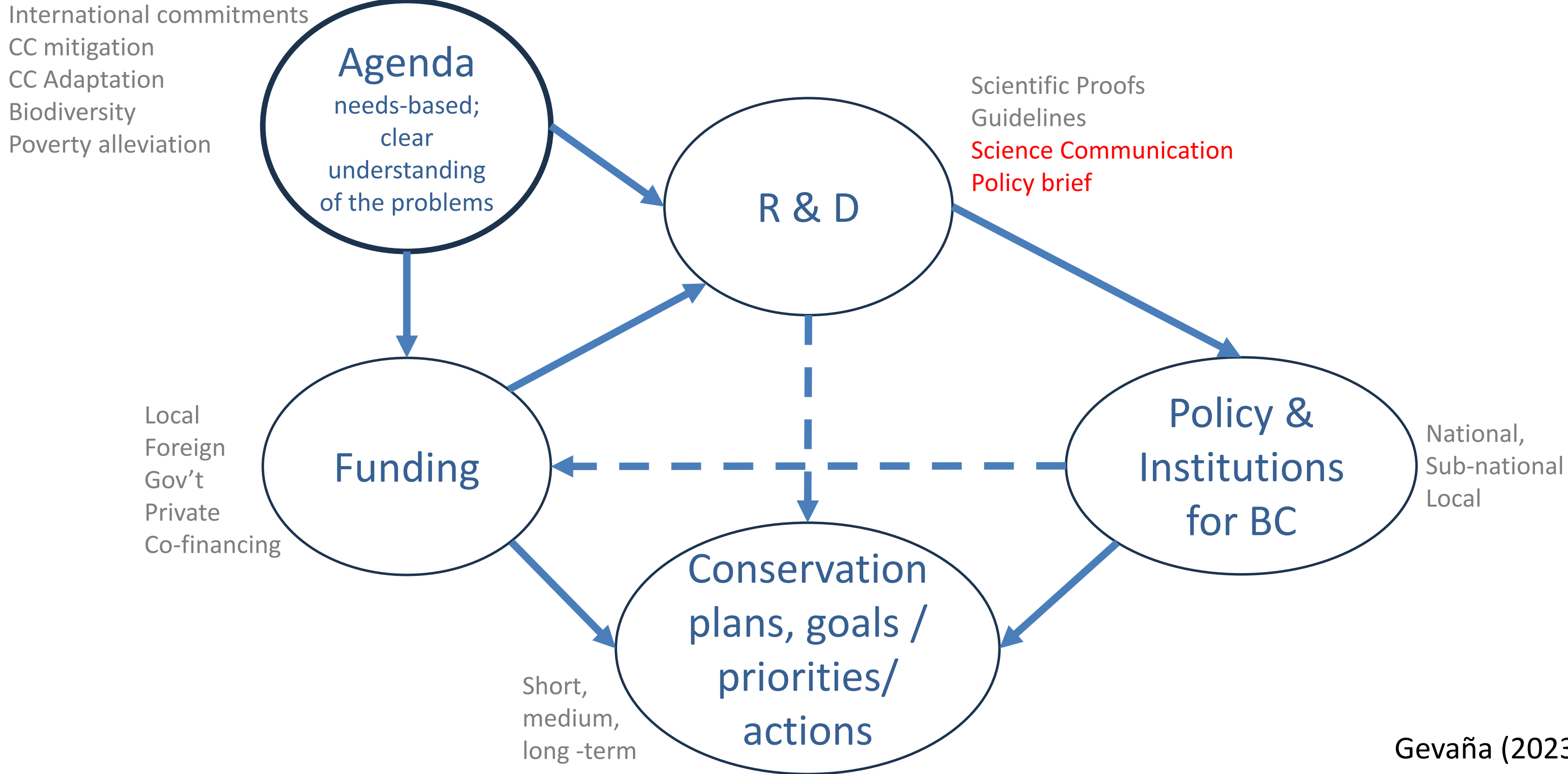
Ecotourism governance pertains to a system of values, rules, processes, and behaviors that **facilitate the management of ecotourism interventions** (Forje & Tchamba, 2022).



PROFOR analytical framework for ecotourism governance



Mangrove ecotourism plans and programs must be responsive to clear (science-based) agenda.



