Mangroves for the Future
INVESTING IN COASTAL ECOSYSTEMS
INDONESIA

# Summary and Lessons from Mangroves for the Future - Indonesia

## Grant Facility Projects: 2010-2018

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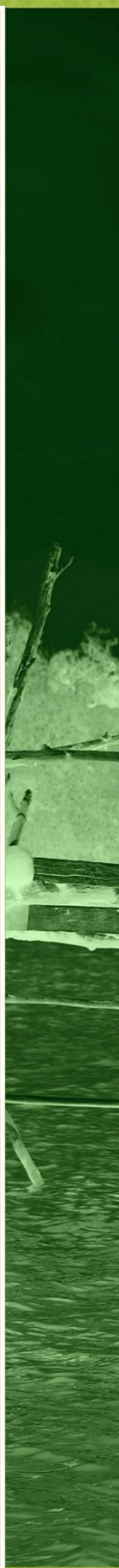
August, 2018

**Indonesia National Coordinating Body**

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# Preface

Coastal communities in many parts of Asia are particularly vulnerable to the impacts of climate change, with increased severity of extreme weather events directly affecting the lives of millions of people and damaging the ecosystems and resources they rely on for everyday survival.

This report has been produced as part of the Mangroves for the Future (MFF) initiative. MFF is a unique partner-led initiative to promote investment in coastal conservation for sustainable development. Co-chaired by IUCN and UNDP, MFF works to restore the health of coastal ecosystems as a contribution to building resilience in coastal communities in Asia. The emphasis is on generating knowledge, empowering local communities and governments, and working to promote policy solutions that will support best practice in integrated coastal management.

Moving forward, MFF will increasingly focus on building resilience of coastal communities by promoting ecosystem-based approaches and by showcasing the climate change adaptation and mitigation benefits that can be achieved with healthy mangrove forests and other types of coastal vegetation.

Healthy coastal ecosystems play a major role in helping coastal communities to adapt to climate change impacts. Mangroves and other coastal vegetation support biodiversity conservation and enable improvements in livelihoods and human well-being, while also providing cost effective risk reduction against such threats as coastal erosion, storm surges and tsunamis. Mangroves also offer potential for mitigating climate change impacts through their high carbon storage capacity, thereby contributing to the Reducing Emissions from Deforestation and Degradation (REDD+) process.

At the same time, MFF is working to improve the effectiveness of governance and management of coastal resources by promoting models of co-management, payment for ecosystem services and similar resource-sharing mechanisms that will benefit traditional coastal communities. This is particularly important given that conservation may often appear to have high opportunity costs when other uses of natural areas (notably aquaculture) are more profitable in the short term, and that the local communities most affected by natural resource decision making may not have a voice.

This report is one of many which highlight ecosystem-based approaches being developed and tested around Asia. It is being produced and shared by MFF in order to serve as a resource and learning tool for coastal management practitioners, but also to help in raising awareness of the many issues and challenges which surround the protection of Asia's coastlines and the communities they support.

# Contents

# About Mangroves for the Future (MFF) - Indonesia

With a coastline of approximately 81,000 km in length and 17,504 islands, Indonesia is blessed with many coastal ecosystem types that provide a range of services and support high species richness. Indonesia's main coastal ecosystems are mangroves, coral reefs, sea grass-beds, algal beds, mudflats, estuaries, and beach vegetation as well as small islands with their typical shallow waters. All of the coastal ecosystems represent an important type of natural resources for people's livelihoods. In Indonesia, there is a long history of public and use of coastal ecosystems for and by various sectors, and also often for subsistence purposes.

Pressures on the coastal zone from human activities are due to various causes: high population densities in coastal areas, population growth, urbanisation and the impacts of tourism. Land based pollution, marine and coastal pollution, resource degradation and/or depletion are other important issues. In addition, the health and productivity of coastal waters have significantly reduced. Climate change will also pose further threats to sensitive coastal areas.

The management of coastal ecosystems and resources involves a multitude of government agencies, which can lead to overlap and jurisdictional conflicts/confusion. All activities for the coastal management from central up to district levels are defined on a sectorial basis and supported legally. The lead government agencies aim to implement Integrated Coastal Zone Management (ICZM) in a co-ordinated manner and the ICZM framework has been mainstreamed throughout the district-levels. Since Indonesia's coastal areas are spread across administrative boundaries, the role of provincial government is very important.

## Climate change considerations

A recent World Bank report gave the following prediction regarding the impact of climate change: "Indonesia is vulnerable to the impacts of climate change including prolonged droughts and floods raising serious food security and health threats while endangering the habitats and livelihoods of coastal communities. Global warming will also make sea levels rise, inundating productive coastal zones and reducing farming in such communities."

MFF Indonesia facilitates the inclusion of new emerging issues and new approaches into Indonesia coastal management, including climate change adaptation and mitigation. It has been proposed that MFF Indonesia will focus on district/local level management of coastal ecosystems, especially to improve awareness regarding the ability of coastal ecosystems to cope with climate change impacts.

## MFF's programme of work in Indonesia

The implementation of MFF in Indonesia is overseen by Indonesian National Coordination Body (NCB) consisting of a Steering Committee and a Technical Committee of main stakeholders. The Steering Committee guides MMF's policy direction and provides advice accordingly to the Technical Committee. The NCB is supported by a Secretariat which is responsible for administrative and financial matters, including: day-to-day management, the review/approval of MFF proposals, monitoring and evaluation, supervision of ongoing projects and reporting.

A National Strategy and Action Plan (NSAP) and its associated workplan, guides the work of the NCB.

# National Coordinating Body

# (NCB)

## – Indonesia

The MFF member countries have established a Regional Steering Committee, and each member country has also set up a National Coordinating Body (NCB). In Indonesia, Development Planning Agency (BAPPENAS) is the focal point of MFF Indonesia as well as the Chairman of NCB Indonesia. Indonesia's NCB consists of Ministry of Marine Affairs and Fisheries (MMAF), Ministry of Environment and Forestry (MoEF), Ministry of Home Affairs (MoHA), United Nation Development Program (UNDP), Wetlands International Indonesia (WII), LPP-Mangrove and Mangrove Expert.

: Ministry of National Development Planning/ National Development Planning Agency (BAPPENAS)

: Ministry of Marine Affairs and Fisheries (MMAF)

: Ministry of Environment and Forestry (MoEF)

: Ministry of Home Affairs (MoHA)

: LPP-Mangrove

: Wetlands International Indonesia (WII)

: United Nation Development Program (UNDP)

# MFF Grant Facility Projects in Indonesia


## Project locations (2010-2018)

**Legend:**

- Small Grant Facility Projects
- Medium and Large Grant Facility Projects

**Total**

32 Projects

**Location**

40 villages spread in 9 provinces (Banten, Jakarta, West Java, Central Java, Yogyakarta, East Java, North Sulawesi, Gorontalo and South Sulawesi)

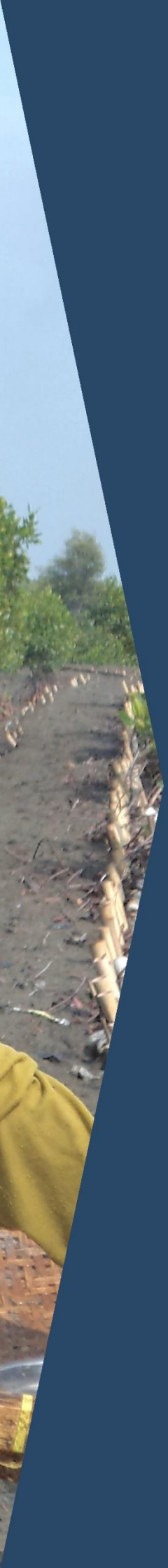

## Program Achievements

- More than 1,5 million mangrove seedlings planted
- Rehabilitation areas cover more than 150 ha
- Growth rate is approximately 70%

## Direct Involvement

- More than 75 community groups were formed during implementation of the projects
- Around 1,020 group members were directly Involved in livelihood and rehabilitation activities


PERLAT 2010
MTs. NU. NURUL HUDA
SEMARANG
Pakis, 12 - 15 Juni 2010



# Small Grant Facility (SGF)

During the period of 2010-2018, thirty (30) Small Grant Facility (SGF) projects were implemented in Java (Banten, Indramayu, Pemalang, Cilacap, Yogyakarta, Situbondo, Probolinggo, Lamongan, Demak, Semarang and Jakarta) and Sulawesi (Makassar, Pohuwato and South Bolaang Mongondow) by engaging NGOs, CSOs, local communities and universities.

1

## Implementing Partner
# Jakarta Green Monster

**Project Title:**
Managing Angke Kapuk Wetland to Conserve Its Natural Resources

**MFF Grant Amount:**
US$ 25,000

**Duration:**
4th May 2010 to 4th Jul 2011

**Site:**
Muara Angke, North Jakarta, Indonesia

## Background:

The Angke Kapuk wetland is an important biodiversity area, particularly rich in birds (90 species have been recorded, with some rare endemics). Many communities living upstream of the wetland are extremely poor and have no access to waste disposal facilities other than the Angke and Ciliwung rivers. The waste they throw into these rivers is deposited in the wetland, degrading the environment and threatening its biodiversity values. By supporting practical cooperation among a wide range of stakeholders, the project sought to raise living standards and reduce pressure on an important coastal habitat.

## Objectives:

This Jakarta Green Monster (JGM) project aimed to improve the ecological functions of the Angke Kapuk wetland and so conserve important habitats and biodiversity. The project was also designed to develop a participatory community waste management system that will generate extra income for local communities while also conserving the coastal environment.

## Target beneficiaries:

Members of Kapuk Muara village and students from nearby schools (such as Tarakanita 3 Elementary School).

## Outputs:

- The project planted 0.5 hectares of mangroves in collaboration with the private sector, the local community and NGOs, including a religious organization which supported planting in other non-target areas. A subsequent joint survey with the provincial Marine and Fisheries Agency of Jakarta found low survival rates in the arboretum (60%) but encouraging results in the "ecotourism forest" (90%).
- Monitoring of flora and fauna for the MFF-led national inventory and relevant institutions and stakeholders.
- Organization of waste clean-up and bird watching events to raise awareness and stimulate interest among adults and students in ecologically valuable local assets.
- Organization of many community training events on waste sorting and recycling. "Compost for community" mechanisms were established and two paper shredders donated to the local community.
- Involvement of local schools in making recycled paper products such as business cards and tissue boxes. Training was planned for making charcoal briquettes and recycling plastics.
- The establishment of a child and visitor friendly waste-sorting centre in the community.

## Lessons-Learned:

Engaging with school students and their teachers proved to have a knock-on effect, drawing in parents, friends and family members.

Working closely with local authorities (in this case the Mayor of North Jakarta and the District Governor of North Jakarta) enhanced project visibility and the sustainability of project outputs.

The project found that documenting and mapping mangrove planting in the form of a "before and after" record is essential. Without it, keeping track of or even determining the survival of planted mangroves is difficult.

2

## Implementing Partner
# Mitra Bahari Community Group, Pemalang, Central Java, Indonesia

**Project Title:**
Rehabilitation and Sustainable Use of Mangroves

**MFF Grant Amount:**
US$27,046 (from a total budget of US$27,922 approved by MFF

**Duration:**
4th May 2010 to 4th Apr 2011

**Site:**
Pesantren village, Pemalang, Central Java, Indonesia


## Background:

Pesantren village (population 10,000) is no stranger to mangrove planting. Since 2004 over 225,000 mangrove seedlings have been planted there by Wetlands International Indonesia, the local Forestry Agency and other partners. Yet the community still faces serious problems, principally flooding (which is worsened by deforestation and destroys fish ponds), decreasing aquaculture yields due to a history of environmentally unfriendly management (excessive use of chemicals, artificial feeds, and so on), and unsustainable use of mangroves, in particular the heavy use of mangrove leaves as goat fodder. The project was designed to tackle these issues by demonstrating best practice in managing mangroves and fish and goat farming.

## Objectives:

This project aimed to increase the income of members of the Mitra Bahari farmers' group through mangrove planting (20,000 seedlings in a 20 hectare area of fish ponds), environmentally friendly aquaculture (two hectares of chemical-free demonstration fish ponds) and goat farming. The project emphasised community involvement and skills acquisition and roll-out, and involved over 100 villagers, including women and schoolchildren.

## Target beneficiaries:

The Mitra Bahari farmer group, local residents and, through roll-out of best practice models, neighbouring communities.

