

National Fish and Wildlife Foundation

Coral Reef Conservation Fund 2013 - Submit Final Programmatic Report (New Metrics)

Grantee Organization: Indonesia Locally Managed Marine Area Foundation

Project Title: Conserving Coral Reefs in Indonesia through Resilient Managed Areas

Project Period 9/01/2013 - 3/31/2015

Project Location Tanimbar Kei in the Moluccas Islands, Hatta and Rhun in the Banda Islands, and Tanah Merah Bay in Papua will participate in the network through this project.

Description

(from Proposal)

Project

Summary (from

Proposal)

Design and implement resilient protected area zoning and regulatory practices for more than 70,000 square hectares of coral reef and associated habitats in three Indonesian Focal Areas. Project will build community capacity to use science-based principles to guide management of marine resources.

Summary of

Accomplishments

The Indonesia Locally Managed Marine Area Foundation (ILLMA) successfully accomplished the objectives of this project. We utilized the Guide on Designing Effective (Resilient) Locally Managed Areas in the Tropical Marine Environment that we developed with partners to create resilient zoning and regulatory schemes in three of ILMMA's Four Focal Areas. ILMMA built on our previous work in the Padaido Islands that created a 120,000 hectare resilient LMMA network to support new communities in the Banda Islands and in Tanah Merah Bay. These communities developed new LMMAs using science-based principles that are designed to provide for the ecological needs of priority species and habitats so those species can in turn continue to provide benefits to local ecosystems and to local communities. We also worked with an existing LMMA in Tanimbar Kei Island to help the community apply these principles to strengthen their LMMA zoning and regulatory scheme. We exceeded our target of 188,922 hectares of LMMAs designed with these principles to establish 220,923 hectares of LMMAs designed with the latest conservation management and resiliency principles. We also helped our partner communities build their skills in LMMA management through training, mentoring, and exchange visits to more experienced communities. As a result, the new communities have already started to see increases in abundance and catch of target species such as trochus and decreases in violations of conservation regulations.

Lessons Learned

ILLMMA learned many lessons including:

1. When communities understand how science-based management can benefit them they become very enthusiastic to pursue it. Communities in Banda followed science-based management for trochus and doubled their catch while still maintaining breeding stock in a no-take zone. The community is now very motivated to pursue this type of management with other coral reef species and coral ecosystems overall.
2. Tanimbar Kei made a series of detailed maps, such as on sea grass distributions, coral cover, seaweed area. The maps were extremely useful helping the community to identify the habitats for priority species. One of the key tenants of the Guide on Effective LMA Design is to protect at least 20 to 40% of representative habitats and to protect enough habitat to meet the needs of your priority species. By undertaking mapping and the combining this with the science recommendations in the Guide, the communities saw the logical connection between their areas and what they need to do to provide for the ecological needs of their priority species.
3. The importance of diversifying income sources was emphasized in the project. It is very important that small island communities not depend too much on any one resource. This is especially the case as climate variability and climate change are starting to change seasons

and impact populations of key resources. Building healthy populations of several species helps to diversify income sources.

Activities and Outcomes

Funding Strategy: Capacity, Outreach, Incentives

Activity / Outcome: Coral - Building institutional capacity - # FTE with sufficient training

Description: Enter the number of staff or full-time equivalents with sufficient training and skills engaged in conservation activities

Required: Recommended

FTE with sufficient training - Current: 12.00

FTE with sufficient training - Grant Completion: 28.00

Notes: At the start of the grant, there are the equivalent of 12 full time people who have very high skill levels in all LMMA management techniques. This includes a larger number of volunteers from communities that each only work part time. This project target was to expand this number significantly both by adding an additional Focal Area in the Banda Islands and through intensive training and mentoring. By the end of the project we expected to build six additional full time equivalents with a very high level of skill in all LMMA management approaches.

We exceeded this target bringing 32 new people into our growing network of LMMAs. These people work on average half time on their duties associated with LMMAs in Banda, new parts of Tanah Merah Bay, and the growing effort in the Kei Islands. As a result, we can say 16 full time equivalents have joined the LMMA program and have built a solid level of LMMA skill through the training and mentoring provided by the project. These individuals include government fisheries staff, university partners, and community members. We are very happy to be working with a large number of new enthusiastic partners.

