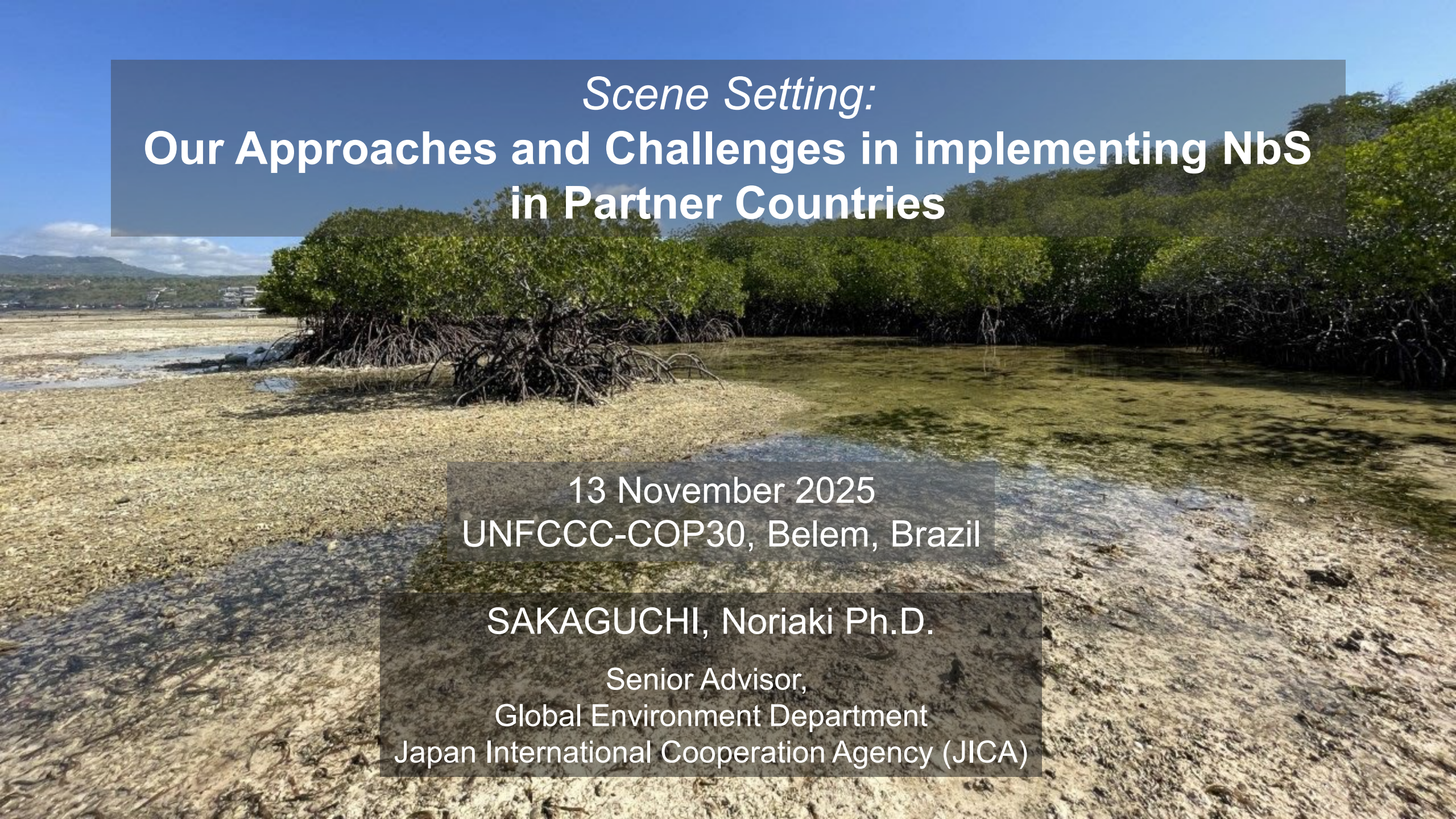


Scene Setting:

Our Approaches and Challenges in implementing NbS in Partner Countries

13 November 2025
UNFCCC-COP30, Belem, Brazil

SAKAGUCHI, Noriaki Ph.D.