## Outputs:

- A total of 20,000 healthy mangroves raised and planted on 20 hectares of fish ponds.
- A total of 10,000 black tiger prawns, 4,000 milkfish and four tonnes of seaweed cultivated in two one-hectare eco-friendly demonstration ponds.
- A goat stable established and 20 goats purchased.
- Mangrove rehabilitation training conducted over eight days.
- Communication links established with district government agencies for agriculture and forestry, fisheries, and planning.
- Educational posters and literature produced.

## Lessons-Learned:

Organically raised milkfish and seaweed help to maintain a healthy local environment (by reducing chemical use) and are profitable ventures. The area is unsuitable for black tiger prawn cultivation, however.

Increasing the community's sense of project ownership is a key to achieving sustainability. Also noteworthy are the project's efforts and success in creating a strong sense of unity in the community.

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## Implementing Partner
# Community-Based Disaster Risk Management – Nahdlatul Ulama (CBDRM-NU), Central Jakarta

**Project Title:**
Islamic Boarding School and Community Involvement in Reducing Disaster Risks in Coastal Areas through Mangrove Planting

**MFF Grant Amount:**
US$ 25,873

**Duration:**
4th May 2010 to 4th Dec 2010

**Site:**
Brondong district, Lamongan, East Java, Indonesia

## Background:

The site of the project is Brondong in Lamongan, where much of the original mangrove cover has been cleared but local people continue to depend on the coastal environment for their livelihoods. The community here holds strong religious beliefs and has two Islamic boarding schools, or Pesantren, with 1,500 students in total. The project enlisted their support and the support of the Kyai, a locally influential Islamic leader, in restoring lost mangrove habitat. Its main focus was on educating and involving local children in mangrove planting.

## Objectives:

This project, run by Nahdlatul Ulama's Community-Based Disaster Risk Management body (CBDRM-NU) with MFF, sought to involve Pesantren (religious schools) and community members in a mangrove planting programme. The two expected outputs were: 1) knowledge and skills transferred in mangrove nursery management and planting; and 2) the Pesantren and coastal community mobilized for conservation.

The process involved recruiting and training facilitators, providing field work for facilitators in disaster risk mitigation and coastal ecosystem conservation through mangrove nursery operation and planting, and supporting a Pesantren community campaign for nursery production and mangrove planting.

## Target beneficiaries:

Pesantren students, Brondong villagers and the fishing community.

## Outputs:

- Twenty facilitators acquired knowledge on mangrove propagation and planting, coastal conservation, and disaster risk mitigation. Facilitators later transferred this knowledge to community members.
- An Islamic approach to disaster risk reduction through mangrove planting was adopted with good results.
- A successful focus on training teachers at the local Pesantren, meaning they can now share their knowledge directly with their students.
- The formation of community groups and the launching of the Santri Care for Mangrove Campaign using local media and religious forums to raise awareness.
- Mangrove planting (7,000 seedlings, 170 participants) and maintenance (3,000 seedlings used to replace others lost to drought, browsing and other factors).
- Project sustainability guaranteed by engaging local forestry officials in supporting the continuity of project activities.

## Lessons-Learned:

Using religion as a catalyst to mobilize community involvement in mangrove conservation proved effective. Facilitators provided an important driving force in the project, acting as messengers and promoters for the Kyai's religious and ecological message.

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## Implementing Partner
# Institut Penelitian dan Pengembangan Masyarakat (IPPM), Makassar, South Sulawesi

**Project Title:**
Empowering Coastal Communities in Mangrove Forest Areas

**MFF Grant Amount:**
US$ 25,717 (from a total budget of US$26,933 approved by MFF)

**Duration:**
4th May 2010 to 4th Apr 2011

**Site:**
Bira Lantebung village area, Makassar, South Sulawesi, Indonesia

## Background:

Most inhabitants of Bira Lantebung live below the poverty line, subsisting mainly on crab and shellfish gathering, farming, and, to a certain extent, factory labour. The Community Research and Development Institution of Makassar (IPPM) selected Bira Lantebung as a Small Grants Facility (SGF) project site because of its high rate of coastal erosion and severely degraded hydrological regime, the community's low income, the critical state of its remaining mangroves, and the limited local awareness of mangrove rehabilitation.

## Objectives:

This project sought to increase community awareness of the importance of coastal conservation and mangrove planting, to facilitate mangrove planting action plans, and to increase local incomes by developing a mud crab fishery business. Another objective was to help Bira Lantebung, a remote community historically distrustful of outside interference, to integrate its needs and interests with state coastal conservation and development interventions.

## Target beneficiaries:

The community members of Bira Lantebung and the fisher groups.

## Outputs:

- In the project's first quarter 80,000 mangrove seedlings were planted. In the last quarter, 46,000 more seedlings were planted to replace mangroves lost in extreme weather events. The seedling survival rate was about 80%.
- Six mud crab culture cage units were developed and tested by the community.
- Training in mud crab cultivation was carried out using the cage units. This training was later put into practice by developing a mud crab cultivation business.
- The community was actively involved in creating land-use and settlement maps for use in land planning and as instruments of future advocacy by the community. These maps were also shared with local authorities.
- A comparative study tour to Tongke-Tongke village in Sinjai district helped to motivate and raise expectations among community members with regard to restoring their mangroves.

## Lessons-Learned:

Adopting a sensitive approach to project introduction paid dividends. In this case, an IPPM team approached the village six months before the project began to familiarize itself with local conditions and attitudes. This provided key to the subsequent success of the project in involving the community and building bridges to other stakeholders.

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## Implementing Partner
# Krida Wana Lestari, Cilacap, Central Java

**Project Title:**
Crab Aquaculture & Mangrove Conservation to Support Community Livelihoods

**MFF Grant Amount:**
USD 24,586 (from MFF), USD 9,402 (in-kind from Krida Wana) and USD 2,267 (co-funding from Local Government)

**Duration:**
31st Aug 2012 to 30th Apr 2013

**Site:**
Lempong Pucung – Ujung Alang Village, Kampung Laut, Cilacap – Central Java

## Background:

Destruction of mangrove in Segara Anakan area is one of the issues that impact to destruction of natural ecosystem over there. Most the people living there depend on the nature. There is no alternative economic to improve the welfare of people there. Fisherman sometimes cannot goes to sea as the tide. Fish catches are declining due to destruction of mangrove is not recognized by community

Segara Anakan is an area that located in Cilacap Residence. It is flanked by two mainlands of Java Island and Nusakambangan Island. This site has been set by the government as the development of integrated management system in the context of sustainable development. That provision is based on the consideration that Segara Anakan have a strategic position in development both of ecologically and economically.

The mangrove forest area has a complete composition and forest structure and the largest on the island of Java, which covered 26 mangrove species, such as fires (Avicennia alba), punch (Sonneratia alba), and mangrove (Rhizophora mucronata), were also damaged as a result of silting.

In fact, Segara Anakan is important site to environmental conservation. However, that area is very susceptible to changes both of socially and ecologically. It raises complex issues such as increasing silt from year to year. Sludge resulting in flooding, sedimentation, decreasing salinity and narrowing the area of marine water. This ecologically damaged area, especially mangrove ecosystem.

Social impact of physical and ecological changes results in reduction of fish population. This decreases the level of local revenue and changes living pattern of people from fishing communities into society of farmers. This also resulted in the shift of mangrove forest into agricultural land. That's why it is necessary effort to develop an integrated management plan that base on the principles of sustainable development.

Ujungalang village, District of Kampung Laut – Cilacap, Central Java included in the Segara Anakan. This Village is inhibited by the 1205 head of family are all very dependent on nature (source: Monograph of Kampung Laut District – 2011). There is no economic alternative because of the difficulty of transport and information access. The most people there make mangrove wood to produce carbon. When mangrove logging is not prevent by people awareness its cause negative impact in ecologically. The danger impact of mangrove damaged in Segara Anakan area is coastal disaster. That Nusambangan Island is shielded from the waves which turn off to southern part of Java Island.

One of the factors inhibiting mangrove conservation and biodiversity in Segara Anakan Area is lack of public knowledge about the importance of mangrove. The local communities think that mangrove plant only be taken ordinary stem for sale. Mangroves are often encroached upon the land for open pond blindly without regard to the balance of natural ecosystems. Therefore, they need an understanding of the importance of mangrove on every community of Kampung Laut in addition to improving the welfare program of environmentally sound.

## Objectives:

Mangroves areas at Segara Anakan, Ujungalang village are rehabilitated and local communities are empowered and receive capacity building training.

## Target beneficiaries:

1. Fishermen most are members of farmer groups Krida Wana Lestari 50 People
2. Building Labour group almost 22 people
3. Farmers seasonal group almost 45 people

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## Implementing Partner
# Damar Foundation, Special Region of Yogyakarta

**Project Title:**
Planting and Managing Mangroves along Coastal Areas

**MFF Grant Amount:**
USD 25,000

**Duration:**
27th Aug 2012 to 27th Apr 2013

**Site:**
Jangkaran village, Temon sub-district, Kulon Progo district, Special Region of Yogyakarta

## Background:

Kulon Progo is located in the southern part of Yogyakarta Special Province that faces directly to the Indies Ocean. The regency is often threatened by flood and tsunami especially the four Sub-districts, i.e. Temon, Wates, Panjatan and Galur. Flood that happens, especially in Temon Sub-district, is caused by the water flow of Bogowonto River that is blocked by the high sediment in the creek of the river, while tsunami occurs because of the high waves of the Indie Ocean.

There are not any comprehensive efforts done by the Regency government and by other stakeholders to avoid the annual disaster except by building the dumping stone to protect the coast against the waves and tsunami. For a while, the dumping stone quite functions well and useful for the fishermen that can increase the gained fish and useful for the shrimp ponds along the beach. But unfortunately, the block and sediment in the Creek of Bogowonto River have negative impacts for the farmers in near the beach who grow commercial crops like melon and chilli pepper. Up to now there is not any significant solution that satisfies the both sides (fishermen and crops farmers) who live on the beach of Kulon Progo and Purworejo Regency.

Planting and managing mangrove in the beach, especially in the creek of Bogowonto river, will surely give some advantages like protecting the beach from tsunami (natural surrounding); providing habitat for planktons as the food of fish, crabs (conservation), and to improve the people livelihood (economy) through many activities to earn living. It is hoped that in the long term, the existence of the mangrove forest will give great advantages for both the people of Kulon Progo and Purworejo Regencies.

Although scare mangrove can be found in the southern Java beach, it does not mean that mangrove cannot be cultivated in the area. With special treatment, mangrove can be cultivated in the southern beach of Kulon Progo like in the creek of Bogowonto. Through the experimental areas, it shows that raising mangrove can reach in broader areas.

## Objectives:

***Long-term objective***

To make people aware that mangrove forests can reduce disaster risks and the protect the livelihood of the surrounding communities

***Short-term Objective***

1. To introduce and to plant mangrove to save the coastal line and to increase people economy life.
2. To organize people and to improve people capacity in managing mangrove forest.

## Target beneficiaries:

Community groups consisting of farmers, fishermen, fish (and shrimp) farmers

## Outputs:

1. The development of integrated mangrove forest management
2. The development of mangrove forest area

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## Implementing Partner
# Mitra Bahari Community Group, Pemalang, Central Java, Indonesia

**Project Title:**
Women's Groups Empowerment through Sustainable Micro-Business Development in Mangrove Rehabilitation Areas

**MFF Grant Amount:**
USD 27,800 in total: USD 25,000.00 (MFF) and USD 2,800.00 (In-kind from Mitra Bahari)

**Duration:**
27th Aug 2012 to 27th Apr 2013

**Site:**
Pesantren village is part of Ulujami Sub-District, Pemalang District and about 20 km from Pemalang

## Background:

Mangrove rehabilitation is a great activity and needs multi-stakeholder engagement; include village government and farmers groups. Mangrove rehabilitation in Pesantren village has carried out and begun from government support in cooperation with related stakeholder include village government and local NGO.

MFF Program Phase-1 had carried out mangrove rehabilitation with farmer group member engagement, men and women. Based on Mitra Bahari observation, successful planting was more than 80% in fishpond and mangrove areas.

It is important to involve women group on mangrove rehabilitation, now and future. Women involvement is not only on planting activities, but all activities, include institution and human resources development to ensure mangrove ecosystem sustainable, from planning, organizing, actuating, and controlling.

Women capacity is still low capacity, so human resources and institution need to be developed to increase technical and non-technical aspects. Kinds of Knowledge and skills that need to be developed are: (1) mangrove rehabilitation, (2) mangrove species identification, (3) Mangrove policy and wisdom, (4) Institutional development, (5) Finance management, (6) post-harvest and ecotourism.