Poor governance may lead to the **collapse of ecotourism**

interventions, especially when:

- financial support ran out
- local support / involvement is lost
- Local management capacities are not improved

Failed mangrove tourism project in Sumatra highlights need for community collaboration



Barita News Lumbanbatu
16 Feb 2023 Asia

Comments

Share article



Manage and respond to expectations: focus on creating tangible and lasting (economic) benefits for the local communities



Contents lists available at [ScienceDirect](https://www.sciencedirect.com)

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

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

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

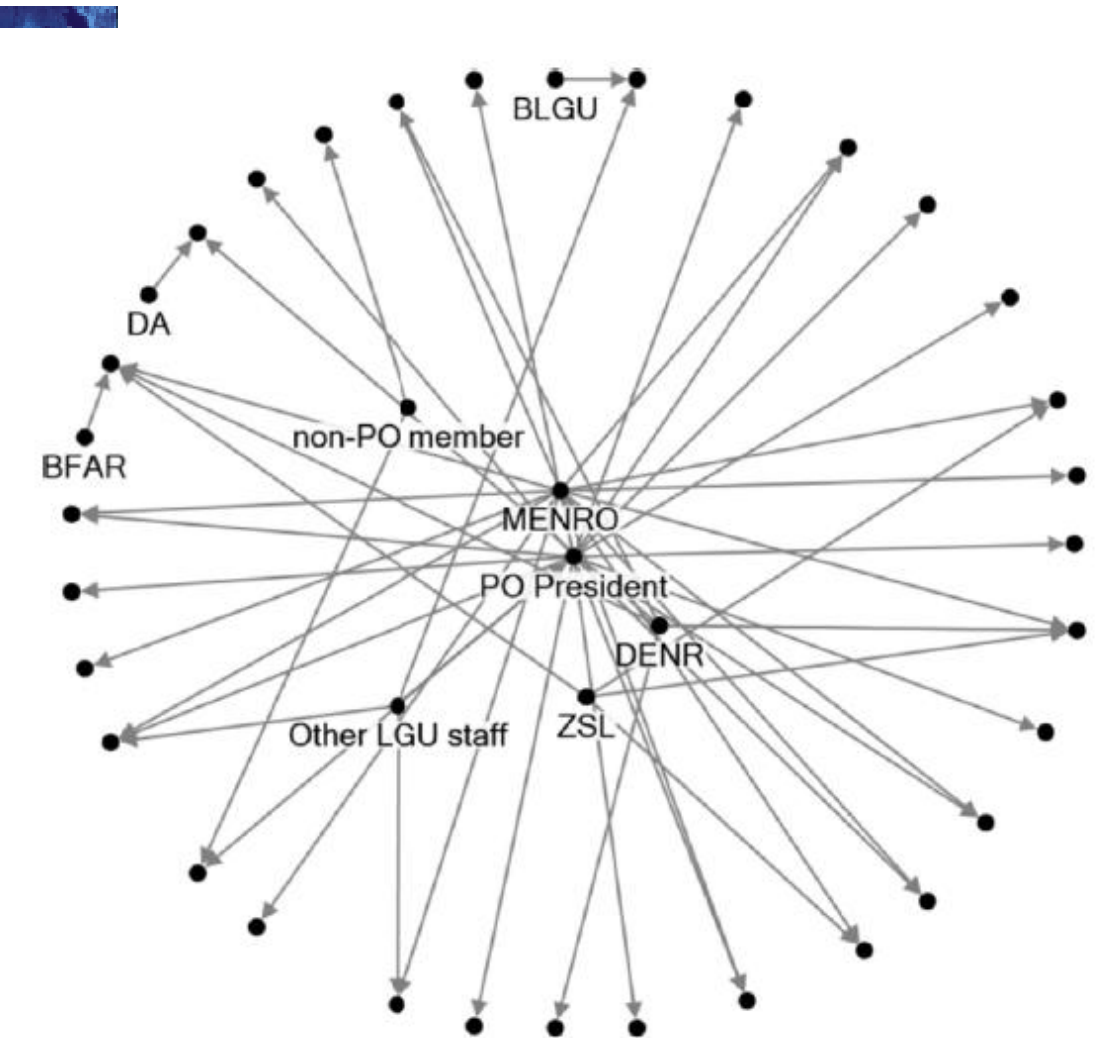


Fig. 3. Mangrove information network among members of the people's organization in the Katunggan Ecopark.

Inclusive, holistic and visionary (future-informed) ecotourism governance is the key

Dynamics of community involvement in ecotourism governance on Great Santa Cruz Island, Philippines

