



Reforestation and Restoration of degraded mangrove lands, sustainable livelihood and community development in Myanmar



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Project Purpose



- This project aims to restore 5,300 acres of degraded lands connected with the northern Ayeyarwady River with a healthy mangrove ecosystem.
- The benefits include:
 - Sustainably managed mangrove ecosystem for maximum sequestration of carbon (Mongabay, Nature Geoscience, April, 2011)
 - Mangroves may be the world's most carbon rich forests, storing up to 4 times as much carbon in the soil as other tropical forests, including rainforests.
 - Mangroves grow in deep soils that are on average five times larger than other forest soils in the tropics, as well as in temperate and boreal regions. Tidal water buries organic and inorganic material in this soil, which due to low-oxygen conditions, stores carbon more efficiently than other forest soils.
 - Mangroves account for 10% of the world's carbon emissions due to deforestation for aquaculture, timber and fuelwood, tourist hotels and marinas but only make up less than 1% of the world's forests.
 - Natural disaster risk reduction by buffering human populations against tropical storms, tidal waves and even tsunamis.
 - Rural economic development
 - Creation of new sources of income for local coastal communities
 - Small scale renewable energy projects and solar lanterns for families involved in the project
 - Training and education for local community members on Disaster Risk preparation, mangrove conservation, agricultural practices, project cycle management and opportunities for women.
 - Recording and conservation of the local biodiversity
 - Improve food security by reducing the danger of erosion and salt intrusion into agricultural lands.
 - Special intertwining root systems stabilize sediment along shoreline
 - Provide a marine sanctuary for sea life such as fish and clams
 - Mangroves are nurseries for a large variety of fish, crab, shrimp and mollusks
 - Filter out pollutants such as runoff from agriculture
- Local communities of Magyi, Thbawkan and Thaegone villages are involved in the restoration efforts.
- The regional government, Forest Department of Patheingyi, along with locally based Patheingyi University, Myeik University and the Myanmar University of Forestry consulted and helped develop the project design to maximize benefits to local communities

Why mangroves? What's a mangrove ecosystem?

Mangrove forests are coastal plant communities that are part of a larger coastal ecosystem that typically includes mud flats, seagrass meadows, tidal marshes, salt barrens and even coastal upland forests and freshwater wetlands (i.e. peatlands), freshwater streams and rivers (Lewis, 2001)



The Project - Mangrove Restoration in Ayeyarwady region of Myanmar

Poor management, pressure from tourism and lack of funds has led to widespread deterioration and clearing of mangroves throughout the project area.

Cool Effect teams visited the project with staff from the founding partners – Worldview International Foundation and University of Patheingyi in October 2018.

The depleted lands are now being reforested following a comprehensive approach based on sustainable community development and carbon methodologies established by Verra.



Mangrove restoration and establishing new forests



Senior staff from Patheingyi University is involved in research and development of indigenous species that have high survival rates.

Key factors that were considered in selecting the plants were: already common species found in the area (not being a new species to the area), not an invasive species and the availability of planting material.

We were told that the survival rates of newly planted saplings have reached up to 93%

- Local people from 3 low income communities in the northern Ayeyarwady Division of Myanmar are engaged to reforest the degraded lands using six species of mangroves.
- We visited the Myanmar's first mangrove gene bank created to develop research on mangroves in-cooperation with University of Patheingyi.
- We witnessed new technologies being tested in order to achieve maximum cost efficiency; hydrological seed spread, planting and monitoring.
- The project has provided financial support to establish small scale clam farms, crab hatcheries and fish propagation centres.
- Mangrove species can be established by direct seed sowing method but at least 50% of target plants must be established in the nursery one year ahead.



The project benefits women



The group of women featured in the photo above now have increased food security and an ability to earn an income to support their families by working on a clam farm and in crab hatcheries



Programs supported by the project:

- Crab hatchery and management of ponds.
- Depleted Clam and Oyster culture ponds which are being restored.
- Computer learning centre for women
- Training program for 30 women in natural textile coloring and embroidery.
- Honey production
- Planned virgin coconut oil production



Increased wages and improvement of village infrastructure



The project creates employment opportunities and pays salaries that exceed local rates. For example, the rangers at left are employed by the project to prevent illegal cutting of the forest.



Project funds are also helping to construct community flood walls, secure fresh water supplies in the dry season, repair broken floors and roofs of school buildings, distribute solar lamps to families with school children, distribute school bags and raincoats etc., in addition to creating new livelihoods



The Cool Effect team visited fish and prawn seed culture ponds which will be activated shortly. A cold storage facility is scheduled to be built shortly in the project area to keep seafood fresh.

What do the locals have to say?



The local fishermen say that there are more fish because the mangroves provide shelter and act as spawning grounds for them.

The project is lobbying the Government to restrict both local expansion of hotels as well as the discharge of wastewater by existing hotels.

Pathein University and residents are anxious to restore the sea grass meadows and corals that face extinction from these impacts.



- Local communities admitted that they experienced a decrease in fish resources and more damage from cyclones when the mangroves began disappearing
- They realized the need to grow mangroves back, but lacked the capacity to do so
- People note that these trends reversed in a positive direction soon after the project began





Project team -Dr. Arne Fjortoft, WIF, Win Maung, Maung Maung Pyone, Dr. Htay Aung, Patheingyi University



Blake Lawrence, Cool Effect Inc. and Siddharth Yadav, Global Offset Research planting mangroves in the mud flats.



The beautiful beach and ocean that is part of the project site.