This project is an extension project of MFF Phase-1, especially on intrusion and erosion mitigation and environment development through mangrove planting in fishpond and beach side and increase women groups participation for balancing between women and men role, include in local resources micro-business development.

## Objectives:

1. To increase quantity and quality of *Rhizopora sp* (Mangrove) and *Casuarina sp* (beach) on fishpond and coastal area;
2. To increase local micro-business and saving-loan activities to support Presto-Milkfish production that managed by women group members;
3. To increase community awareness, especially local students to be more concerned with coastal ecosystems.

## Target beneficiaries:

1. Mitra Bahari women's group (farmers)
2. Mitra Jaya cooperative
3. Mitra Bahari farmer group members.

## Outputs:

Outputs of this project:

1. 40,000 seedlings of Rhizophora Mucronata (mangroves) planted on 13 ha areas;
2. 2,000 seedlings of Casuarina equisetifolia plated on 2 ha areas;
3. Saving-loan activities carried out to support local micro-business, especially for women's group.
4. Sustainable presto-milkfish production by women group developed ;
5. Environment campaign carried out to increase community and youth's awareness.

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## Implementing Partner

Faculty of Fisheries and Marine Science,| Diponegoro University, Semarang, Central Java

**Project Title:**

Optimizing Degraded Fish Ponds ('Tambak') and Conserving Mangroves

**MFF Grant Amount:**

USD 25,000

**Duration:**

27th Aug 2012 to 27th Apr 2013

**Site:**

Mangunharjo and Mangkang Wetan village, District of Tugu, City of Semarang, Central Java

## Background:

Mangunharjo and Mangkang Wetan village, District of Tugu, City of Semarang, Central java located in northern Java, approximately 20 kilometre from centre of city Semarang, consists of 7 RW and 36 RT having area of 346,510 Ha. Community of those villages are 4.541 men, 76 people are fish farmers and 54 others are fishermen. There is small scale industry done by farmers and fishermen. There is women small and middle enterprise named UKM Mikro Mitra Mina Serba Guna (at Manguharjo) and UKM Serba Usaha (at Mangkang Wetan). Mangunharjo and Mangkang Wetan has tropical climate with dry and rainy season.

## Objectives:

1. Promoting innovative community based coastal rehabilitation
2. Local community capacity building applying sustainable development strategy.
3. Creating/strengthening community livelihood through silvofishery
4. Increasing women role by fishery product processing
5. Coastal community empowering by utilizing degraded/unproductive ponds for seaweed and cockle culture
6. Improving women role (especially poor widow family) through mangrove planting (mangrove nursery, restoration and planting)
7. Improving mangrove conservation awareness and character building among children

## Target beneficiaries:

1. Kalisantren farmer group (25 members), especially 2 pond owners who improve their fish pond design for seaweed and cockle culture, 10 member of target group who are able to practice the seaweed and cockle culture and 2 member of target group who culture the seaweed and cockle in their own ponds.
2. Mikrominamitra Serbausaha women's group (25 members) who increase their income, especially 30% member who increase their production capacity and 20% member increase their selling and broader market to other province.
3. Mangrove planting community especially 3 poor widow families involved in mangrove nursery and their income 100% increase and the target group aware about environment conservation.
4. Children and Elementary school student especially 60% target group have knowledge on environment conservation and 25% Elementary school student become Mangrove lover member group.

## The additional target group beneficiaries are:

1. Community of Mangunharjo and Mangkang Wetan Village
2. Women's group of Mangunharjo and Mangkang Wetan Village
3. Distinctive persons of Tugu District

## Outputs:

1. Seaweed and cockles production from formerly degraded ponds
2. Increasing family income through livelihood activities
3. Mangrove planting community formed
4. Establishment of mangrove nursery with participation of poor community through planting community
5. Character building of children on environmental conservation

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## Implementing Partner
# Destructive Fishing Watch Indonesia (DFW), South Jakarta

**Project Title:**
Destructive Fishing Watch Indonesia (DFW), South Jakarta

**MFF Grant Amount:**
USD 17,369

**Duration:**
6th May 2014 to 5th May 2015

**Site:**
Lemito subdistrict, Pohuwato Regency, Gorontalo

## Background:

Lemito sub-district situated in Tomini Bay has the richest marine biodiversity compared to any other regions in the coral triangle. Therefore, this area is considered to be the heart of coral triangle and "centre of diversity." Besides the high diversity of coral reefs, the reef fish in Tomini Bay are also enormously diverse. Moreover, Tomini Bay is the home for several endemic species such as Banggai Cardinal Fish (BCF) and provides migratory route for some species with high economic value. Waters of Lemito sub district are ideal place for mariculture, one of which is seaweed culture. Mangrove forests stretching along the coastal areas can also be found in Lemito District.

However, some recent reports suggest that mangrove cover in Lemito District has been significantly reduced due to destructive fishing practices and land conversion. Local communities explained that the destructive fishing practices have been started since 1990s that not only severely damage coral reefs but also significantly reduce fish populations. In addition, land conversion into fish or shrimp ponds leads to loss of mangroves over years.

The lack of regulations and management measures as well as poor law enforcement in waters and coastal areas of Lemito indicates the need for local communities to actively engage in monitoring the utilization of marine, coastal and other natural resources. Therefore, capacity building program is crucial for the local communities to ensure their involvement in monitoring program, and collaboration between local communities and government is essential for sustainable management of resources in this region.

## Objectives:

To improve the effectiveness and sustainability of coastal management (mangrove and coral reef ecosystem) and to improve coastal-dependent community livelihood

## Target beneficiaries:

Residents of Lemito sub district

## Outputs:

1. Fisher group received training on monitoring and reporting coastal resources utilization;
2. 10 fishermen received training on seaweed farming by applying floating net;
3. 10 units of seaweed culture were established. However, considerable amount of seaweed could only be extracted from 3 farming units (virus outbreaks occurred in 7 other units).

## Lessons-Learned:

Overall project objective and measurable results as well as means of verification should be well established at the beginning of project implementation. Moreover, the overall project objective should meet with MFF's ultimate goal.

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## Implementing Partner
# KELOLA, Minahasa Utara, North Sulawesi

**Project Title:**
Capacity Building & the Improvement of Community Economy through Sustainable Management of Coastal Resources

**MFF Grant Amount:**
USD 17,083

**Duration:**
6th May 2014 to 5th May 2015

**Site:**
Deaga Village, Bolaang Mongondow Selatan District, North Sulawesi Province

## Background:

Deaga village has two main mangrove ecosystem clumps, dominated by wooden mangrove and nypa. Stable coastal areas and relatively low disturbance have been resulted in the good development of mangrove belt along coastal and river bank areas.

It is identified a total of 168 ha of mangrove ecosystems in Deaga village, consist of 168 ha mangrove areas and 62 ha of high density nypa. Only small areas remained suitably for rehabilitation programme.

## Objectives:

- Capacity of the community group to manage coastal resources in Deaga village is strengthened;
- To improve coastal ecosystem health and to improve fishermen livelihood in Deaga village

## Target beneficiaries:

Fishing families in Deaga village

## Outputs:

1. Deaga village regulation on mangrove management was issued and formally applied on May 1st, 2015;
2. 2 women's groups (consisting of 20 members) were established;
3. A report on coastal resource analysis;
4. 30 community members received training on mangrove rehabilitation and took part on the rehabilitation activity;
5. 20 community members received training on how to make sugar from Nypa;
6. 30 fishermen used environmentally friendly fishing gears and committed to avoid destructive fishing practices.
7. Women's groups produced Nypa sugar, and marketed the sugar locally;
8. 6,300 mangrove and 2,100 Terminalia cattapa seedlings were planted with 87% growth rate to rehabilitate 1 ha of mangrove and coastal areas.

## Lessons-Learned:

- Grantee should be equipped with basic organizational and financial management skills to ensure the submission of deliverables in a timely manner and in a proper format;
- In relation to livelihood activities/the initiation of small scale businesses, training on income generation followed by the production might take some time (going through some trials and errors). It is hard to estimate percentage of the benefit per month from the activities that instant, and the project period is also relatively short (10-12 months). The most reasonable outputs than can be expected from these activities are knowledge sharing to the direct beneficiaries (groups involved) on how to process fish and other products to become commodities with more economic value and entrepreneurial spirit;
- Good communication with the local government will secure the land use for rehabilitation site (through the development of village regulation) in a long period of time and give full access to grantee/community organization to manage the area.

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## Implementing Partner

# PKBM Tomini Lestari, South Bolaang Mongondow District, North Sulawesi Province

**Project Title:**

Mangrove Rehabilitation and Women's Empowerment through Alternative Business Development

**MFF Grant Amount:**

USD 17,926

**Duration:**

6th May 2015 to 5th May 2015

**Site:**

South Motandoi Village, South Bolaang Mongondow District, North Sulawesi

## Background:

Motandoi Selatan village has a relatively good and healthy mangrove areas, and low level of disturbance, due to the high awareness of local community on mangrove ecosystem values. A total of 126 ha mangrove areas are identified through satellite image analyses. Most of mangrove areas have 15 – 20 meters' old trees with more than 20 cm diameter.

However, it is indicated that not much coastal land available for rehabilitation, as most of the suitable land have been well planted by local communities. Other activities, apart from mangrove planting, need to be identified to support rehabilitation programme in this village.

## Objectives:

To adapt to global warming impact, to restore mangrove ecosystem and to create alternative livelihood in order to improve women's group economy

Target beneficiaries:

40 members of women's group at South Motandoi village and their families, as well as the entire community of the village

## Outputs:

1. 15,000 mangrove seedlings were planted with 86% growth rate to rehabilitate 1.5 ha degraded estuary (including accreted land);
2. Sediment trap made from wood and bamboo was built;
3. 2 women's groups (30 members) were established;
4. 30 members of women's groups received training on fish floss production;
5. 2 sets of fish floss tools were provided;
6. Women's groups produced and marketed the fish floss product in local market;
7. 15 elementary school teachers received training on environmental awareness;
8. 50 elementary students got involved in mangrove planting activities.

## Lessons-Learned:

- Training on mangrove rehabilitation provided before the project implementation can significantly increase grantee's capacity and experience;
- Field facilitator who provides constant technical assistance plays a key role, especially when grantee does not have enough experience and capability in terms of coastal rehabilitation and other associated activities;
- Grantee should be equipped with basic organizational and financial management skills to ensure the submission of deliverables in a timely manner and in a proper format.

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## Implementing Partner
# Aliansi Jurnalis Independent (AJI) Kota Gorontalo

**Project Title:**
Mangrove Rehabilitation and Conservation Campaign

**MFF Grant Amount:**
USD 17,746

**Duration:**
6th May 2014 to 5th May 2015

**Site:**
Mootilango village, Duhiadaa district, Pohuwato Regency, and East Pohuwato Village, Marisa District, Gorontalo Regency

## Background:

Mootilango village depends heavily on the surrounding mangrove forest for their daily subsistence and livelihood. The village is located within a conservation forest zone. The government has approved 50 hectares of that zone for settlement by 50 households. The government provides land use certificates to households that allow mangrove conversion into aquaculture ponds. However, since pond productivity decreased over time, rights to use the ponds were "sold" to other people. Ponds that are unproductive were often abandoned and left unused.

East Pohuwato village is being identified as a tourist destination popular for "mangrove cafes", or restaurants inside a mangrove forest. However, the uncontrolled conversion of mangrove forests for commercial purposes is a threat to the ecosystem.

## Objectives:

To promote the best practices of community mangrove management and to improve coastal community awareness on the importance of coastal ecosystem for their livelihood

## Target beneficiaries:

The project will directly benefit villagers in Mootilango and East Pohuwato.

## Outputs:

- 31,000 mangrove seedlings were planted with 69% growth rate to rehabilitate 3ha mangrove area in Mootilango, Maleo, and urban forest in close collaboration with local community, local government and other NGOs;
- MFF bulletin was regularly (every 2 months) developed and distributed to local government, NGOs, university and CBOs in Tomini Bay;
- Documentary film was made and displayed on local and national events.

## Lessons-Learned:

- Training on mangrove rehabilitation provided before the project implementation can significantly increase grantee's capacity and experience;
- A comprehensive pre-assessment in identifying rehabilitation site should be emphasized during the initial orientation session / Project Cycle Management (PCM) training: 'the opportunities for seedlings to thrive, not the number of seedlings to be planted';
- Field facilitator who provides constant technical assistance plays a key role, especially when grantee does not have enough experience and capability in terms of coastal rehabilitation and other associated activities.