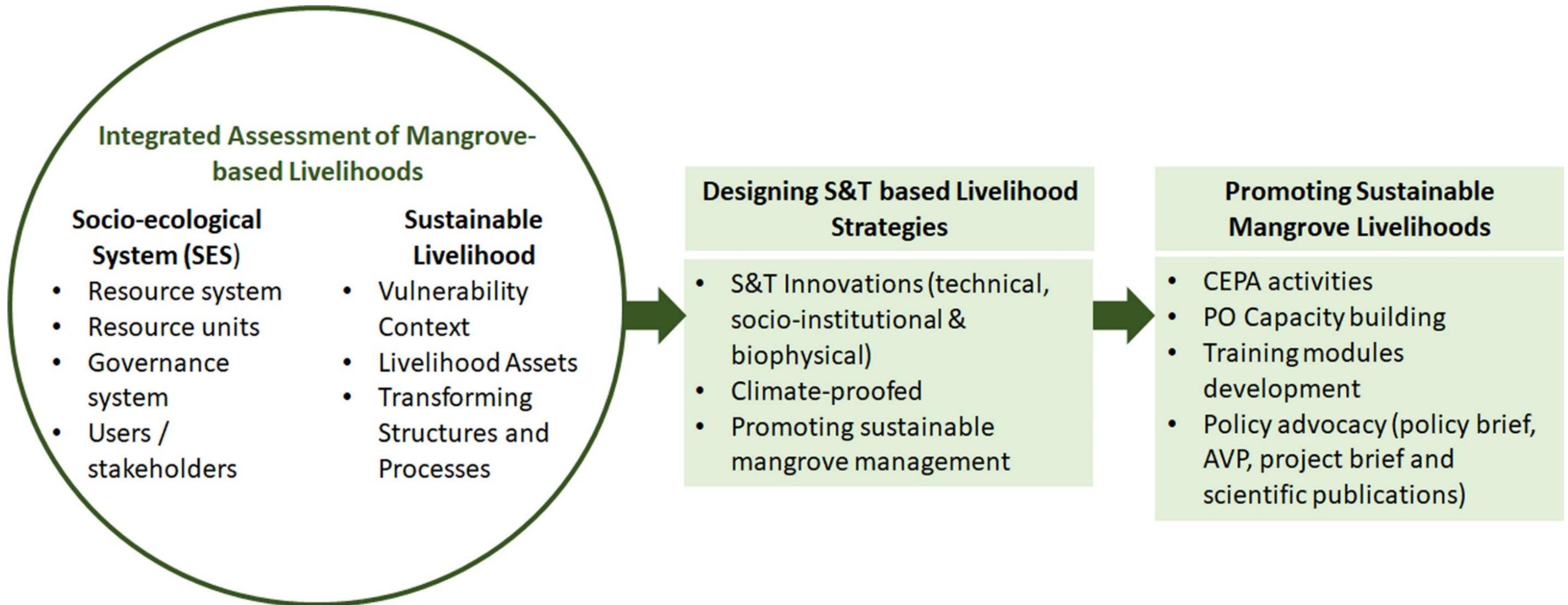
Associations between Tourism Governance Models and Environmental Conservation, Socio-Cultural Preservation, And Economic Advantages

Variables		R ² value	r-value	p-value	Decision	Interpretation
Tourism Governance Models	Environmental Conservation	0.134	0.635	0.018	Reject H ₀	Very high Correlation
	Socio-Cultural Preservation	0.367	0.719	0.000	Reject H ₀	Very high Correlation
	Economic Advantages	0.094	0.738	0.009	Reject H ₀	Very high Correlation

*Significant level at $\alpha = .05$

Legarde, L., Zabala, C., Atilano-Tang, L., Tendero, E. & Valerio, A. (2025). Sustainable Development Goals 16.7.2: Assessing Community Participation and Governance for Sustainable Ecotourism on Great Sta. Cruz Island, Philippines. <https://doi.org/10.47172/2965-730X.SDGsReview.v5.n02.pe04521>

Framework for Sustainable Mangroves through Innovations and Livelihood Enhancement Promoting Growth and Climate Resilience (SMILE-Growth)



Maiko Nishi · Suneetha M. Subramanian
Himangana Gupta · Madoka Yoshino
Yasuo Takahashi · Koji Miwa
Tomoko Takeda *Editors*

Fostering Transformative Change for Sustainability in the Context of Socio- Ecological Production Landscapes and Seascapes (SEPLS)



OPEN ACCESS

 Springer

Measure and re-orient project / policy success in terms of transformative changes.

- Strengthened land / tenurial rights
- Increased / renewed collaborations or partnerships among stakeholders.
- Enriched culture and traditions
- Improved income and livelihoods
- Assured multi-generational interests and commitment to conserve mangroves (particularly among the youth)

<https://www.springerprofessional.de/en/climate-change-resiliency-through-mangrove-conservation-the-case/19096374>



Source: Project SMILE-Growth, FDC, UPLB

Undoubtedly, **ecotourism** contributes to **socio-ecological transformations**.



Bohol, Philippines

Infanta, Quezon, Philippines

Ajuy, Iloilo (2018)



Sustain and promote local mangrove initiatives and ecotourism champions.





Home

About ▾

Our Work ▾

Resources

Publications

Events

News

Contact



<https://cgsea.org>

Carbon Governance In Southeast Asia (CGSEA)

Read More

The CGSEA project is supported by Social Science Research Thematic Grant (SSRTG)

MOE2021-SSRTG-021

Subscribe



Dedicated to our future generations and to those who will stand up and commit for the cause of ensuring healthy mangroves and planet, for a greener and resilient future.



Banacon Island / Gevana (2013)



Thank you.

To God be the glory.

Dixon T. Gevaña, PhD

College of Forestry and Natural Resources,
University of the Philippines Los Baños
College, Laguna, Philippines 4031
EMAIL: dtgevana@up.edu.ph