Funding Strategy: Capacity, Outreach, Incentives

Activity / Outcome: Coral - Outreach/ Education/ Technical Assistance - # people reached

Description: Enter the number of people reached by outreach, training, or technical assistance activities

Required: Recommended

people reached - Current: 500.00

people reached - Grant Completion: 1400.00

Notes: Our target during the project was to go from 500 people receiving outreach and technical assistance to add another 500 people receiving this support to design resilient LMMAs. We are glad to report that with the addition of the new LMMA areas including Banda, new areas in Tanah Merah Bay and strengthening work in the Kei Islands, we exceeded this estimated target to provide outreach and mentoring to 1400 people receiving outreach sessions on the importance and benefits of designing resilient LMMAs. Of these people, approximately half are participating regularly in LMMA activities including community meetings, additional planning and outreach sessions, and approximately one third are active in LMMA implementation activities including patrolling, periodic monitoring, attending program planning sessions, and other key LMMA field activities.

Funding Strategy: Capacity, Outreach, Incentives

Activity / Outcome: Coral - Enforcement / Compliance with existing regs - Miles with enforcement presence

Description: Enter the number of miles with a minimum level of enforcement presence

Required: Recommended

Miles with enforcement presence - Current: 454.00

Miles with enforcement presence - Grant Completion: 852.00

Notes: The violations in the new LMMA areas rapidly decreased to low levels once the new rules and zones were announced. This is especially the case in the Band Islands (Hatta Island). Our LMMA area increased as from 454 square miles to 852 square miles exceeding our target of 730 square miles. This new area also come under

community-based enforcement and reduced violations as summarized under the violation metric. As a result, we are happy to report that the new areas under improved enforcement and with a regular community-based enforcement presence is 852 square miles. Whenever major violations happen from industrial scale boats that are beyond the capacity of the community to enforce against, we partner with the local government marine police to pursue the violators. This has only happened two times during the project period, and the violators were successfully apprehended by the local government marine police.

Funding Strategy: Planning, Research, Monitoring

Activity / Outcome: Coral - Management or Governance Planning - # plans developed

Description: Enter the number of plans developed that had input from multiple stakeholders

Required: Recommended

plans developed - Current: 2.00

plans developed - Grant Completion: 5.00

Notes: During the project, we developed three new program plans that include consideration of resiliency principles and the latest scientific guidance for integrating biodiversity conservation, fisheries management, and climate change adaptation. There are in Tanah Merah Bay, the Kei Islands, and the Banda Islands). We also supported our community partners in the Upper Padaido Islands to update their annual program plan. This plan already included consideration of resiliency principles and the latest scientific guidance for integrating biodiversity conservation, fisheries management, and climate change adaptation. However, as with all our Focal Areas, program plans are updated annually to help ensure constituency in management and adaptive management as needed to advance the projects.

Funding Strategy: Capacity, Outreach, Incentives

Activity / Outcome: Coral - Enforcement / Compliance with existing regs - # of violations per unit effort

Description: Enter the number of of violations per unit effort of enforcement

Required: Recommended

of violations per unit effort - Current: 4.00

of violations per unit effort - Grant Completion: 2.00

Notes: Our original target was to reduce violations per month in each of our new LMMA Focal areas from approximately four per month to two per month or less. We are happy to report that community-base outreach to encourage compliance combined with community patrols have been very successful in reducing violations. At present violations are happening approximately only two to three times per year. This is the case in the Banda Islands new LMMA areas, in the Tanah Merah Bay new focal areas, and in the Kei Islands. In the Upper Padaido Islands violations are happening a bit more regularly since there are still poachers coming from the lower Padaido Islands as this area has not yet been brought under complete sustainable management. But even in the Upper Padaido Islands violations are happening now only about four to five times per year. ILMMA is now working to extend our sustainable LMMA network to the lower Padaido Islands so the community members there can benefit from increased fish catches in their own areas reducing any incentive to poach in the Upper Padaido Islands. We are also working to strengthen our community outreach and enforcement in each of our Focal Areas to reduce poaching to even fewer incidents and to have no significant impact on fisheries and coral reef resources in these areas. That said, we are very happy that we exceeded our targeted of reducing violations during the NFWF project period.