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## Implementing Partner
# Woman Institute for Research and Empowerment of Gorontalo (WIRE-G)

**Project Title:**
Women's Group Empowerment through Mangrove-Based Product Processing

**MFF Grant Amount:**
USD 17,864

**Duration:**
6th May 2014 to 5th May 2015

**Site:**
Mootilango village, Duhiadaa district, Pohuwato Regency, Gorontalo Province

## Background:

Mootilango village lies between two active rivers, with high suitability for mangrove planting, except small part which are not suitable due to the ecological condition or land tenure issue. Naturally, mangrove areas growing along 3 km from coastal toward land areas. It was indicated that a total of 591 ha land was potentially designated to be mangrove areas, of which 368 ha were existing mangrove already. A total of 222 ha mangrove areas has been converted into fish pond.

Community livelihood in Mootilango village (which is surrounded by mangrove forests) is mostly from fishpond aquaculture and mangrove crab harvesting. In 1996, the Government of Gorontalo Regency where Mootilango is located supported economic programmes using intensive aquaculture. This accelerated the conversion of mangroves into ponds. As a result, the surrounding mangrove forest has been degraded. Furthermore, due to unsustainable techniques, resource-depleted ponds in the area are often abandoned. Without proper rehabilitation, the mangrove in Mootilango village will continue to be depleted, negatively affecting the livelihood of communities.

Using the Bio-Rights concept, the project will introduce mangrove-based food processing as a small business activity to five women groups in the village. Women will be trained to produce and market mangrove-based food products as an alternative source of income. Concurrently, as part of the Bio-Rights concept, women who are part of the project will replant and protect the surrounding mangrove areas.

## Objectives:

To improve women's group livelihood under the bio-right concept and to enhance mangrove area coverage along riverbank in the village

## Target beneficiaries:

Direct beneficiaries are five women groups in Mootilango (50 members).

## Outputs:

1. 54,720 mangrove seedlings were planted in 5 ha riverbanks by women's groups – under Bio-Right Concept. The growth rate was 90%;
2. 50 women received training on food production (cake) from mangrove and Nypa sugar production;
3. 5 women groups were established with their respective expertise on Katu production (katu is roof made of leaves), woven mat, flower artisans, pastry cook and tailor;
4. Women's group network (involving several groups) supporting best practices on mangrove management emerged on May 10$^{th}$, 2014 and received training on organizational management by Provincial Government (under Women Empowerment Bureau of Gorontalo Province);
5. Business capital was disbursed to 50 women under 5 women's groups in two instalments on 24 February 2015 and 5 April 2015 and a set of bio-right agreement established and implemented.

## Lessons-Learned:

- Mangrove seedlings should be planted (nursery site should be located) near inter tidal zone and exposed to brackish water. Limited access to inter tidal zone and brackish water will increase seedling mortality rate, especially when the planting/propagation is initiated at the beginning of dry season;
- In relation to livelihood activities/the initiation of small scale businesses, training on income generation followed by the production might take some time (going through some trials and errors). It is hard to estimate percentage of the benefit per month from the activities that instant, and the project period is also relatively short (10-12 months). The most reasonable outputs than can be expected from these activities are knowledge sharing to the direct beneficiaries (groups involved) on how to process fish and other products to become commodities with more economic value and entrepreneurial spirit. Moreover, the training should be held in the proper time.

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## Implementing Partner
KOPESDA Gorontalo

**Project Title:**
Facilitating Freshwater Aquaculture and Mud Crab Fattening Managed by Women's Groups

**MFF Grant Amount:**
USD 18,001

**Duration:**
5th Jun 2014 to 5th May 2015

**Site:**
Limbula village, Wonggarasi District, Pohuwato Regency, Gorontalo Province


## Background:

Limbula villagers depend on fishing and the mangrove forest for their livelihood. However, the lure of high economic returns from wide-scale commercial aquaculture influences the unsustainable use (often by conversion into aquaculture ponds) of the mangrove forest. In the last 10 years alone, 304 hectares of mangroves have been converted into aquaculture ponds; only 15 hectares of mangroves are left, and in degraded condition. This unsustainable commercial practice is often exacerbated by a lack of understanding about the importance of a healthy mangrove ecosystem, and about available "mangrove-friendly" livelihoods. The project, through introduction of sustainable livelihood activities, such as mangrove crab raising and freshwater fish farming, will address the lack of awareness in the village, and improve the conservation and protection of Limbula Village's remaining mangrove forests.

## Objectives:

To improve mangrove ecosystem and to improve women's group livelihood

## Target beneficiaries:

The direct beneficiaries include 2 groups of fishermen and women, in particular 11 households (5 households to benefit from mangrove crab fattening; 6 from freshwater fish farming). Indirectly, the project will benefit the Limbula villagers (at least 40 people).

## Outputs:

1. Community members from 11 low income households received training on freshwater catfish and mud-crab husbandry;
2. 6 units of 16 $m^2$ plastic pond were built where 6,800 catfish juveniles were deployed. 6 farmers (members of farmer group) managed the ponds;
3. 20 floating cages were built and 600 mud-crab juveniles deployed. 5 farmers managed the cages;
4. 30,000 mangrove seedlings were planted to rehabilitate 3 ha area along riverbanks and creek dykes. The growth rate was 93%.

## Lessons-Learned:

- Training on mangrove rehabilitation provided before the project implementation can significantly increase grantee's capacity and experience;
- Mangrove seedlings should be planted (nursery site should be located) near inter tidal zone and exposed to brackish water. Limited access to inter tidal zone and brackish water will increase seedling mortality rate, especially when the planting/propagation is initiated at the beginning of dry season.

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## Implementing Partner
# Yayasan Insan Cita (YASCITA Foundation)

**Project Title:**
Community Development through Coastal Economic Improvement and Mangrove Restoration

**MFF Grant Amount:**
USD 17,517

**Duration:**
6th May 2014 to 5th May 2015

**Site:**
Bulili Village, Duhaidaa District, Pohuwato Regency, Gorontalo Province

## Background:

Bulili village is located in Tomini Bay, and its residents are mostly fishers. Fish, crab, and shrimp are caught from the bay as well as from the surrounding mangrove forest; the products are sold at nearby markets and other provinces. Most of Bulili village's livelihoods are mangrove dependent; however, mangrove forests are still continually converted for commercial use (mostly for aquaculture ponds). Since the livelihood of Bulili village largely depends on mangrove forests, so conserving the mangrove ecosystem is important.

The remaining mangrove areas in Bulili village are mostly resulted from various planting programme carried out by local government, NGO, and local communities. Unfortunately, most of the natural mangrove areas have been converted into fish ponds, settlement and rice field.

The settlement pattern which mostly distributed along coast line has led into the frequent flooding events, due to the high tide and river water overflow. To overcome this problem, local government has built a concrete dam along affected areas. It is indicated that the building has impacted negatively into the growth of mangrove vegetation in the rehabilitated areas.

## Objectives:

To restore mangrove ecosystem and to improve community livelihood through production of fish floss and mud-crab rearing

## Target beneficiaries:

Direct beneficiaries of the project are 20 members of the Bulili village women's group and 50 fishers in Bulili village.

## Outputs:

1. 75,000 mangrove seedlings were planted with 67% growth rate to rehabilitate 7.5 ha coastline area. However, due to current direction change and coastline shift, about 15% of seedlings were buried in the sand;

2. 40 members of women's group received training on fish floss production and packaging. The fish floss was then marketed on the local market. However, there was no available data explaining the fish floss production improved community income;

3. 5 community groups were trained on mud-crab husbandry and 5 units of mud crab culture were established. However, there was no available data explaining the mud crab culture improved community income.

## Lessons-Learned:

- In relation to mud crab culture, the origin of the fingerlings should be well noticed as well as how they are treated in the hatchery. Otherwise, grantee could purchase ill-treated fingerlings with low survival rate;
- Training provided before the project implementation can significantly increase grantee's capacity and experience.

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## Implementing Partner
JAPESDA Gorontalo

**Project Title:**
The Development of Silvofishery Techniques, Mangrove Rehabilitation, and Women's Empowerment by Processing Non-Timber Plants in Mangrove Forest

**MFF Grant Amount:**
USD 17,736

**Duration:**
6th May 2014 to 5th May 2015

**Site:**
Siduwonge village, Randangan District, Pohuwato Regency, Gorontalo

## Background:

Limbula and Siduwonge are two bordering villages, which most of the areas located on the Tanjung Panjang Strict Nature Reserve (CATP). The reserve gazetted through the decree of Minister of Forestry, 1985. According to the spatial analysis, the reserve has 7,384 ha of mangrove areas, including the areas south to the reserve.

Generally, the mangrove areas in the CATP reserve, including both villages, have been disturbed resulted from conversion into fish ponds started during the early 1980s, and salt ponds at the back zone. The conversion into fish ponds are still observed, and mostly still not been operated yet. The development of fish ponds is requiring longer time, especially if these are operated without heavy equipment.

Salt ponds usually developed at the back zone which has sandy dry substrate. Naturally, the area dominated by Lumnitzera racemosa formation.

Based on the land use changes analysis using 2002 and 2011 high resolution satellite images, it can be determined that 90% of the 5,631 ha mangrove areas of the reserve in 2002 have been lost in 2011. The remaining intact forest is only available along river bank, no more than 50 m width.

## Objectives:

To develop sylvo-fishery method, to rehabilitate mangrove ecosystem and to empower women's group

## Target beneficiaries:

Twenty (20) members of the women's group and members of the fish farmer association.

## Outputs:

1. 20 members of 2 women's groups received training on mud crab rearing. 1,060 crab juveniles were deployed on 20 floating cages;

2. 40,000 mangrove seedlings were planted with 62% growth rate to rehabilitate 5 ha areas along riverbanks and pond dykes;

3. 20 Ha of sylvo-fishery fishpond was developed as a model where 150,000 shrimp fingerlings and 120,000 milkfish juveniles were deployed, and 7,000 mangrove seedlings were planted;

4. 50 community members actively engaged and participated on village meetings and mangrove ecosystem management supported by local government.

## Lessons-Learned:

- A Field facilitator who provides constant technical assistance might be needed to optimize activities conducted by the local community groups and supports given by the communities;
- Capacity of the groups should be improved, e.g. providing micro-business management training

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## Implementing Partner

Pusat Kajian Ekologi Pesisir berbasis Kearifan Lokal (PKEPKL) - Biology Department, State University of Gorontalo

**Project Title:**

Mangrove Rehabilitation & Increasing Women's Group Income through Home-Based Business (Mangrove-Based Food Products)

**MFF Grant Amount:**

USD 18,066

**Duration:**

6th May 2014 to 5th May 2015

**Site:**

Torosiaje, Pohuwato District, Gorontalo

## Background:

The mangrove ecosystems of Torosiaje cluster (Torosiaje, Torosiaje Jaya and Bumi Bahari villages) are mostly associated with sea grass and coral reef, with long frequent inundation.

Based on the quantified spatial analyses, the Torosiaje cluster has a total of 402.62 ha mangrove areas, divided into mangrove forest (181.80 ha) and potential mangrove areas/open area (220.82 ha). The potential mangrove areas defined as open areas which ecologically has potential for mangrove growth, and then added by feasibility variable and considering social aspect as well as spatial plan.

Based on the total areas, it is clear that the mangrove forest is less than the non-forested areas. This indicates changes of land cover and land use in the cluster villages. The satellite imagery shows that most of the mangrove areas in Torosiaje Jaya village have been converted into fish ponds.

Threats to mangrove ecosystem are closely linked to direct interaction of local community to the mangrove areas. It is indicated that land conversion for fish ponds and fire-woods collection for domestic uses are considered as two main threats for mangrove forests in this area. On the other hand, the human transportation by engine boat often destruct newly planted mangrove seedlings.

## Objectives:

To improve sustainable mangrove area through mangrove rehabilitation and to improve women's groups livelihood through mangrove-based food production

## Target beneficiaries:

300 village residents and 10 members of the women's group in Torosiaje.

## Outputs:

1. 5 women's groups from 3 villages (a total of 50 households) received training on food production from mangrove (5 kinds of mangrove-based products);
2. Leaflets containing products made by women's groups were distributed to local government offices in Pohuwato and Gorontalo University members;
3. Women's groups were granted a certificate in safety food of home-based business products;
4. Additional income generated was ranging from IDR 200,000 – 385,000/person per month;
5. In close coordination with another SGF Grantee (KSL Paddakauang), 95,000 mangrove seedlings were planted to rehabilitate 7 ha of mangrove area. The growth rate was 87%;
6. A module containing the steps of mangrove fruit processing and mangrove-based food recipes was developed and printed out.

