

## THE MANGROVE RESTORATION POTENTIAL MAP

The Mangrove Restoration Potential Map is a unique interactive tool developed to explore potential mangrove restoration areas worldwide and model the potential benefits associated with such restoration. The mapping tool was developed by The Nature Conservancy and IUCN, in collaboration with the University of Cambridge, and can be found on [maps.oceanwealth.org/mangrove-restoration](https://maps.oceanwealth.org/mangrove-restoration)



### A Bright Spot Story of Mangrove Restoration in Indonesia

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- Indonesia holds the largest area of mangroves globally with 27,000 km<sup>2</sup> (2016) coverage.
- Losses are occurring at a significant rate, especially in Eastern regions, mainly to aquaculture.
- An estimated 1,866 km<sup>2</sup> (about 6.4% of

Indonesia’s total mangrove cover) can be restored, often on the sites of abandoned aquaculture ponds, according to the Mangrove Restoration Potential Map.

- The Map calculates projected returns from restoration for fisheries and storm protection - both for local communities and businesses.

### Restoring Mangroves: Good for Livelihoods and Businesses

Southeast Asia has the highest rate of mangrove loss and degradation. The region represents 40% of global losses and 60% of degradation between 1996 to 2016.

This region also suffered considerable losses prior to 1996, notably due to conversion to aquaculture across Indonesia, the Philippines and Thailand, and due to the war in Vietnam.

Among the greatest ongoing mangrove losses are occurring in Eastern Indonesia due to rapid conversion of mangrove forests to aquaculture.

The Mangrove Restoration Potential Map can help reverse that trend. The Map highlights areas in Indonesia, and globally, where mangrove restoration can be targeted, and indicates the levels of benefits which could be derived from such restoration. This includes projected returns from fisheries and value in terms of storm protection - both for local communities and commercial enterprises.

Mangroves provide:

- Nursery grounds for numerous marine species, including fish and shrimp
- Habitat for a large variety of crab, fish, shrimp and mollusc species
- Protection from storms for coastal communities.

As a starting point for mangrove restoration, it is valuable to consider the areas that have

recently been lost: provided the driver for loss can be prevented from recurring and the local conditions remain suitable. Such areas are most likely to have conditions that are appropriate for restoration. These areas' proximity to remaining mangroves can greatly facilitate restoration processes.

Mangroves will have a better chance of survival in places where there is a large tidal range, good sediment supply, and in sheltered areas or where nearby mangroves could help protect, re-seed and nurture recovery. Restoration is unlikely where land is now occupied by urban developments, or where erosion, high wave energy and sea level rise threaten coastal integrity.

It remains critically important that decisions of where and how to restore are also locally informed. This means not only taking ecological and physical conditions in to account, but also considering local social, legal, and economic factors.



Mangrove restoration on the site of disused aquaculture ponds, Tanakeke Island.

© Rio Ahmad

## Examples of Small and Medium Scale Restoration in Indonesia

### CASE STUDY 1

Community Based Mangrove Rehabilitation on Tanakeke Island, supported by Charles Darwin University and Blue Forest.



The recent Community Based Ecological Mangrove Rehabilitation (CBEMR) project on Tanakeke Island, South Sulawesi, used the site of disused aquaculture ponds for successful restoration.

The development of aquaculture ponds in this area had reduced 1,776 ha of mangroves to approximately 576 ha over two decades. At least two-thirds of these ponds had become disused at the start of a four-year project to restore 510 ha of mangroves at a cost of US\$740,000, using adaptive collaborative management.

Local communities from six villages willingly made their ponds available for rehabilitation, as their main livelihood had switched to seaweed mariculture, and they recognised the urgent need to restore mangrove coverage for fisheries value and storm protection.

The initial site restored (43 ha) has naturally recruited to an average density of 2.171 stems/ha., 32 months after initial restoration. Three more recent sites have already demonstrated natural recruitment between 767-1.450 seedlings within 7-10 months after restoration.

For more information on the work done by Blue Forests (Yayasan Hutan Biru) please visit <https://www.blue-forests.org/> [https://riel.cdu.edu.au/sites/default/files/managed/downloads/cbemr\\_-\\_brown\\_-\\_2014\\_-\\_final\\_draft.pdf](https://riel.cdu.edu.au/sites/default/files/managed/downloads/cbemr_-_brown_-_2014_-_final_draft.pdf)



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### CASE STUDY 2

Udin's Story: Small-scale restoration to support sustainable fishing, supported by Mangroves for the Future and Wetlands International Indonesia.



Understanding the economic value of mangroves, Udin and other fisherfolk found a suitable area to restore mangroves along the coast of Indonesia, and started to replant mangroves along abandoned and eroding fishponds.

Udin and others from his community tried an innovative technique in the buffer zone of Pulau Dua Nature Reserve, Indonesia, close to their home. They set up a semi-permeable barrier made of tree branches, sand bags and nets to trap mud and sediment against the shore, providing a place for mangroves to grow. Mangrove restoration, alongside sustainable fisheries activities, has also attracted eco-tourists and generated additional income for the community. Detailed mapping and project-by-project site selection is vital to the success of projects such as Udin's.

For more information on the project, please visit <https://www.mangrovesforthefuture.org/news-and-media/news/indonesia/2017/nature-lovers-return-mangroves-to-pulau-dua/>

## How the Mangrove Restoration Potential Map Can Support Decision-making

With 27,000 km<sup>2</sup> (2016) mangrove coverage, Indonesia holds the largest area of mangroves globally. According to the Mangrove Restoration Potential Map a total of 1,886 km<sup>2</sup> (about 6.4% Indonesia's mangrove cover) can be further restored. The Map can guide interested stakeholders towards a global restoration overview, as well as provide indications of what can be done at national level.

The proven effectiveness of the restoration projects featured here, and the ability to scale up, relies on addressing the following factors:

- Projects must consider both the biophysical and socio-political issues that underlie mangrove forest degradation in Indonesia.

- Restoration can be greatly hampered if local land tenure is not understood and respected.
- Community engagement and support can ensure long-term management and implementation of restoration projects.
- Equitable benefit-sharing can help prevent further degradation and provide an example which helps leverage further restoration efforts.



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**Mangrove Restoration** About

Explore Restoration Scores By:

**Geography** Typology

Select a Country or Region

Indonesia

Click a mangrove area on map to view its statistics  
Click boxes below to change mangrove symbology on map

Total Restorable Area	Percent Restorable	Area of Loss
186,611 ha	6%	220,370 ha (8%)

Area Degraded	Total Mangrove in 2016	Mean Restoration Potential Score
41,901 ha (1%)	2,703,410 ha	61%

Mangrove Typology

Ecosystem Services Value for Restored Mangroves

Soil Organic Carbon	Aboveground Carbon	People Protected
114,800,388 Mg	21,333,171 Mg	401,566

Commercial Fish Enhancement	Commercial Invert Enhancement
5,871,638,703,459 indiv./yr	10,712,829,861,205 Indiv./yr

View Reference Layers

Population Density  Protected Areas

Future Urbanization  Drought

Typological units have been assigned to the country in which they predominantly located, and geographical statistics have been calculated based on that unit's area. This map and associated statistics are without prejudice to the status of or sovereignty over any territory, to the delimitation of international frontiers and boundaries and to the name of any territory, city or area

**Explore the Mangrove Restoration Potential Map at [maps.oceanwealth.org/mangrove-restoration](https://maps.oceanwealth.org/mangrove-restoration)**

The Mangrove Restoration Potential Map is funded by the International Climate Initiative (IKI) of the Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (BMU), Germany.

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based on a decision of the German Bundestag

