Indonesia

Restoration Opportunities Assessment Methodology

ROAM
COUNTRY
BRIEF

ROAM results are being considered for adoption as best practices to integrate into national mangrove management strategies, REDD+, Blue Carbon, protected areas restoration and coastal zone management policies.

Abundant forests

With some of the most extensive and biologically diverse tropical forests in the world, Indonesia is home to thousands of plant and animal species. More than 60 million Indonesians depend directly on forests for their livelihood – whether they gather forest products for their daily needs or work in the country's wood processing sectors.

Tanjung Panjang landscape

Funded by Norway's International Climate and Forest Initiative (NICFI), the Accelerating Action on Forest Landscape Restoration project is jointly implemented by IUCN and the World Resources Institute. The project in Tanjung Panjang landscape in Indonesia supports a wide range of REDD+ efforts and promotes FLR as best practices to integrate into national mangrove management strategies, REDD+, Blue Carbon, protected areas restoration and coastal zone management policies.

The landscape was chosen to showcase how ROAM can support a critical ecosystem like mangroves, while delivering climate benefits, supporting Indonesia in fulfilling its international climate commitments and advancing the implementation of REDD+ strategies.

The landscape is characterised by a typical mosaic which is facing a common threat, such as mangrove conversion for aquaculture development. The area includes the 3,211 ha Cagar Alam Tanjung Panjang (Tanjung Panjang Nature Reserve, or TPNR), managed by the Balai Konservasi Sumber Daya Alam (Nature Conservation Agency, Indonesia) coordinated by the Ministry of Environment and Forestry. It also includes 1,644 ha of Hutan Lindung Pohuwato (Pohuwato District Protected Forest, or PDPF) under the jurisdiction of the Gorontalo Provincial Integrated Forest Management Unit for Conservation (KPH-L).

As of 2015, mangroves in Pohuwato had been reduced to 40.1% (from 8,847 ha to 3,543 ha), while only 20% of mangroves in Tanjung Panjang Nature Reserve remained (from 3,000 ha to 600 ha). Although it has been suggested that the rate of mangrove deforestation for conversion to aquaculture in Indonesia has slowed, ongoing conversion of remnant mangroves continues in the Tanjung Panjang landscape.

FLR strategy

The ROAM process was facilitated by Blue Forests, JAPPESDA and the Mangrove Management Working Group of Gorontalo, and involved field research and three multi-stakeholder workshops. Given the numerous threats facing local mangrove landscapes, particularly their conversion to aquaculture ponds, stakeholders developed three mangrove restoration scenarios in the landscape, totalling 133 ha of Coastal Greenbelt Restoration, 842 ha of Essential

Ecotone Restoration and 2,493 hectares of Mangrove Forest Landscape Restoration. The main restoration interventions identified was ecological mangrove restoration, requiring hydrological amendment and human-assisted natural regeneration. Additional activities identified included 525 ha of hinterland agroforestry enhancement and intensification of aquaculture to achieve a smaller ecological footprint.

The following three scenarios were developed:

1. **Conservative scenario.** Restoration of a 200-metre coastal greenbelt in both the TPNR (54 ha) and PDPF (78 ha), resulting in a total of 133 ha of mangrove restoration.

2. **Essential ecotone restoration.** Restoration of riparian greenbelts (50 metres on each bank of major rivers) as well as ecological restoration of larger forest stands associated with major river estuaries. Completion of this scenario would bring the mangrove restoration total in TPNR to 595 ha and 246 ha in the PDPF, for a total of 842 ha, supplemented by 525 ha of hinterland forest enhancement for agroforestry development.

3. **Mangrove forest landscape restoration Scenario.** Restoration of all remaining aquaculture ponds in the TPNR. This would require significant investment in the relocation of transmigrant fish farmer communities, including research and development of sustainable livelihood alternatives. This scenario would bring the total area of restoration in TPNR to 2,246 ha, and total mangrove restoration in the landscape to 2,493 ha, excluding hinterland agroforestry enhancement (525 ha).

Implementation of Scenario 1 started in 2018, for a period of 2–3 years. Scenario 2 is to follow, and requires 4–6 years for implementation. Scenario 3 will begin in 10 years, while fish farmers recommended a 20-year period to cease fish farming operations.

A special carbon mitigation study using Tanjung Panjang restoration scenarios found that restoring degraded mangroves offers an emissions mitigation potential approximately two to four times greater than that of other currently listed afforestation/ reforestation and REDD+ projects on a per hectare basis across various habitats.

Recommended next steps

- Work with stakeholders to develop an operational action plan for voluntary relocation of transmigrant fish farmers out of TPNR.

- Develop a coordinated mechanism to account for potential leakage of on-site carbon mitigation assessment methods and avoid leakage due to the exportation of unsustainable economic models of mangrove coastal land use.

- Complement the financial source scoping activity with a financing plan, including activity packages tailored to individual funding mechanisms under the wider landscape restoration vision.

ROAM processes and outcomes from Tanjung Panjang are now formally being considered as a best practice for integration into national strategies on mangrove management. By improving mangrove restoration site selection and intervention planning, mangrove forest cover loss can be reversed. Sites can be better prioritised and appropriate interventions to effectively restore mangroves for significant ecosystem and economic benefits can be implemented. This will help Indonesia achieve its international climate commitments.

For further information, please see:
Application of Restoration Opportunities Assessment Methodology in Asia

Resources:
InfoFLR.org
iucn.org/forests

IUCN

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