## Lessons-Learned:

- Involving communities in the mangrove rehabilitation activities should consider their availability and daily activities. Most of them are fishers, so during the weekdays they will go fishing, and during the weekends (market days) their wives will go to the market to buy a whole week supplies for the family;
- The location of nursery site should also consider traffic lane of fishing vessels. A structure can be built as a fence or border to mark and separate nursery site from boat lane;
- Avicennia fruits are only available during certain seasons. Therefore the production of mangrove-based food using Avicennia as the main ingredient can only be done in particular periods.

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## Implementing Partner
# Kelompok Sadar Lingkungan (KSL) Paddakauang, Torosiaje Jaya Village, Pohuwato, Gorontalo

**Project Title:**
Women's Group Empowerment through Livelihood Improvement and Mangrove Rehabilitation

**MFF Grant Amount:**
USD 18,073

**Duration:**
6th May 2014 to 5th May 2015

**Site:**
Torosiaje Jaya village, Popayato District, Pohuwato Regency, Gorontalo Province

## Background:

The mangrove ecosystem of Torosiaje cluster (Torosiaje, Torosiaje Jaya and Bumi Bahari villages) mostly associated with sea grass and coral reef, with long frequent inundation. The mangrove areas in southern part of the cluster are sited on the back of sandy beach.

Based on the quantified spatial analyses, the Torosiaje cluster has a total of 402.62 ha mangrove areas, divided into mangrove forest (181.80 ha) and potential mangrove areas/open area (220.82 ha). The potential mangrove areas defined as open areas which ecologically has potential for mangrove growth, and then added by feasibility variable and considering social aspect as well as spatial plan.

Based on the total areas, it is clear that the mangrove forest is less than the non-forested areas. This indicates changes of land cover and land use in the cluster villages. The satellite imagery shows that most of the mangrove areas in Torosiaje Jaya village have been converted into fish ponds.

The threats to mangrove ecosystem closely linked with the direct interaction of local community to the mangrove areas. The land conversion for fish ponds and fire-wood collection for domestic uses are considered as the two main threats to the mangrove ecosystem. On the other hand, the human transportation by engine boat often destruct newly planted mangrove seedlings.

## Objectives:

To improve community livelihood and to improve mangrove ecosystem management

## Target beneficiaries:

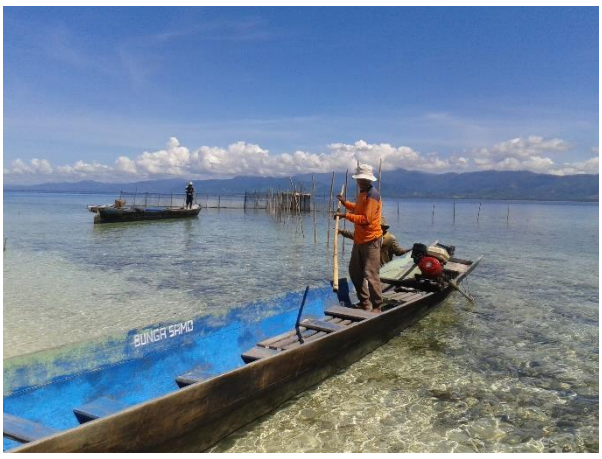
The direct benefits will be for the residents of Torosiaje village.

## Outputs:

1. 103,000 mangrove seedlings were planted to rehabilitate 10 Ha mangrove areas. The growth rate was 85%;
2. Some stakeholders visited the mangrove planting site of KSL Paddakauang as part of learning processes;
3. KSL Paddakauang was granted a mangrove seedlings certificate – local government endorsement;
4. About 109 Ha mangrove area was in the process of having certificate of Community Mangrove Forest Concession – local government endorsement;
5. Reef fish culture with floating cage method – 12,000 juveniles were reared on 20 cages and managed by 4 fishermen groups.

## Lessons-Learned:

- Seedlings should be planted (nursery site should be located) near inter tidal zone and exposed to brackish water. Limited access to inter tidal zone and brackish water will increase seedling mortality rate, especially when the planting/propagation is initiated at the beginning of dry season.



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## Implementing Partner

Bina Swadaya Foundation, Depok, West Java and Community Based Organization Pancer Pindang, Indramayu, West Java

**Project Title:**

Improving Fishing Community Well-Being through Milkfish Aquaculture and Community-Based Mangrove Replanting

**MFF Grant Amount:**

USD 14,736

**Duration:**

11th Apr 2014 to 10th Apr 2015

**Site:**

Cangkring Village, Cantigi, Indramayu, Java


## Background:

Mangrove deforestation along coastal areas of Cangkring village for fish ponds and settlement development has led into massive abrasion, regular flooding, and sea water intrusion, and resulted in the loss of local community income during both high dry and rainy seasons.

## Objectives:

To protect coastal areas from abrasion, flood, and seawater intrusion through mangrove ecosystem rehabilitation, community awareness and livelihood activities

## Target beneficiaries:

Women's group and fisher community in Cangkring village

## Outputs:

1. 400,000 mangrove seedlings were planted with 80% growth rate to rehabilitate 4 ha area in Laut (sea) Cilik;

2. Community group was trained on organizational management;

3. Milkfish aquaculture was chosen as an alternative livelihood or the source of sustainable income by the local fishers so they didn't have to depend on season and catch any longer where production cycle period was relatively short. On February 2015, the first production resulted in 650 kg milkfish. The price per kg was IDR 16,000. On the second production (April 2015), 1 ton milkfish were harvested, and the price was still the same, 16,000/kg;

4. Women's group received training on fishery-based food processing / small-scale business.

## Lessons-Learned:

- In the case that nursery site is located far away from community settlement and rehabilitation site, it requires more resources for maintenance and monitoring;
- In relation to livelihood activities/the initiation of small scale businesses, training on income generation followed by the production might take some time (going through some trials and errors). It is hard to estimate percentage of the benefit per month from the activities that instant, and the project period is also relatively short (10-12 months). The most reasonable outputs than can be expected from these activities are knowledge sharing to the direct beneficiaries (groups involved) on how to process fish and other products to become commodities with more economic value and entrepreneurial spirit.

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## Implementing Partner
# Community Based Organization Pantai Lestari, Indramayu District, West Java

**Project Title:**
Sustainable Mangrove Management and Polyculture System Development

**MFF Grant Amount:**
USD 18,546

**Duration:**
11th Apr 2014 to 10th Apr 2015

**Site:**
Karangsong Village, Indramayu District, Indramayu Regency, West Java Province

## Background:

In the past, Karangsong village communities thought that mangrove areas do not provide direct economic benefits. Consequently, mangrove forests were converted into other use, such as fish or aquaculture ponds. Because of this conversion, at least 127.30 ha of coastal areas were eroded at Karangsong village.

More than 60% of the Karangsong coastal areas have been converted into fish ponds farming during the last 3 decades. In addition, another 10% has also been used for community settlement. This land use changes resulted into unfavourable condition for local communities, including coastal abrasion, more regular floods and salt water intrusion.

The long term purpose of the project is to sustain the ecological function of mangroves in Karongsong village. Mangroves offer protection from waves and typhoons, and can prevent coastal erosion. Mangroves also act as a nursery for various marine lives, especially fish, shrimp, clams, and crabs. The project also considers the present economic needs of the villagers, in particular improving the livelihood

Silvofishery is the main strategy used for mangrove sustainable management in the project site. The project will use the mangrove nursery ('seedbeds') as a source of seedlings for the silvofishery ponds. In addition, the project aims to provide additional income to the members of Pantai Lestari Women's group (through boneless fish processing).

## Objectives:

The project aims for sustainable management of a mangrove ecosystem to continue the environmental and economic benefits received by local communities. In particular, the project will:

1. Develop a mangrove nursery ('seedbed') with a capacity of 50,000 trees, to be used for planting in at least 10 hectares of silvofishery ponds in the project site;
2. Use mangrove polyculture to maintain the ecological function of mangrove forests (particularly preventing coastal erosion);
3. Provide additional income to the Pantai Lestari Karangsong Women's Group, by introducing boneless fish processing (milkfish) as alternative livelihood activity;
4. Establish a partnership with Marine and Fishery Office of Indramayu Regency and the NGO Siklus Indramayu, to get technical assistance and new technology related to mangrove polyculture;
5. Implement the village regulation mandate for "Management of Mangrove Protection Area of Karangsong Village" (Village Regulation No 02 of 2009).

## Target beneficiaries:

Karangsong Village fishers and the Pantai Lestari Karangsong women's group

## Outputs:

1. 50,000 mangrove seedlings were planted along riverbank and pond's dyke;
2. Polyculture system was applied on 1 Ha fish pond. On the first harvest (March 2015), the production reached up to 1,265 kg with the total income IDR 22,770,000. The second production (October 2015) resulted in 5,354 kg fish, the total income generated was IDR 123,142,000;
3. Women's group (20 members) received training on boneless milkfish production. They had started selling the products on the local market and took order as well ;
4. More than 2,000 students of high school and universities took part in cross-learning and mangrove planting activities.

## Lessons-Learned:

Good communication with the local government will secure the land use for rehabilitation site (through the development of village regulation) in a long period of time and give full access to grantee/community organization to manage the area.

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## Implementing Partner
## Sinar Pagi Farmer Group, Probolinggo, East Java

**Project Title:**
Optimizing Sustainability and Community-Based Mangrove Forest Management

**MFF Grant Amount:**
USD 14,310

**Duration:**
11th Apr 2014 to 10th Apr 2015

**Site:**
Ketapang village, Probolinggo District, East Java

## Background:

Mangrove deforestation due to land conversion to fish ponds is still occurring in the coastal areas of Ketapang village, Probolinggo. In addition, the construction of new harbour has worsened the coastal areas to be prone to abrasion and other sea-based disasters.

## Objectives:

To improve mangrove ecosystem and coastal community resilience around damaged mangrove area (damaged by volcano dust) and to develop mangrove eco-tourism and information centre

## Target beneficiaries:

Direct beneficiaries are 30 members of the Sinar Pagi farmer organization and 20 members of the "Putri Mandiri" women's group.

## Outputs:

1. 121,000 mangrove seedlings were planted with 92% growth rate to rehabilitate 9.4 ha mangrove area;
2. A mangrove information centre was established, where people (especially students and local government employees came and learned about mangrove management from Sinar Pagi);
3. Brochures and flyers were developed and distributed;
4. The members of women's group 'Putri Mandiri' received training on financial report and management as well as mangrove-based food processing;
5. List of students participating on mangrove planting activities was available.

## Lessons-Learned:

- Field facilitator who provides constant technical assistance (for instance maintenance schedule, replenishment of dead seedlings, etc.) plays a key role to the success of rehabilitation activities. In the case that nursery site is located far away from community settlement and rehabilitation site, it requires more resources for maintenance and monitoring;
- Grantee should be equipped with basic organizational and financial management skills to ensure the submission of deliverables in a timely manner and in a proper format.

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## Implementing Partner
# Sido Agung Farmer Gorup, Kraksaan sub-district, Probolinggo District, East Java

**Project Title:**
Synergy of Mangrove Forest Rehabilitation and Sustainable Economic Development of Coastal Community

**MFF Grant Amount:**
USD 10,965

**Duration:**
11th Apr 2014 to 10th Apr 2015

**Site:**
Sidopekso village, Kebonagung village, and Kalibuntu village, Kraksaan Sub-district, Probolinggo District, East Java Province

## Background:

Kraksaan sub-district is one of the coastal areas in Probolinggo having lots of damaged ponds and depleted mangrove cover. The damage is mainly caused by rent intensification. Moreover, due to poor construction, the embankments are often eroded, so mangroves should be planted alongside the pond embankments to support the pond construction. Sido Agung Farmer Group has planted mangroves in the riverside and applied sylvofishery method in one of the ponds. However, those efforts are not enough. There should be further and more comprehensive activities to accelerate the mangrove rehabilitation and to restore healthy pond ecosystem. In addition, the existing mangrove processing method applied by the local community is considered to be ineffective. It increases the amount of waste around pond area and disrupts the ecosystem.

Through the implementation of SGF project, Sido Agung Farmer Group aims to maintain and increase both the volume and the extent of mangrove cover and develop sustainable economy for the local communities.