Senior Advisor,
Global Environment Department
Japan International Cooperation Agency (JICA)

How do we maximize multiple benefits in NbS projects?

Key elements for ensuring multiple benefits, sustainability & scaling in mangrove restoration as NbS

Results from Mangrove Side Event at the COP16, CBD at Cali, Colombia

Sustainable management

Collaborative management by multi-stakeholders

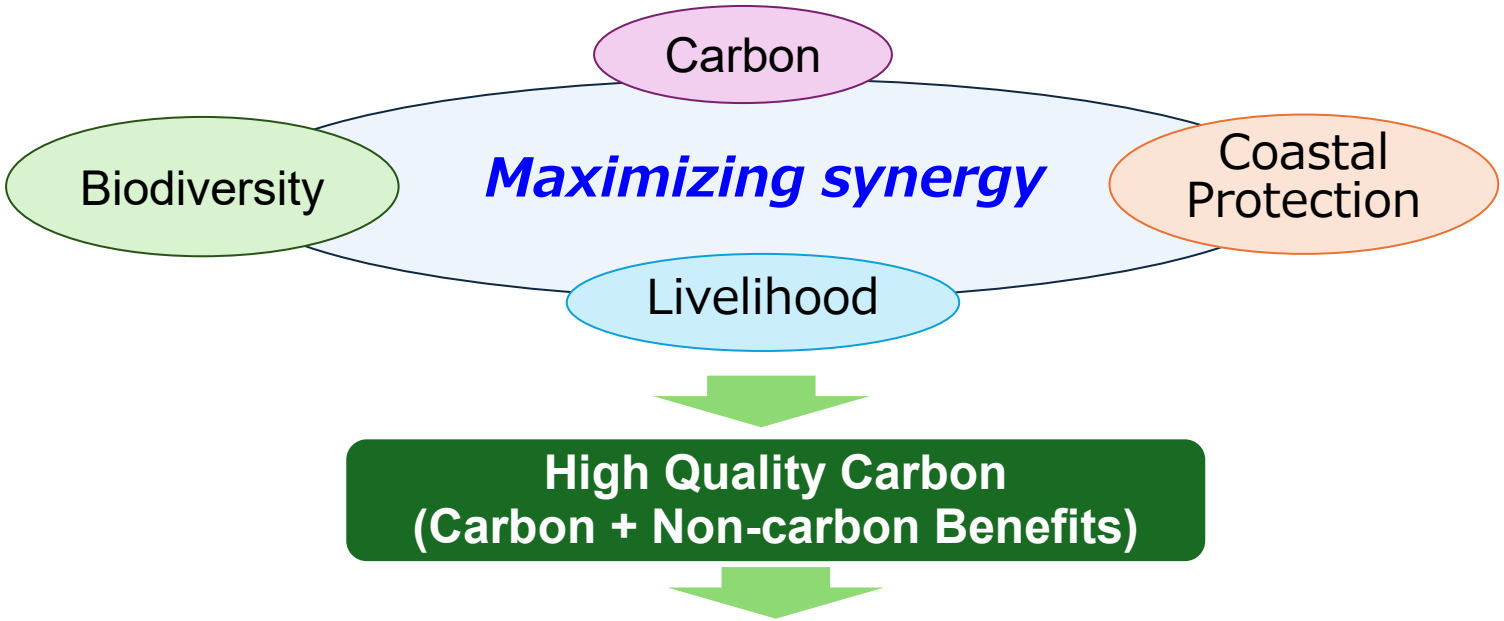
Community livelihood enhancement

Quantitative Evaluation on multiple services

Indicators & Methodologies for quantitative evaluation

Technical guideline & Institutional mechanism

Guideline / regulation for project design and implementation, MRV



Scale up Mangrove Restoration by Financing from Private Sector

Integrated Ecosystem Management to cope with Climate Change

Global

- Climate-induced hazards: storm surge and coastal flooding by tropical cyclones
- Slow-onset events: sea level rise, warming sea surface temperature and ocean acidification

Local

- Rapid population growth (2.6% in 2010): the highest population growth rates in the Pacific (*Driver*)
- Overfishing, land-based pollution and sedimentation, coastal development and reclamation (*Treats*)

The global & local threats weaken coastal resilience due to the degradation of coastal ecosystems.