Funding Strategy: Habitat Management

Activity / Outcome: Coral - improved management practices - Miles under improved management

Description: Enter the number of miles under improved management

Required: Recommended

Miles under improved management - Current: 454.00

Miles under improved management - Grant Completion: 852.00

Notes: As in the case of the enforcement presence metric, our entire new area that came under LMMA management exceeded our target of 730 square miles to bring 852 square miles under LMMA management. This is primarily because the target area in Banda and in Tanah Merah were decided by the local communities to be larger than originally anticipated. LMMA has trained these communities in key LMMA management techniques including: participatory planning, biological survey, LMMA boundary identification, simple outreach and enforcement approaches, diversified livelihoods including seaweed and tourism, and in finance tracking and reporting. Community conservation groups actively manage the community LMMAs using these and other skills. As a result, the new LMMA areas are under improved management.

Funding Strategy: Planning, Research, Monitoring

Activity / Outcome: Coral - Tool development for decision-making - # tools developed

Description: Enter the number of tools developed

Required: Recommended

tools developed - Current: 3.00

tools developed - Grant Completion: 5.00

Notes: Our original target was to expand the tools that we use to advance the activities of this grant from three to six. This would include adding important new guidance to these primary tools. We feel our original target of six tools may have been inaccurate since we did not fully develop new tools but revised ones that we had already been working with. We did accomplish the goal of revising the tools to include guidance in all three tools on how to effectively apply resiliency principles to integrated biodiversity conservation, fisheries management, and climate change adaptation. However, these don't count as new tools, but as revised tools.

However, while not originally planned by the project, we did develop two totally new tools to help communities better manage their coral reef areas. These are: new modules on sustainable nutmeg development to help avoid over cultivation that leads to sedimentation and a manual on tuna management to help communities move from reef to pelagic fishing, which is inherently more able to support commercial fishing because of higher stock productivity in community near shore tuna fisheries.

The following pages contain the uploaded documents, in the order shown below, as provided by the grantee:

Photos - Jpeg
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Final Report Narrative - Marine
Other Documents
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The following uploads do not have the same headers and footers as the previous sections of this document in order to preserve the integrity of the actual files uploaded.



NFWF

Final Programmatic Report Narrative

Instructions: Save this document on your computer and complete the narrative in the format provided. The final narrative should not exceed ten (10) pages; do not delete the text provided below. Once complete, upload this document into the online final programmatic report task as instructed. **Please note** that this narrative will be made available on NFWF's Grants Library and therefore should provide brief context for the need of your project and should not contain unexplained terms or acronyms.

1. Summary of Accomplishments

In four to five sentences, provide a brief summary of the project's key accomplishments and outcomes that were observed or measured. This can be duplicative to the summary provided in the reporting 'field' or you can provide more detail here.

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2. Project Activities & Outcomes

Activities

- Describe the primary activities conducted during this grant and explain any discrepancies between the activities conducted from those that were proposed.

Below we report on the project activities by Objective.

Objective One: Using the Latest Marine Science Principles to Create Resilient Zoning and Regulatory Schemes in Three of ILMMA's Four Directly Managed Focal Areas (Tanah Merah Bay, the Kei Islands, and the Banda Islands).

This objective was focused on building on our experience designing a resilient LMMA network in the Upper Padaido Islands to expand this approach to other high priority marine areas.

Proposed Activities Under Objective One included:

1. Training Focal Area Coordinators in use of the guide on Designing Effective (Resilient) Locally Managed Areas in the Tropical Marine Environment (the Guide). While Focal Areas Coordinators are strong in LMMA management approaches, they are not fully versed in the scientific principles supporting designed of resilient LMMAs and LMMA networks. As mentioned this training will happen in conjunction with the Padaido Focal Area Coordinator training using parallel funding from another donor.
2. Field outreach workshops with communities in the Kei Islands, Banda Islands, and Tanah Merah Bay. These outreach workshops will be facilitated by the Focal Area coordinators with the support of the LMMA core staff.

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3. Field consultations and surveys: Most of the marine territory of the project sites was surveyed several years ago and the major habitats have been mapped. The field surveys with this project will focus on collecting critical information to design resilient zoning and regulations within the LMMAs.
4. Design workshops with Communities. Once communities understand the importance of including resiliency principles and fundamental ecological considerations in the design of their zoning and regulatory schemes and field consultations and surveys have been conducted, workshops will be held to design the zoning and regulatory scheme to enhance resiliency.
5. Updating the Guide and Approach: As we use the Guide, we will gather feedback on the approaches in the Guide and make necessary adjustments based on lessons learned through the field application.