## Objectives:

***Long-term objective:***

- Maintain and increase both the volume and the extent of mangroves in coastal border regions, public waters, and ponds to strengthen coastal community resilience to environmental change and secure sustainable economy of the community.

***Short-term objectives:***

1. Restoring the healthy and natural conditions of the shrimp and fish ponds by planting mangroves around the pond area;
2. Maintaining pond construction;
3. Improve economy of the people, especially women's group, through livelihood activities.

## Target beneficiaries:

197 members of the community group KTT Sido Agung, 136 fish farmers and salt farmers in the identified villages

## Outputs:

1. 82,250 mangrove seedlings were planted with 83% growth rate to rehabilitate 5 ha land area consisting of two fish ponds - along three riverbanks and coastline, in collaboration with local government.
2. A women's group (17 members) received training on mangrove and fish-based food processing;
3. Additional income generated from women group activity (food processing and marketing) in the last 9 months was as follows:
   - Mangrove tea: IDR 21,600,000
   - Shrimp chips: IDR 59,250,000
   - Mangrove cookies: IDR 3,600,000

## Lessons-Learned:

- Field facilitator who provides constant technical assistance plays a key role, especially when grantee does not have enough experience and capability in terms of coastal rehabilitation and other associated activities (e.g. silvofishery activities);
- Training on mangrove rehabilitation provided before the project implementation can significantly increase grantee's capacity and experience;
- Planting activities conducted on the land owned by individuals should be completed with a written agreement between grantee and the land owners in order to secure the commitment to maintain the plants and to enforce the mutually agreed rules (such as incentives, sanctions, etc.).

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## Implementing Partner
# Institute for the study and empowerment of society (ISES), Probolinggo, East Java

**Project Title:**
Preventing Coastal Erosion ('Abrasion') through Mangrove Replanting

**MFF Grant Amount:**
USD 18,258

**Duration:**
11th Apr 2014 to 10th Feb 2015

**Site:**
Randutatah village, Paiton sub-district, Probolinggo regency, East Java province


## Background:

Coastal erosion has narrowed the coastal line and threatens the community housing area. Residents of Randutatah village decided on planting mangrove trees to reduce the effects of coastal erosion in their village.

Moreover, abandoned shrimp ponds built from 1990s have caused abrasion along the coastal areas of the proposed site, resulted in the damage of buildings and other community assets. Most mangrove areas have been converted into shrimp ponds.

## Objectives:

The project aims to rehabilitate the neglected ponds in Randutatah village, Paiton, Probolinggo through mangrove planting to prevent the severe coastal erosion (abrasion), in cooperation with the community group Pantai Harapan Mangrove Group.

## Target beneficiaries:

The project will indirectly benefit 1,672 residents in Randutatah village.

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## Outputs:

1. 100,000 mangrove seedlings were planted with 90% growth rate to rehabilitate 4.8 Ha mangrove area;
2. Community group was developed and actively participated on project implementation process – mangrove rehabilitation;
3. Women's group participated on mangrove-based food processing training conducted by other grantees (Sinar Pagi and Sido Agung);
4. Women's group members participated on interactive discussion organized by grantee in close collaboration with MFF.

## Lessons-Learned:

- Clarity of land status is the minimum requirement for long-term activities such as mangrove planting/rehabilitation. Planting on public land needs to be equipped with written agreement from the relevant authorities that the plants should not be cut down and the status of land use will not change;
- Village regulation development should consider every step in the process and encourage the active participation of the community.

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## Implementing Partner
# Simphoni Akar Rumput (SAR), Situbondo District, East Java

**Project Title:**
Community Awareness Raising on Mangrove Rehabilitation, Management and Utilization

**MFF Grant Amount:**
USD 17,358

**Duration:**
11th Apr 2014 to 10th Apr 2015

**Site:**
Peleyan village, Kecamatan, Panarukan District, Situbondo, East Java

## Background:

Peleyan village in Situbondo regency has a wide coastal area and has suffered the most from coastal erosion. It is also located in an area most severely affected by mangrove conversion to aquaculture ponds, which often have permanent or semi-permanent dikes, preventing the natural tide from coming in.

Surrounded by massive abandoned shrimp ponds developed from 1997, Situbondo coastal areas are experiencing the loss of coastal line due to the strong current resulted in abrasion. This condition is mainly due to the absent of natural wall, including mangrove vegetation.

## Objectives:

To rehabilitate mangrove ecosystem in order to protect coastal community from abrasion and to improve community awareness on the importance of mangrove ecosystem

## Target beneficiaries:

In general, at least 4,800 people in Peleyan village will receive benefit from mangrove rehabilitation efforts. Specific beneficiaries of livelihood training activities are two women's groups in the village.

## Outputs:

1. 130,000 mangrove seeds were planted with 83% growth rate to rehabilitate 3.2 Ha mangrove area;
2. 2 community groups were established and received trained on mangrove management;
3. Women's group participated on the project implementation – mangrove rehabilitation process and awareness discussion;
4. Women's group participated on mangrove-based food processing training conducted by other grantee (Sido Agung);
5. Local government acknowledgment and contribution to the project implementation – participation and contribution on the stakeholder awareness discussion.

## Lessons-Learned:

- A comprehensive pre-assessment in identifying rehabilitation site should be emphasized during the initial orientation session / Project Cycle Management (PCM) training: 'the opportunities for seedlings to thrive, not the number of seedlings to be planted';
- Training on mangrove rehabilitation provided before the project implementation can significantly increase grantee's capacity and experience.

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## Implementing Partner
SAMBACO, Situbondo, East Java

**Project Title:**
Thickening Mangrove Vegetation to Support the Diversification of Fisheries Production

**MFF Grant Amount:**
USD 13,935

**Duration:**
2nd Mar 2016 to 31st Dec 2016

**Site:**
Tanjung Pecinan village, Mangaran sub-district, Situbondo

**Background:**

Mangrove forests on the Northern coast of Situbondo, East Java have been continuously degraded since 2000. Massive mangrove forest conversion into ponds occurred in the north coast of Mangaran Sub-District. This condition resulted in abrasion of 50-100 meters and eroded farmlands and ponds. The absence of thick mangrove forests as coastal belt made the abrasion massively increased. The high number of private ponds and less mangrove areas in Mangaran Sub-District decrease the livelihood options of local people. Income source of local people from mud crab and milk fish were considerably lessened.

The Samir Bamboo Conservation (SAMBACO) is a community based organization with specialization in nature conservation, aimed to restore mangrove ecosystem in Mangaran Sub-District. Through SGF program, Sambaco along with communities rehabilitated approximately 7 ha of mangrove-degraded areas by planting 40,000 mangroves in estuary and along the pond dikes. The rehabilitation program is expected to increase mangrove areas by 30%. SAMBACO also worked with three communities groups to improve their skill and capacity in income generating program. Three livelihood activities that includes the production of fish cracker, crab fattening and milk-fish aquaculture were chosen as potential economic activities that generate family income.

## Objectives:

The project objective is to protect mangrove areas in Mangaran Sub-District from coastal abrasion through mangrove rehabilitation and livelihood activities.

## Target beneficiaries:

Approximately 100 people were involved in mangrove rehabilitation activities and more than 80 people involved in income generating program. Two groups of 24 members (54% females and 46% males) were formed during the project implementation. However, at least three community groups were actively involved in the project activities. They also received empowerment training/workshop in order to increase their knowledge, skills and proficiency in crab fattening, milk fish aquaculture and fishery-based food processing.

## Outputs:

In the beginning of project, 40,000 mangrove seedlings that included *Rhizophora sp*, *Ceriops Tagal* and *Soneratia caseolaris* were grown in the nursery. In the second quarter of project, 25,000 mangrove seedlings were planted along the coastal area and 15,000 others were planted on pond dykes with 5 ha areas restored in total. This rehabilitation activity involved Junior High students and teachers. The output of rehabilitation activities showed a good result with a high survival rate (86%).

In the capacity building program, SAMBACO had facilitated women's groups or 30 female communities in the training on boneless milk fish, fish cracker production and product packaging. A group now has been producing and selling the crackers at the local market. The project had significantly empowered female groups where they could use their time more effectively and helped them to generate additional income to support their family. Even though the amount was not yet significant, but they could allocate this additional income to support daily needs or children's education.

SAMBACO had also facilitated groups of men consisting of 25 fishers on crab fattening training and milk fish aquaculture. Crab fattening and milkfish aquaculture were chosen as the alternatives livelihoods tested during the MFF SGF project implementation. At the end of production cycle, 325 kg of milkfish were harvested. For the crab fattening, the net profit the group made was ranging from IDR 1,000,000-1,750,000 per month (with two production cycles). The crab fattening keeps going up to now. The income from crab fattening was quite profitable, thus it can be used to improve health care and personal security.

## Lessons-Learned:

- During the initiation of project implementation/ rehabilitation activities, grantee should also consider the availability of mangrove propagules in its location. The availability of propagules highly depends on the flowering season. For some species, propagules can be found throughout the year, but for some others seeds can only be found in certain seasons. Grantee tends to assume that MFF projects only prioritise the selection of true mangrove species for the rehabilitation. As a matter of fact, in some locations other coastal vegetation is considered to be more ecologically appropriate.
- While choosing the types of livelihood activities to be conducted, it is best to use participatory approach, where grantee has gone through consultation process with the communities as the implementers on the ground. In addition, it is important to identify the all supporting aspects related to the livelihood activities/small-scale business starting from the provision of the raw materials, production, and marketing to the management of the profit generated and cash flow to ensure the sustainability of the business.

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## Implementing Partner
# ISES (Institute for the Study and Empowerment of Society), Probolinggo, East Java

**Project Title:**
Awareness Raising and Economic Improvement of Coastal Communities through Mangrove Planting

**MFF Grant Amount:**
USD 13,115

**Duration:**
2nd Mar 2016 to 31st Dec 2016

**Site:**
Curah Dringu and Dungun village, Probolinggo, East Java


**Background:**
Coastal abrasion has continually occurred in Curah Dringu Village, Tongas District, Probolinggo. It resulted negative impacts, among others affects community's farmlands and fish-ponds, loss of biodiversity, etc. Farmer group who lives in this village has initiated to reduce the abrasion by planting mangrove and coastal vegetation since 2013. The rehabilitation activity brought a good impact which reduces the intensity of coastal abrasion, yet at some point this activity has not yet been optimum due to financial shortage and many other areas along Tongas coast remain barren.

As a matter of fact, Tongas has beautiful landscape and has enormous potential for ecotourism. Visitors have visited this area for bird watching and seeing some rare animals. This potential gradually fades away and people are not aware of this. The level of public awareness in maintaining, managing and preserving coastal ecosystem in this village has decreased. Through the MFF- SGF project, the Institute for The Study and Empowerment of Society (ISES) in collaboration with community groups tries to expand mangrove forest in Tongas. A farmer group, consisting of 15 (fifteen) members plans to rehabilitate 3 ha degraded area through mangrove and coastal vegetation planting. The project will also involve women's group to improve their capacity in mangrove-based food processing.

## Objectives:

The project objective is to protect mangrove ecosystem in Curah Dringu Village through mangrove planting, public awareness and livelihood activities.

## Target beneficiaries:

Direct beneficiaries reached up to 118 people that included the group members along with their family members (43% females and 57% males), and indirect beneficiaries were approximately up to 2,048 people (where the ratio between male and female communities was almost 1:1 balanced).

## Outputs:

Farmer group had grown 40,000 mangrove seedlings in the nursery. Then along with the other local communities, they planted the mangrove seedlings (*Rhizopora Mucronata*) and 500 casuarina seedlings along the coastlines at Curah Dringu village. Around 5 ha areas were restored with 80% survival rate of seedlings planted.

Two groups were formed during the project implementation. Besides taking part in the rehabilitation activities, the group members received training on mangrove and fisheries-based food processing and organizational management. Training on mangrove-based product (making flour from *Bruguiera*) and fish cracker was conducted in September 2016, and training on product packaging and marketing was conducted in November 2016.

Through the community empowerment program, the women's groups could produce fish crackers, sticky rice crackers, and shrimp/crab paste. Addition income generated by the groups was estimated more than IDR 2 million per month. The next step, this small scale business would be registered to be one of the village-owned enterprise (*Bumdes*).

In terms of advocacy, ISES had promoted and strengthened coastal protection policy at the local level. ISES together with the community groups developed draft village regulation.