Integrated Coastal Ecosystem Management

to cope with climate change
(Ecosystem-based Adaptation)

Key elements

i. **Stakeholder engagement** system in planning & implementation, including governments, academia, NGO, fishery organization, private sector

ii. **Ecosystem-based management**, that recognizes the complex interactions between nature & human activities

iii. **Adaptive management** through improving plan & its implementation according to monitoring & evaluation of outcomes and ecosystem indicators

Status of Ecosystem Services/Co-benefits in NbS and HI to Climate Change & DRR

Storm waves, flood tide and beach abrasion caused by large-scale typhoons and sea level rise due to climate change & tsunami cause serious damage to people's lives and properties in coastal areas.

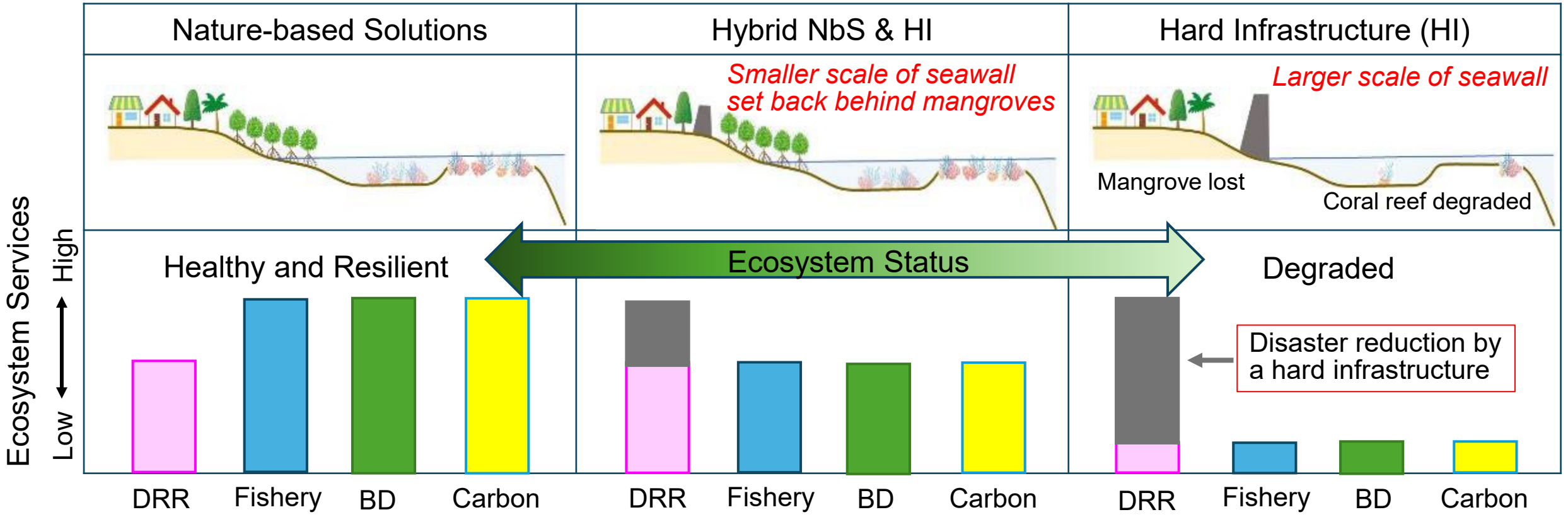
NbS is an effective approach to realize both multiple ecosystem benefits and coastal resilience

- People highly depends on fisheries
- Need higher costs to construct & maintain a large scale of seawall.