Summary of Activities Conducted under this Objective:

In each of our the three Focal Areas that were the focus of this proposal, we conducted training and outreach sessions in how to design Effective and Resilient Locally Managed Areas. This training and mentoring used the Guide to help communities understand the ecological needs that priority species have in order to remain abundant and how best to manage to provide for these needs so these species can in turn continue to provide benefits to the communities.

Each site undertook any needed surveys to fill gaps in biological knowledge of key species. Each site undertook considerable outreach and consultations with their communities to identify their traditional fishing grounds, identify key habitats for priority species, develop fishing and resource use regulations for their entire LMMAs, identify MPA (no take) areas, and to achieve community and government agreement. As a result the LMMA network in Indonesia was extended to successfully include new communities in Tanah Merah Bay, new islands in the Banda Islands, and new regulations in the Kei Islands to support improved management.

This has not only grown the LMMA network in Eastern Indonesia, but has helped to ensure that LMMAs are well designed considering the ecological needs of the species that are priorities for the communities and important to conserving the ecology and biodiversity of large coral reef areas.

Specific Activities by Focal Area

We also report on our activities by Focal Area to provide an overview of the complete set of activities undertaken in each area.

Tanah Merah Bay, Jayapura

Specific activities that were conducted by Focal Area included:

Tanah Merah Bay

1. Training of Focal Areas in the design of effective and resilient LMMAs.
2. Design and declaration of four new LMMA sites in the communities of Sinokisi, Amay, Wambena, Yapase and Dormena. Collectively these areas cover approximately 40,000 hectares.
3. Village Program Planning in each of these new LMMA sites to develop focal activities, regulations for these new LMMA sites, and to identify no take zones (which we call MPAs) within each Focal Area.
The support for the new Tanah Merah Bay communities came largely from existing partner communities that have developed successful LMMAs with the support of ILMMA over the past several years. These communities include Tablanusu and Tablasupa. ILMMA is very pleased when community members in existing LMMA communities gain sufficient skills so they can be the main teachers of their neighboring communities. ILLMA provides mentoring and support, but when are Focal Area staff are not present the existing partner communities continue to mentor and support the new communities on LMMA skills.
4. Designing village program using Effective (Resilient) Locally Managed Areas in the Tropical Marine Environment

Hatta Islands

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1. Using the Guide, ILMMA facilitated the community in the development of an LMMA in Hatta Island including formal identification and mapping of traditional fishing grounds, regulations to limit overfishing and improve the resilience and efficacy of the natural resource management in the Hatta area
2. In December of 2014, the village government and Banda Islands Sub-district officer endorsed and formally signed the Hatta Island Regulations on Natural Resources Management, the Map of Traditional Fishing Grounds and the Villages MPAs,
3. Initiated development of Marine Tourism Regulations. The local government suggested that the Hatta Island Community develop regulations on marine tourism to complement the regulation on natural resources management. Since January 2015, the community has been discussing it with support from ILMMA. We hope the first draft will be presented in August 2015, after Ramadhan.
4. Started sustainable management of trochus. When we started working in Hatta Island two years ago, we suggested that the village government not harvest trochus before the regulation on size and season is in place. As part of our outreach we taught them about the ecological needs of trochus for successful reproduction including the fact that larger individuals are very important to reproduction. The village followed this advice and closing harvest of trochus while they developed a maximum size regulation of 7 cm. Last December, right after Christmas, they opened the Sasi (traditional closure) for trochus harvesting. They followed the maximum take size and only allowed harvest outside the village MPA no take zone. This time, they harvest more than 2,300 KG, which is more than two times what they were able to harvest when they opened the Sasi in 2012;
5. Village Program Planning at Hatta Island to develop a full suite of actions to complement the regulations and no take areas.
6. Approaching Lontor Village at Banda Besar Island to be the next LMMA site. Formally we chose to work at Run Island, but the weather was very rough for the last three months and it was very difficult to visit Run. So through discussions with our partners and local government, we decided to work at Lontor Island;

Tanimbar Kei Island

Tanimbar Kei already has an LMMA covering their entire marine territory. As a result they did not need to develop a new LMMA but instead needed to review their regulations and update them as needed to ensure that they follow the ecological guidelines in the Guide. We conducted the following activities to help ensure that the Tanimbar Kei Island regulations would provide the greatest possible benefits by helping to make sure the ecological needs of the priority marine and coral reef species are met.