## Lessons-Learned:

- While choosing the types of livelihood activities to be conducted, it is best to use participatory approach, where grantee has gone through consultation process with the communities as the implementers on the ground. In addition, it is important to identify the all supporting aspects related to the livelihood activities/small-scale business starting from the provision of the raw materials, production, marketing to the management of the profit generated and cash flow to ensure the sustainability of the business.
- Especially for the mangrove-based food training and production, grantee should make sure the availability of the mangrove species needed as the main ingredients/materials for the training and production in order to ensure sustainability of the business. It should be noted that not the all mangrove fruits, leaves and so forth can be harvested and available throughout the year.
- Good communication with the local government will secure the land use for rehabilitation site (through the development of village regulation) in a long period of time and give full access to grantee/community organization to manage the area.

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## Implementing Partner
## Research Centre and Community Service of 17 Agustus 1945 University, Banyuwangi, East Java

**Project Title:**
Mangrove Education as a Basis of Ecological and Economic Resilience of Community

**MFF Grant Amount:**
USD 10,656

**Duration:**
2nd Mar 2016 to 31st Dec 2016

**Site:**
Banyuglugur village, Situbondo, East Java

**Background:**

Banyuglugur, a village located in the coastal area of Situbondo, is suffering from environmental degradation. The ongoing sea abrasion in the coastal area has diminished some of the inland areas, including Banyuglugur village. Lack of understanding on the importance of coastal ecosystems was identified as the main problem. Seeking to solve this issue, the Research Centre and Community Service University (PPPM-UNTAG) together with the local community was determined to improve the awareness of local people about mangrove ecosystem functions and stressed that planting mangroves in degraded areas was not the only option that could be done. It is also important to deepen the understanding of people, starting from children in elementary schools, on the importance of mangroves and mangrove ecosystems for nature and people. PPPM-UNTAG under the Mangroves for the Future Small Grant Facility (MFF-SGF) project builds public awareness on mangroves and strengthens economic resilience through income generating programmes. The activities include planting mangroves, providing mangrove references for the school library, developing educational materials on mangroves for elementary students, and providing training on livelihood activities for women groups.

## Objectives:

The project objective is to strengthen capacity of coastal dependent communities in mangrove areas through education, public awareness, mangrove rehabilitation and livelihood activities.

## Target beneficiaries:

The income generating activities were designed to benefit the 8 members (formerly 15 members) of the Karyawanita women's group from Banyuglugur. This women's group is considered to have an enormous potential to increase their daily income which is approximately IDR 50,000 (approx US$ 3.83) or even more. The project aims to improve the women's skills in utilizing mangrove ecosystem resources, which will result in better income generation. Approximately 100 elementary students in Banyuglugur Village also received education on the function of mangrove ecosystems.

## Outputs:

The project was conducted at village and district level and has received positive feedback from both the local government and other stakeholders. The Regent of Situbondo has stipulated a letter to support the SGF implementation in Banyuglugur Village.

Approximately 20 people, both men and women, were educated about the importance of mangrove ecosystems and the benefits of mangrove for nature and people. Communities in the surrounding coastal area of Banyuglugur that were affected by sea abrasion were also educated. 50 elementary students were also introduced to mangrove ecosystems and educated about their benefits. A school library in Banyuglugur Elementary school had been set up, along with mangrove references for the library.

More than 1,000 mangrove seedlings were planted in 0.25 ha area of Perhutani (Indonesian Forest Enterprise) by involving around 100 students and teachers of Banyuglugur Elementary school. Each student planted 10 mangrove seedlings.

In terms of empowerment program, the PPPM-UNTAG had facilitated the establishment of the Karyawanita women's group. 15 women participated in financial and organisation skills management training as well as training on the production of fish crackers. The women's group had been producing and marketing fish crackers at local markets. To support product marketing, PPPM-UNTAG facilitated the group to obtain *Produk/Pangan Industri Rumah Tangga* (PIRT), a license for household production from Public Health Office. The group had received full support from the Chief of Banyuglugur village. The women's group had also been registered at the Ministry of Justice and Human Rights for legal status.

The economic activities of Karyawanita group has attracted private sector, one of the big companies within the area. Through its Corporate Social Responsibility (CSR), the company intends to continue supporting their activities following the end of MFF project period. The supporting letter from the company has been endorsed during the MFF project period.

## Lessons-Learned:

- Clarity of land status is the minimum requirement for long-term activities such as mangrove planting/rehabilitation. Planting on public land needs to be equipped with written agreement from the relevant authorities so that the plants should not be cut down or claimed by other party, and the status of land use will not change.

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## Implementing Partner
# Research, Publishing Centre and Community Service (LPPPM) - Nurul Jadid Islamic Institute (IAINJ), Probolinggo, East Java

**Project Title:**
Women's Group Empowerment to Increase Household Income through Production and Marketing of Mangrove and Fisheries-Based Products

**MFF Grant Amount:**
USD 10,656

**Duration:**
2nd Mar 2016 to 31st Dec 2016

**Site:**
Karanganyar Village, Paiton Probolinggo, East Java

## Background:

Karanganyar is one of the coastal villages located about 30 km to the east Probolinggo, East Java, which is populated majority by farmers and fishermen. Communities are living in poor condition and poverty becomes the major problem in this village. There are only few people who own fishing gears and farming equipment. Farmers and fishermen earn sufficient income only in the harvesting and fishing seasons. Because of this, their incomes are very low. This economic condition is worsened by environmental degradation and coastal abrasion occurring as an impact of climate change. Communities in this village were unaware of this issue. This situation has attracted the attention of LPPM-IAINJ, an organization under the Islamic Institute in Probolinggo, to work with local communities to solve the problem. Through the SGF project, LPPPM-IAINJ along with the local communities planted 1,150 *Casuarina* in the 5 ha of coastal area in Karanganyar Village and empowered community groups.

This project also attempts to deconstruct the social-cultural and build awareness of the urgency of women's participation in addressing environmental issue through environmental conservation and income generating program. This is because male involvement in the public sphere and women in domestic sector is reality that has been accepted as a regular standard in this village; though women are often said have dual roles both in employment/entrepreneurial and domestic sectors. By this project, women groups will be empowered through income generating program, including (a) the production of grill milk fish cake (*otak-otak bandeng*); (b) the production of crab-cracker; (c) the production of batik from mangrove, and (e) product marketing.

## Objectives:

The project objective is to protect coastal area in Karanganyar from abrasion through coastal vegetation rehabilitation and livelihood activities.

## Target beneficiaries:

In total, direct beneficiaries engaged in this project are 67 people and indirect beneficiaries are approximately 1,779 people.

## Outputs:

LPPPM IAINJ had facilitated community groups consisting of men and women in planting 1,150 coastal vegetation (*Casuarina*) along the coastal area of Karanganyar Village. Communities were regularly looking after the seedlings by providing proper maintenance (i.e. watering the seedlings twice a day).

In terms of investing income generation program, a women group had been trained to produce *Otak-otak Bandeng* (grilled milkfish cake). The production of *Otak-otak Bandeng* has started in a small scale. To support product marketing, the group attempted to get a PIRT (*Pangan Industry Rumah Tangga*) or household industry permit from Public Health Office.

## Lessons-Learned:

- The initiation of small scale businesses, training and followed by the production itself might take some time (going through some trials and errors). It is sometimes hard to estimate percentage of the benefit per month from the activities that instant, and the project period is also relatively short (10-12 months). The most reasonable outputs than can be expected from these activities are knowledge sharing to the direct beneficiaries (groups involved) on how to process fish and other products to become commodities with more economic value and to build entrepreneurial spirit.
- While choosing the types of livelihood activities to be conducted, it is best to use participatory approach, where grantee has gone through consultation process with the communities as the implementers on the ground. In addition, it is important to identify the all supporting aspects related to the livelihood activities/small-scale business starting from the provision of the raw materials, production, and marketing to the management of the profit generated and cash flow to ensure the sustainability of the business.
- Especially for the mangrove-based food training and production, grantee should make sure the availability of the mangrove species needed as the main ingredients/materials for the training and production in order to ensure sustainability of the business. It should be noted that not the all mangrove fruits, leaves and so forth can be harvested and available throughout the year.

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## Implementing Partner
# Simphoni Akar Rumput (SAR), Situbondo-East Java

**Project Title:**
Coastal Communtiy Empowerment through Mangrove and Coastal Vegetation Rehabilitation

**MFF Grant Amount:**
USD 12,698

**Duration:**
2nd Mar 2016 to 31st Dec 2016

**Site:**
Gelung Village, Panarukan Sub-District, Situbondo, East Java

## Background:

In the North Coast of Situbondo, environmental degradation has continued as the impact of policy development focusing mostly on the mainland. The Regent Decree No. 81/1988, regarding intensive aquaculture development, allowed mangrove forests to be converted into fishponds. As a result, there were high numbers of traditional, semi intensive and intensive ponds spread across approximately 1,304 ha. Within the last five years, these areas were abandoned, left empty and susceptible to natural disaster.

The disaster does not only hit the abandoned area but also the surroundings. Pathek is one of the tourism areas in the northern coast of Situbondo, which was also affected by the disaster. The flash floods which occasionally occurred brought materials and damaged the area. They also impacted the local economy. People can hardly carry out their activities and suffer from these conditions. Coastal erosion in this area has resulted in a narrowing of the distance between the beach and the road. This has created problems for the locals who have kiosks in the tourist area, as they do not have space for tourists to park their bikes or vehicles. Because of this, many kiosks have closed and stopped operating.

Simphoni Akar Rumput (SAR) is a community-based organisation with specialisation in community development and nature conservation, aiming to restore mangroves in the coastal area of Pathek and to secure local people's livelihoods. Together with community groups, through the Small Grant Facilities (SGF) project, SAR planted 74,000 mangroves covering an area of 8.3 ha. This project also engaged wider communities to improve their awareness on the importance of mangrove ecosystems and their services.

## Objectives:

The project objective is to protect coastal areas in Pathek from coastal abrasion through mangrove ecosystem rehabilitation, public awareness and livelihood activities.

## Target beneficiaries:

There were two women's groups formed consisting of 19 members during the project implementation. The members were mostly low-income housewives, where the rest were young, unmarried women wishing to improve their skills and capacity through an income-generating programme. Total number of direct beneficiaries was 52 people (67% females and 33% males), and total number of indirect beneficiaries was 4,041 people (51% females and 49% males).

## Outputs:

SAR has formed two community groups consisting of 19 female group members. These groups actively participated in preparing mangrove nurseries and 74,000 mangrove seedlings along with the livelihood activities. By the end of project, mangrove growth showed a significant result, with a high survival rate (about 75% of mangroves grew well) and 3 ha coastal areas were restored. This project had given more access for the communities to information on mangrove rehabilitation. It also had raised community awareness of the importance of mangrove rehabilitation and protection, since community members and people surrounding the village were actively protecting the mangrove rehabilitation site from natural and anthropogenic disturbances. The rehabilitation program had already showed real benefits to the communities. Near the rehabilitation site, people could catch fish or collect clams to be sold or used for family consumption.

Besides being involved in mangrove rehabilitation activities, the two women's groups also received training on fish cracker and fish floss production, and product packaging. They had produced fish crackers and fish floss at a small scale, and sold the products at local markets. Even though the income generated from selling the crackers was relatively low, the project had successfully empowered the community members to use their time more effectively and enrich their knowledge and skills. With their improved skills and knowledge, community members would not hesitate to promote their products at special events such as local bazaars.

## Lessons-Learned:

- Mangrove seedlings should be planted (nursery site should be located) near inter tidal zone and exposed to brackish water. Limited access to inter tidal zone and brackish water will increase seedling mortality rate, especially when the planting/propagation is initiated at the beginning of dry season.
- The initiation of small scale businesses, training and followed by the production itself might take some time (going through some trials and errors). It is sometimes hard to estimate percentage of the benefit per month from the livelihood activities that instant, and the project period is also relatively short (10-12 months). The most reasonable outputs than can be expected from these activities are knowledge sharing to the direct beneficiaries (groups involved) on how to process fish and other products to become commodities with more economic value and to build entrepreneurial spirit.
- While choosing the types of livelihood activities to be conducted, it is best to use participatory approach, where grantee has gone through consultation process with the communities as the implementers on the ground. In addition, it is important to identify the all supporting aspects related to the livelihood activities/small-scale business starting from the provision of the raw materials, production, marketing to the management of the profit generated and cash flow to ensure the sustainability of the business.