Large scale of seawall protects from tsunami and storm waves

Trade off

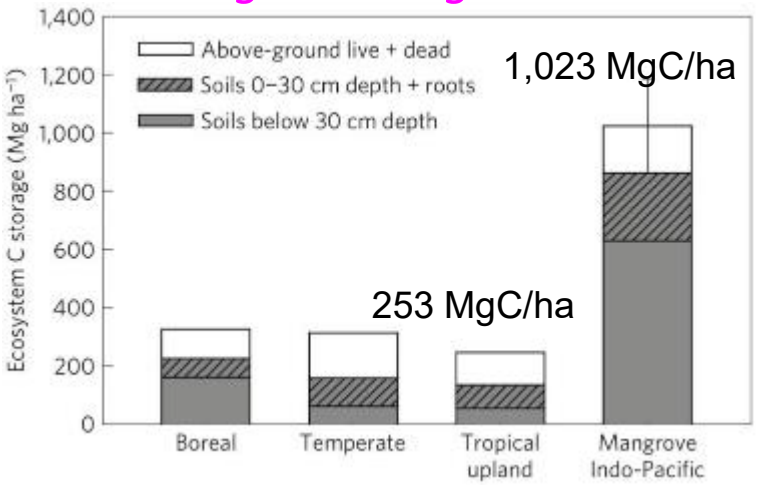
Degradation of coastal ecosystem



Evaluation on Ecosystem Services from Mangrove Conservation as NbS

Climate Change Mitigation

Storing much higher carbon

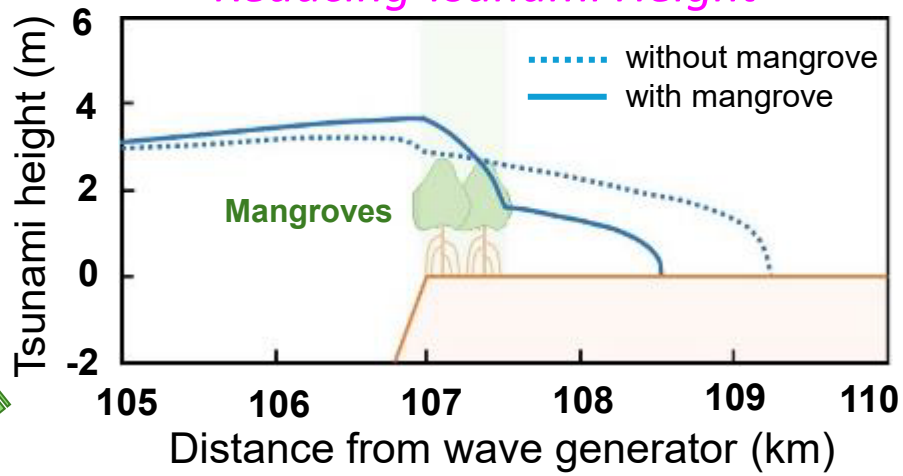


(Donato *et al*. 2011)

Quantitative Evaluation

Tsunami Reduction

Reducing Tsunami Height



(Modified from Yanagisawa *et al*. 2009)

To ensure Multiple Ecosystem Services in NbS

Adaptation

Protecting coastal lines from SLR and coastal abrasion

Habitat Type	Accretion rate (mm/y)
Fringe	**1.6 – 8.6**
Riverine	**6.5 - 13.0**
Interior	**0.7 - 20.8**
Overwashed island	**4.4 - 6.3**

(Murdiyarso *et al*. 2021)

Economic Values

Contributing Community Livelihood

USD/ha/y	Mean	Min - Max	Sites
Fisheries	23,613	10 - 555,168	51
Tourism	37,927	1.74 - 507,368	14