1. Training on the ecological principles in the Guide to help the community fully understand the needs of their priority marine species. Please note: in addition to coral reef species one of the priority species for Kei Islands is flying fish. In particular the community licenses the fishing of flying fish eggs to outside fishers on a seasonal basis. As a result additional research that is outside the scope of the Guide is needed to manage this fishery.
2. Conducting collaborative research with Research Institute for the Environmental and Livelihood, Charles Darwin University (RIEL-CDU) on the Seasonal Flying Fish Fishery with a focus on understanding sustainable catch levels.
3. Village Program Planning to update the community's actions to ensure adaptive management of their program. This community has a relatively complex LMMA covering over 40,000 hectares and including several no takes as well as rotational closures for flying fish eggs. As a result it is very important to regular reviews of their work plans and update as needed to ensure they are meeting their objectives.
4. Developing Marine Tourism Regulations. The Kei Islands are becoming an increasingly important tourism destination and until this year had no tourism regulations. As a result, the community received no payment at all from tourism use of their areas and tourists could enter any places – even important sacred locations. The community developed the tourism regulations that include a “user fee” and will work with government over the next months to secure official approval of these regulations.
5. Updating Regulations for the LMMA. This included reducing the number of fishing boats licenses from 142 in 2013 to 65 in 2014 to 50 in 2015. They also increased the user fee for the license from 200 USD to 250 USD and they closed a quarter of the fishing ground (approximately 10,000 hectares) each year in a rotational no take system. In this way, at least ¼ of the fishing ground is not fished each year. With fast growing species such as flying fish this provides time for the species to reproduce and produce the eggs that are the target of the fishery and protects a large portion of those eggs from fishing so that the population can continue to restore itself.

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Objective Two: Build the Capacity of the New Participating Communities and Community Members to Apply Critical LMMA Skills in the Management of the LMMAs and LMMA Networks.

Proposed Activities Under Objective Two included:

1. Training and Mentoring new participants in key LMMA skills using manuals and training approaches developed by ILMMA
2. Direct Mentoring by community members with more advanced skills in LMMA management.
3. Exchange visits to advanced communities for newer participants to learn from their experience.
4. In the Banda Islands, to support the development of new LMMAs activities include training and support for developing community-based conservation groups, establishment and mapping of the LMMA boundaries, development of zoning and regulations, baseline surveys, monitoring, locally appropriate compliance and enforcement, and feasibility of diversified income opportunities.

Summary of Activities Conducted under this Objective:

As summarized above under Objective One, each of the Focal Areas of this project either developed new LMMAs or updated regulations (as in the Kei Islands) to help ensure that their LMMAs are more effectively designed to meet the ecological needs of priority species.

Additionally, LMMA held a number of training and mentoring sessions to help the communities to develop their needed LMMA skills. This included both some of the skills that were needed to develop the LMMAs such as mapping and identifying LMMA boundaries, program planning, outreach and compliance. ILMMA's approach is to provide training and mentoring in the context of conducting critical LMMA activities. We typically hold workshops on a topic and then pursue the actions of that topic over the course of the next few days, weeks, or months depending on the complexity of the activity. As mentioned, ILMMA held training sessions on the Guide in each of the three Focal Areas and then after the trainings worked with the communities to discuss how to best design their fisheries regulations and no take areas. We provide instruction on program planning and then carried on to complete the plans. We provided trainings on how to collect information on catch per unit effort (CPUE) and then set up the CPUE systems. We discussed how best to conduct outreach with the larger community and then set up the approach to do so. In each of these training and mentoring sessions, the ILMMA staff and new communities were supported by community members from existing LMMA communities.

In addition we took some new steps to strengthen the capacity for effective coral reef and fisheries management in our Focal Areas. These included working with the Ministry of Marine Affairs and Fisheries (MMAF) at the national and District levels on Rights-based Fisheries Management in our Focal Areas to try to develop systems to formally strengthen their capacity to minimize illegal fishing through support of community-based management. We also worked with three Universities to support students to do important research at LMMA sites on topics that support more effective LMMA management. Finally we developed a manual on sustainable nutmeg development to help avoid over cultivation that leads to sedimentation and a manual on tuna management to help communities move from reef to pelagic fishing, which is inherently more able to support commercial fishing because of higher stock productivity in community near shore tuna fisheries.