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## Implementing Partner

Nature Lovers Group/ *Kelompok Pecinta Alam Pesisir Pulau Dua* (KPAPPD), Serang District-Banten, West Java

**Project Title:**

The Application of Mud Trap Technique as the Medium of Coastal Rehabilitation

**MFF Grant Amount:**

USD 13,934

**Duration:**

2nd Mar 2016 to 31st Dec 2016

**Site:**

Coastal area in Pulau Dua Nature Reserve, Sawah Luhur Village, Serang-Banten

### Background:

In the last ten years, coastal ecosystem in Pulau Dua Nature Reserve, Sawah Luhur Village Serang Banten has suffered from environmental problems. Triggered by population growth and economic development, mangrove forests surrounding this area were massively converted into settlements and ponds for aquaculture. It all caused the loss of wildlife habitat and foraging territory for wetlands animals, increased illegal bird hunting and loss of livelihood sources. Mangrove conversion has also contributed to carbon emission and climate change. Not only this, due to the loss of mangrove forest, Pulau Dua Nature Reserve has been exposed to pubic and highly gets pressure from visitors who visited the area.

The Nature Lovers Group, consist of local community members, which is known as *Kelompok Pecinta Alam Pesisir Pulau Dua* (KPAPPD), has been implementing mangrove rehabilitation in the buffer zone of Pulau Dua Nature Reserve and its surrounding since 2013. The rehabilitation activity has been engaging local government for policy support and involving NGO (Wetlands International Indonesia) for technical support. Mangrove seedlings were planted along the coastal area in the buffer zone and in barren aquaculture's ponds. Communities have applied a small scale sediment trap to protect mangrove seedling from sea current. After three years, mangrove seedlings were growing with the high survival rate, created new mangrove green belt of Pulau Dua Nature Reserve. It has positive impact to improve coastal resilience towards natural disaster and to mitigate climate change. New mangrove forests have significantly reduced coastal abrasion and restore natural habitat for fish and other wetlands animals. This condition also benefits local fishers as they do not have to go fishing further offshore. Other benefits include inland settlement in Sawah Luhur Village is protected from sea water intrusion, and people get cultural service such as recreational facilities.

Through Small Grant Facility (SGF) project, KPAPPD continued applying rehabilitation technique using mud trap (made from bamboo and sandbags) in total length of 300 m, and mangrove seedlings were planted in the newly formed sedimentation area. In terms of empowerment program, the project engaged women group to generate family income by producing fisheries-based food products.

## Objectives:

The project objective is to protect coastal area in the buffer zone of Pulau Dua Nature Reserve through the application of mud trap to create natural habitat for mangroves, and improved community's livelihood.

## Target beneficiaries:

Two community members were formed during the project implementation consisting of 23 members (48% females and 52% males). In total, direct beneficiaries of this project were 99 people and indirect beneficiaries were approximately 8,697 people (48% females and 52% males).

## Outputs:

April 2016, KPAPPD along with communities had built 120 m long semipermeable structures as sediment trap made from bamboo and sandbags. After two months, the sediment trapped was up to 30 cm high, where could be seen during the low tide. At the end of project period, the overall semipermeable structures built were 300 m long.

1,000 mangrove seedlings were grown in nursery. In addition, communities also prepared 12,000 mangrove seedlings as in-kind contribution.

Besides promoting an approach to create the suitable site for mangroves to grow back naturally, KPAPPD also planted 10,000 mangrove seedlings in a newly formed sedimentation area, and 8,500 of them grew well.

Community groups received training on breakwater construction. The training had improved knowledge and skills of group members in maintaining mud trap construction. In addition, a women's group was empowered to generate additional family income. They received training on fisheries-based food production and it improved their knowledge and skills in making fish stick and fish cracker from milk fish. Additional income generated from the livelihood activities was approximately more than IDR 1 million per month, and it was used to fulfil basic needs.

## Lessons-Learned:

- Besides planting mangrove as a way to rehabilitate degraded mangrove areas, there is another approach recently introduced, i.e. a method to create the suitable site for mangroves to grow back naturally. Mangroves restored in this way generally survive and function better. The application of mud trap technique is one of the innovative methods that will create the proper conditions for mangroves to grow back naturally.
- The initiation of small scale businesses, training and followed by the production itself might take some time (going through some trials and errors). It is sometimes hard to estimate percentage of the benefit per month from the activities that instant, and the project period is also relatively short (10-12 months). The most reasonable outputs than can be expected from these activities are knowledge sharing to the direct beneficiaries (groups involved) on how to process fish and other products to become commodities with more economic value and to build entrepreneurial spirit.

While choosing the types of livelihood activities to be conducted, it is best to use participatory approach, where grantee has gone through consultation process with the communities as the implementer on the ground. In addition, it is important to identify the all supporting aspects related to the livelihood activities/small-scale business starting from the provision of the raw materials, production, and marketing to the management of the profit generated and cash flow to ensure the sustainability of the business.

# Medium Grant Facility **(MGF)**

A Medium Grant Project began to be implemented in June 2014, in Demak Central Java. The Project's main objective is to establish a pilot silvo-fishery demonstration in the Demak District to empowering mangrove-dependent communities through sustainable management of mangrove ecosystems.

## Implementing Partner

Lembaga Pengkajian dan Pengembangan Sumberdaya Pembangunan (LPPSP), Semarang, Central Java

**Project Title:**

Introduction of silvo-fishery practice for improving the conditions of coastal communities

**MFF Grant Amount:**

USD 49,360

**Duration:**

1st Jun 2014 to 30th Sep 2015

**Site:**

Gejoyo village, Wedung sub-district, Regency of Demak, Central Java


## Background:

Demak is affected by sea abrasion (erosion caused by the sea). The damage to the Demak coastline, estimated at 495.80 hectares, is attributed to the beach reclamation. Sea abrasion negatively affects many of community-owned fishponds that are close to the shoreline, leading to the loss of livelihoods for some villagers.

Wedung is one of the villages experiencing the effects of this damage. In the sub village of Gejoyo, in Wedung village, mangrove silvo-fishery is appreciated as a solution to reversing the negative effects of sea abrasion. This MGF project will draw on the experiences of a past MFF small grant facility project implemented by Diponegoro University in 2012. The main approach will be to use the silvo-fishery model alongside community development activities, to strengthen Gejoyo community's resilience in the face of sea abrasion in Demak.

## Objectives:

A pilot silvo-fishery demonstration is established and recognized in the Demak Regency for empowering mangrove-dependent communities in Wedung and Berahan villages on sustainable management of mangrove ecosystems.

## Target beneficiaries:

Direct beneficiaries of the project are 50 residents of Tambak Gejoyo sub-village, composed of some fishpond owners, small business and food processing owners, and community task force members. The project will indirectly benefit at least 9,821 residents in Wedung village.

## Outputs:

1. A mangrove-based silvo-fishery model is introduced, and approved by the local government for replication.
2. A formal and empowered community network for mangrove management is established.
3. Livelihood options that reduce pressure on mangroves are introduced to mangrove-dependent members of the community.


SAPPENAS

# Large Grant Facility (LGF)

A Large Grant Facility (LGF) project was implemented in Demak, Central Java from 2011 to 2013. The project implementers and partners consisted of Ministry of Marine Affairs and Fisheries, Ministry of National Development Planning, Ministry of Environment and Forestry, Ministry of Home Affairs, some universities, CSOs and NGOs

## Implementing Partner

- The MMAF's Directorate General of Fisheries Products Processing and Marketing, as partner on training, workshops and technical advice on fish processing and marketing;
- The MMAF's Directorate General of Capture Fisheries, as partner on training, workshops and technical advice on promoting capture fisheries as income generating efforts;
- The MMAF's Directorate General of Aquaculture Fisheries, as partner on training, workshops and technical advice on aquaculture as income generating efforts;
- The National and Regional Development Planning Agencies (BAPPENAS and BAPPEDA), as partner on training, workshops and technical advice for integrated planning program at local and national level;
- The State Ministry of the Environment, as partner on training, workshops and technical advice on environmental management;
- The State Ministry of Forestry, as partner on training, workshops and technical advice on mangrove replanting;
- The State Ministry of Home Affairs, as partner on training, workshops and technical advice on strengthening local institutions;
- Diponegoro University (UNDIP), as partner on training, workshops and technical advice on implementation of project activities, as well as facilitator to help the local government and local communities to work together, and for monitoring;
- OISCA (Organization for Industrial, Spiritual, and Cultural Advancement), as partner on training, workshops and implementation of project activities at project sites;
- LPP Mangroves, as partner on training, workshops and as partner on training, workshop and implementation of project activities;
- Wetland Indonesia, as partner on training, workshops and technical advice as partner on training, workshop and implementation of project activities;
- KeSEMaT–UNDIP, as partner on training, workshops and as partner on training, workshop and implementation of project activities
- The Port of Semarang, state owned and private sector enterprises including state-owned and commercial banks in Central Java as well as local SMEs, as partner on synergistic programs of Corporate Social Responsibility.
- Community Based Organisation (CBO) in Sayung District

## Project Title:

Community-based environmental coastal management

## MFF Grant Amount:

USD 240,000

## Duration:

1st Nov 2011 to 30th Oct 2013

## Site:

four (4) villages (Sriwulan, Bedono, Timbulsloko, Surodadi) of the District Kacamatan of Sayung, the Regency of Demak, the Province of Central Java

## Background:

The purpose of this project is to strengthen the capacity of the local government and communities of Demak to manage the coastal environment of the Regency. The devastation of Demak's coastal environment is causing destruction of coastal ecosystem, aquaculture pond and infrastructure including houses, schools, roads, and other public facilities. The project emphasizes community empowerment and participation.

## Objectives:

The main objective is to improve the coastal environment management of the Regency of Demak. There are four immediate objectives:

1. Strengthen the capacity of the local government and communities of Demak Regency in the environmental coastal management;
2. Mitigate the impacts of the coastal environment destruction and climate changes through mangrove replanting;
3. Prepare the establishment of Information Centre for Coastal Rehabilitation, Disaster Mitigation, Climate Change Adaptation and Mitigation;
4. New community-based income generating activities.

## Target beneficiaries:

Villagers living in the area of Sriwulan, Bedono, Timbulsloko, Surodadi of the District Kacamatan of Sayung, the Regency of Demak, the Province of Central Java

## Outputs:

- Enhanced capacity and decision-making ability of coastal communities in four identified villages in Sayung sub district, Demak Regency
- Coastal environment management plan for four villages in the Demak Regency
- Functional coastal environmental co-management institution
- Restored/replanted mangrove area
- Identification and introduction of potential income generating initiatives for selected areas of Demak Regency
- Supporting facilities for communities to continue potential income generating activities

Mangroves for the Future
INVESTING IN COASTAL ECOSYSTEMS

# About Mangroves for the Future

Mangroves for the Future (MFF) is a unique partner-led initiative to promote investment in coastal ecosystem conservation for sustainable development. Co-chaired by IUCN and UNDP, MFF provides a platform for collaboration among the many different agencies, sectors and countries which are addressing challenges to coastal ecosystem and livelihood issues. The goal is to promote an integrated ocean-wide approach to coastal management and to building the resilience of ecosystem-dependent coastal communities.

MFF builds on a history of coastal management interventions before and after the 2004 Indian Ocean tsunami. It initially focused on the countries that were worst affected by the tsunami -- India, Indonesia, Maldives, Seychelles, Sri Lanka and Thailand. More recently it has expanded to include Bangladesh, Cambodia, Myanmar, Pakistan and Viet Nam.

Mangroves are the flagship of the initiative, but MFF is inclusive of all types of coastal ecosystem, such as coral reefs, estuaries, lagoons, sandy beaches, sea grasses and wetlands.

The MFF grants facility offers small, medium and regional grants to support initiatives that provide practical, hands-on demonstrations of effective coastal management in action. Each country manages its own MFF programme through a National Coordinating Body which includes representation from government, NGOs and the private sector.

MFF addresses priorities for long-term sustainable coastal ecosystem management which include, among others: climate change adaptation and mitigation, disaster risk reduction, promotion of ecosystem health, development of sustainable livelihoods, and active engagement of the private sector in developing sustainable business practices. The emphasis is on generating knowledge, empowering local communities and advocating for policy solutions that will support best practice in integrated coastal management.

Moving forward, MFF will increasingly focus on building resilience of ecosystem-dependent coastal communities by promoting nature based solutions and by showcasing the climate change adaptation and mitigation benefits that can be achieved with healthy mangrove forests and other types of coastal vegetation.

MFF is funded by Danida, Norad, Sida and the Royal Norwegian Embassy in Thailand.

Learn more at: **www.mangrovesforthefuture.org**