Asia and the Pacific and Nature-Based Solutions (NbS)

Asia and the Pacific contributes to >30% of global nature-based credits

However, NbS remained restricted with a predominant focus on terrestrial ecosystems.

Opportunities & benefits of Blue Carbon

Globally coastal ecosystems remove 300 - 900 million metric tons of CO₂ annually.

These ecosystems also provide critical ecosystem services to coastal communities, fisheries, and other sectors.

Consequences of overlooking Blue Carbon

The loss of 2% of mangroves in Asia and the Pacific, could lead to the emission of 230 megatons of CO₂e from the stored carbon in mangroves.

Overlooking blue carbon ecosystems may result in the underestimation of GHG sinks and inaccurate reporting of GHG emissions at the national level.

Spatial distribution of coastal ecosystems (mangrove, coral reef, and seagrass) in Asia-Pacific

Infographics made from ESCAP report, Regional Assessment of the Status of Ecosystems as Nature-Based Solutions for Climate Action: Underscoring the role of blue carbon ecosystems in Asia and the Pacific (2023)
Blue Carbon Ecosystems in Asia and the Pacific

**MANGROVES**

51% of global mangroves can be found in the Asia-Pacific region

1.5 trillion USD value of ecosystem services are generated by mangroves annually in the region—equivalent to the 14th world's biggest economy

**Benefits of mangroves**

- **Store 3-4 times more carbon** than other forested environments
- **Home to a rich fauna**, including 341 global threatened species
- 80% of small-scale fishers rely on mangroves in many countries
- Prevent over $65 billion annual property damages

**Mangrove cover is declining fastest in the Asia-Pacific region among all global regions**

63% of global losses in mangrove are in Asia and the Pacific since 1996. The rate of loss has decreased in the past decade.

**Drivers of mangrove loss** (% = relative importance)

- Asia: Aquaculture 36%, Natural recreation 17%, Oil palm 13%, Rice cultivation 13%
- Pacific: Direct settlement 90%, Natural recreation 10%

The Asia-Pacific was responsible for 70% of the global net loss of carbon stored in mangrove forests in the last 25 years.

- **Net gain: 314 Mt CO₂e**
  - Top net gain countries:
    1st: Bangladesh
    2nd: Philippines
  - 88% of mangroves under protection

- **Net loss: 616 Mt CO₂e**
  - Top net loss countries:
    1st: Indonesia
    2nd: Australia
  - Only 25% of mangroves under protection

Protecting another 40% of existing mangroves in the Asia-Pacific region by 2030 can contain potential emissions of 4.65 Gt CO₂e and help ensure commercial fish productivity worth 143-183 billion USD annually.

Infographics for ESCAP report, Regional Assessment of the Status of Ecosystems as Nature-Based Solutions for Climate Action: Underscoring the role of blue carbon ecosystems in Asia and the Pacific (2023) | © Icons by Freepik and Soni Sokell
77% of global coral reefs were found in the Asia-Pacific region in 2019.

Coral reefs provide:
- 7.1 trillion USD value of ecosystem services annually in Asia and the Pacific, equivalent to the GDP of Japan and France combined (2022).
- 25% of all known global marine species’ habitat.

Net carbon sinks:

Nearly ¼ of coral reef cover in Asia and the Pacific has declined in the last 15 years.

The annual rate of coral loss accelerated from 3.4% to 18.7% over the past decades in Asia and the Pacific.

Drivers of coral reef loss:
- Indian Ocean: >65% under stress due to local threats such as overfishing, pollution and coastal development.
- Southeast Asia: 95% facing threats due to global warming and ocean acidification.
- Pacific: ~50% under stress due to local threats.

By 2030, 60% of coral reefs in the Asia-Pacific region will be at risk of combined local and global pressures.

Conserving and restoring these high-risk coral reefs could ensure ecosystem services of:
- 4.1 trillion USD by 2030 (from 11.5 mil ha of coral reefs).
- 5.1 trillion USD by 2050 (from 14.6 mil ha of coral reefs).

Urgent recovery plans are essential to protect the coral reefs in Asia and the Pacific.

Global warming and ocean acidification are major drivers of widespread coral bleaching and harm reefs’ ability to store carbon.

By 2050, in Asia and the Pacific:
- RCP 4.5 emission scenario: 50% of coral reefs will experience 10X annual bleaching.
- RCP 8.5 emission scenario: 85% of coral reefs will experience 10X annual bleaching.

Safeguard coral reef ecosystems:
- Monitoring efforts aimed at mitigating local human-induced pressures, land-based & marine pollution, overfishing, and destructive fishing practices.
- Addressing global climate change, including ocean acidification.
1/4 of world’s seagrass meadows can be found in the Asia-Pacific region.

2.1 Gt carbon are stored in the seagrass meadows in the region. Seagrass meadows can store up to 40 times more carbon than land-based forests.

432 billion USD value of ecosystem services are generated by seagrasses annually in the region.

Natural buffer against coastal erosion caused by storms and other climate impacts.

Seagrass beds offer significant carbon storage benefits & can release substantial carbon dioxide when disturbed.

- 0.15 Pg of CO2 is emitted annually from disturbed seagrass ecosystems globally.
- Equivalent to 3% of the annual global CO2 emissions from deforestation.
- Half of these emissions come from seagrass disturbance in Asia and the Pacific.

Oceania and Southeast Asia faced significant seagrass losses:

- In Southeast Asia, over the past two decades:
  - 20% of seagrass beds expanded at an average annual rate of 8.1%.
  - >60% of seagrass beds declined at an average annual rate of 10.9%.
  - In Viet Nam & the Philippines, the rate of decline is over 20%.

Drivers of seagrass degradation:

- Coastal development
- Fisheries
- Aquaculture
- Extreme climate events

Way forward:

- Encouraging carbon credit markets for seagrass preservation.
- A systematic assessment of ecosystem services and coastal habitats is necessary to guide effective conservation and management efforts in the Asia-Pacific region.

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