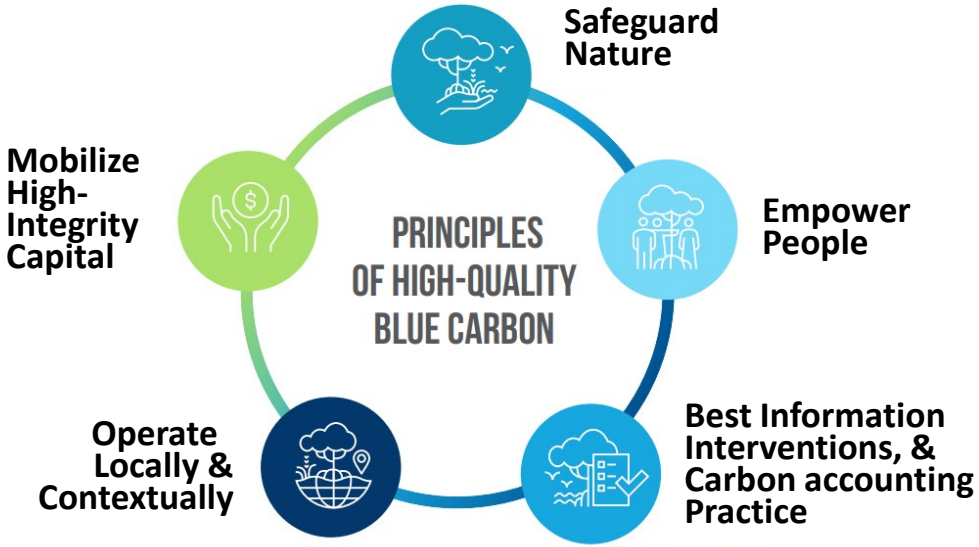
(Salem & Mercer, 2012)

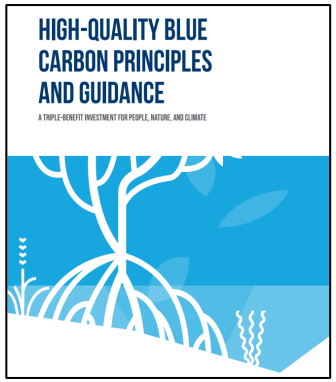
Technical Guideline & Institutional Mechanism

Global Guidelines

High-Quality Blue Carbon Principle & Guidance for Triple-Benefit Investment for People, Nature, and Climate

Published at COP27 in 2022





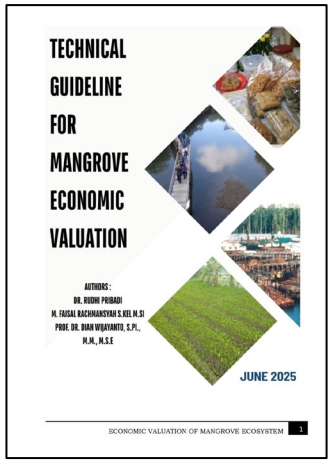
Five principles are guideposts to ensure high-quality blue carbon projects and credits optimize outcomes for people, nature, and climate

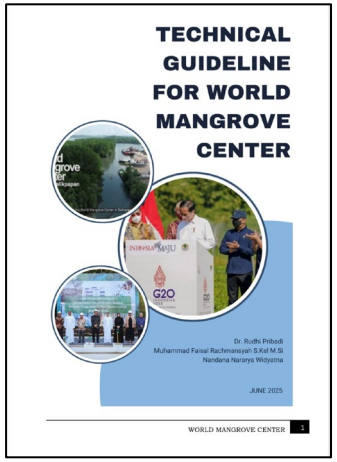
Best Practice Guidelines for Mangrove Restoration

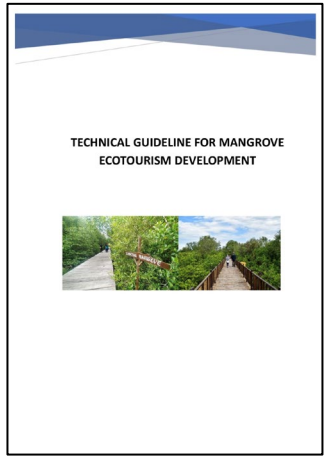
Developed by Global Mangrove Alliance (2023)

Regional Guidelines

ASEAN Mangrove Network (AMNET) developed17 guidelines for sustainable mangrove management







Key Challenges in implementation of NbS

1) *Establishment of sustainable management mechanism in NbS through participation and collaboration by stakeholders and ensuring mutual benefits of them*

2) *Development of common indicators and methodologies for the quantitative evaluation of each ecosystem service*

3) *Development of technical guidelines and institutional mechanism for securing synergies/co-benefits in NbS*