Specific Capacity Building Activities by Focal Area include:

Tanah Merah Bay

1. Training workshop for youth on biological data monitoring and CPUE data collecting;
2. Training workshop for four new villages, involving villages government, village leaders, women's, teachers and youth on how to:
 - a. Develop regulation on natural resources management;
 - b. Choose the right site for Sasi/MPA (no take area)
3. Training Workshop on Adapting to Changing Climate.
4. Training Workshop on Designing Effective Locally Managed Marine Area in Tropical Marine Environment.
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5. Training on waste management, especially plastic waste, at Tablasupa and Tablanusu village, as they will develop their village to be come eco-tourism village.

Banda Islands

1. Training Workshop on Adapting to Changing Climate
2. Training Workshop on Designing Effective Locally Managed Marine Area in Tropical Marine Environment
3. Attending Cross Learning Visit from Banda Communities on Hatta Island and Ai Island to Tanimbar Kei. In this cross learning, the Tanimbar Kei communities shared how to do: village program planning, biological monitoring in trochus, seaweed cultivation to harvesting, develop tax for outside fishing boats
4. Develop Environmental Learning Modules for Hatta Island Primary School. This was the first time to develop these types of learning modules for most people and institution in Banda, so we invited local partners (Fishery College, Marine Park Management and Office of Department Education at Banda Sub-District.

Note: on training 1 & 2, the participants are coming from local communities, Marine Tourism Park Management, navy, police, military, and sub-district officer.

Tanimbar Kei Islands

1. Hosting Cross Learning Visit from Banda Communities:
2. Training workshop on (Catch Per Unit Effort) CPUE data analysis, in collaboration with Wildlife Conservation Society;
3. Training workshop on Flying Fish Data Collecting, in collaboration with RIEL-Charles Darwin University, Darwin Australia
4. Develop outreach restriction board for fish and turtle with community members learning how to develop and communicate key messages on restrictions.
5. Public advertisement announcement through local radio, once a week for 6 months. Mentioning the regulation on fishing and gears restriction and as well as the traditional fishing ground

Outcomes

- Describe progress towards achieving the project outcomes as proposed. and briefly explain any discrepancies between your results compared to what was anticipated.
- Provide any further information (such as unexpected outcomes) important for understanding project activities and outcome results.

Proposed Outcomes included:

Project outcome that were to be monitored by the project included:

1. The addition of 71,643 square hectares of coral reefs in three of Indonesia's highest conservation priority Focal Areas designed using resilient zoning and regulatory schemes. This will include a new LMMA network in the Banda Islands. This will be added to the 110,598 square hectares in the Upper Padaido Islands and 6,681 square hectares in the lower Padaido Islands bringing the full coverage of ILMMA that are designed using the latest science based resiliency principles to 188,922 square hectares. The indicator of success will be the completion of the zoning and regulatory schemes.
2. A community appropriate approach guiding the development of resilient LMMAs and LMMA networks will be field tested at several sites, refined, and made available across Indonesia and the Coral Triangle. The indicator of success will be that ILMMA Focal Area Coordinators can use the guide on their own to facilitate community outreach and planning processes and community members understand the science recommendations and use them in their LMMA design and management.
3. New participants both in existing Focal Areas of Tanimbar Kei and Tanah Merah Bay and in the new Banda Islands Focal Area will gain skills needed to design, establish, and effectively manage their LMMAs. Indicators of success will include the community members being able to conduct planning, mapping and designating their LMMAs, carrying out community patrols, and reducing the number of violations of their LMMAs

4. The LMMA approach will be vastly improved by including critical science based guidance. The indicator of success will be an updated and finalized guide to developing zoning and regulatory schemes for LMMAs shares with the larger LMMA network and other conservation practitioners in the Asia Pacific and world.

Outcomes Achieved:

ILMMA achieved the target outcomes of the project. We successfully supported the communities in Tanah Merah Bay and the Banda Islands to create new LMMAs. This includes four new LMMAs in Tanah Merah Bay covering approximate 40,000 hectares and one new LMMA in the Banda Islands (Hatta Island) covering 12,000 hectares. In Tanimbar Kei this included adjusting the regulations of the existing LMMA to be more effective at providing for the ecological needs of target species in a 40,000 hectare LMMA. This brings the total area under LMMA management using resilient and effective science based design to 220,923 hectares from the original 117,279 in the Upper and Lower Padaido Islands prior to the start of this project.

In each of these areas the communities were trained and mentored in the ecological principles that are the foundation for successful and resilient managed area design and mentored as they used these approaches to identify proposed fisheries regulations and no take zones (MPAs). In the end the Tanah Merah Bay communities all designed their LMMAs but are still working to finalize the official approval of their community LMMAs and regulations. The Hatta Island community in the Banda Islands successfully designed their regulations and MPAs and achieved official approval of these both by their traditional village government and by the Sub-District Fisheries Department.

In Hatta Island, the community had a nearly immediate resource management success by applying their new regulations in relation to the fast growing and economically important species, trochus. This was a near doubling of the community's harvest of trochus by using a series of management approaches based on the ecology of the species. First the community closed all collection, they then instituted a permanent core no take area, and a maximum size. Giving the animals more than two years to rest, the community was able to double their harvest but also sustain a core reproductive stock both in their no take zone and through the maximum size limit.

ILMMA found the approach in the Guide easy to use with local communities. We found that we don't have to use the entire Guide as it is quite lengthy – but use key messages and ecological principles and check lists. We will continue to use the full Guide as the training material for our Coordinators and Trainers but use a sub-set of the material when working with communities. We found it was very helpful to boil the ecological science down into messages that are easily relatable to the local situation and are focused on how best to sustain community benefits through management. Prior to development of these materials, we did not have an easy way to communicate the importance of giving the species their ecological needs in order to ensure that they can remain abundant and continue to benefit local communities. The check list approach in the Guide is a good reminder for communities when their designing their ecology based regulations and zones.

We also included several metrics to help us measure our target outcomes:

Metrics

1. From 12 FTEs to 18 with sufficient skill to conduct major community-based coral reef management activities
2. From 500 people reached with conservation outreach messages and management support to 1000
3. From four violations per month in the focal areas to two or less
4. From 454 square miles under with an enforcement presence to 730 miles under management adding a total of 276.
5. From 454 square miles under improved management to 730 miles under management adding a total of 276.
6. From three tools in active use to six
7. From two plans for conservation management to five.

ILMMA achieved all of these target metrics. We trained 32 new people in Banda and Tanah Merah and they are well versed now in important coral reef management concepts and actions. Through community outreach sessions, we reached over 1,400 people with conservation messages. The violations in the new LMMA areas rapidly decreased to low levels once the new rules and zones were announced. This is especially the case in the Banda Islands (Hatta Island). Our LMMA area increased as mentioned from 454 square miles to 852 square miles exceeding our target of 730 square miles.

This means that these areas now have both improved management as well as community-based enforcement. This includes a formal community patrol funded by sustainable fishing licenses in Tanimbar Kei. We are working with the Fisheries department and marine police to strengthen our relationships so we can call on them if serious violations are observed. We put the Guide for Designing Effective LMMAs into active use in the three new focal area and developed new modules on sustainable betel nut development to help avoid over cultivation that leads to sedimentation and a manual on tuna management to help communities move from reef to pelagic fishing, which is inherently more able to support commercial fishing because of higher stock productivity in community near shore tuna fisheries. We developed three new program plans, one in each of our target Focal Areas.

We are extremely pleased with the progress of this project and look forward both to continuing to support our new partner communities and expanding to support new communities in coming months and years.

3. Lessons Learned

Describe the key lessons learned from this project, such as the least and most effective conservation practices or notable aspects of the project's methods, monitoring, or results. How could other conservation organizations adapt similar strategies to build upon some of these key lessons about what worked best and what did not?

The project learned a number of lessons that can be applied both to improve the work of ILMMA and of other conservation organizations in Indonesia and other countries.

1. **Trochus harvest by size.** In the past, before ILMMA, the community of Hatta and Ai Island (and also other island in Banda Islands) harvest trochus without size limits, from the biggest to the smallest. As a result, they were taking both the highly reproductive individuals (the largest ones) and individuals that had not reproduced yet. This significantly reduced the population and make it difficult for them to big trochus each year. After a cross learning visit to Tanimbar Kei, in which they learned about their successful trochus management system including size limits and permanent no take areas the communities in Banda developed regulations maximum and minimum size regulations. The second learning for the communities was not harvesting at the spawning area and to ensure that some stock always remains in the ocean to reproduce through establishment of no take areas. When the harvested in December 2014, they only harvested outside the spawning area. These management approaches are based completely on the ecological need of the priority species and help to ensure that the species can continue to reproduce effectively to provide for the community. While the fundamental approach is very straightforward, no on had ever shared the basis of the ecological needs of the species with these communities. As a result they did not realize that they could put management in place, which would enable the species to be highly productive just by providing for their ecological needs. This in turn has enabled the communities to secure larger overall harvests of priority species. Sharing these easy to understand approaches with other communities will help them to establish effective management systems as well.
2. **Regulation on fishing gears.** Similarly, in the past, there were no regulations on fishing gears in the Banda Islands. After the learning trip, the community put regulation on fishing gears to include minimum mesh size for nets of two inches. This allows young fish that have not reproduced yet to escape the net thus helping to support reproduction of key species such as rabbit fish.
3. **How to choose your MPA.** It is very common that communities choose sites for MPA that do not have very many fish or clams and/or are the wrong habitat for their priority species. By doing this, the MPAs are not functioning well and do not produce increases in abundance and catch. After long discussions and using outreach messages from the Guide "Designing Effective (Resilient) Locally Managed Areas in the Tropical Marine Environment" community members come to understand that in order to benefit the community by providing an abundance of resources for sustainable catch, the MPA must function as breeding zone or spawning ground, and that fishing must be managed in these areas. As a result of our outreach and discussions, the Hatta Island community MPA has been very well designed and is playing its ecological role as a breeding ground thus helping to increase the overall population of marine resources in the area.
4. **Mapping.** Tanimbar Kei have a series of map, such as on sea grass distributions, coral cover, seaweed area, and also on the land use, especially for water conservation. The maps are very useful for planning because they make it easy for the community to identify where the habitats for their key species are located. One of the key tenants of the Guide

on Effective LMA Design is to be sure to protect at least 20 to 40% of representative habitats and to protect enough habitat to meet the needs of your priority species. By undertaking mapping and the combining this with the science recommendations in the Guide, the communities can see the logical connection between their area and what they need to do to provide for the ecological needs of their priority species to in turn help maintain abundance and continue to benefit. This also helps the community identify and plan their terrestrial land use. It can help them identify where should be the garden, forests, areas for cutting, areas to replant etc. This will help them both to maintain their watersheds and to reduce runoff and sedimentation into their marine environments. The Hatta and Ai islands community plan to do this mapping and land use planning soon to develop regulations for fresh water conservation. Note: Ai Island community only depend from rainwater, the entire island is full with beetle nuts tree.

5. **Transparent Management.** One important thing that we share on the learning trip to the Kei Islands is the importance of being transparent on budget. The budget for the community projects should be open for public. Tanimbar Kei and also other ILMMA sites, put the program and budget at the village information board. In this way people know how much money comes in and for what. This eliminates rumors of possible negative perceptions that the community leaders or conservation group members are doing the work to be paid. This approach results in a very good network among the community members. When the Hatta Island community went back home, they practiced this high level of transparency at the ceremony for signing regulation on Natural Resources Management. For this ceremony, ILMMA only contribute 90 UD (approximately 1,000,000 rupiah). Each household contributed 1 USD, and the community collected approximately 500 USD from for the ceremony.
6. **The role of Adat (Custom) and Village Leader.** While the community conservation projects depend a great deal on the traditional leaders and the village government, ILMMA encourages its community partners to be sure to share the responsibilities and activities among more members of the community including women, and men, youth in different roles in the community. The community overall through Village Conservation Groups takes on part of the responsibility, especially on managing the Natural Resources Management. This helps both to make sure the community feels ownership of the project activities and also presents possible misdirection of the conservation projects or shut down of the projects if leaders should change.
7. **The importance of Diversifying income sources.** As a small island, resources and options for income are very limited. However, it is very important that these small island communities not depend too much on any one resource. This is especially the case as climate variability and climate change are starting to change seasons and impact populations of key resources. For example, Tanimbar Kei has seen seasonal declines of their trochus populations due to major increases in sea surface temperatures. But fortunately they try their best not to depend on one sources of income. Right now community sources of income include seaweed, copra, fish, trochus (seasonally open), tax from outside fisherman in a sustainable fishing program. Tanah Merah communities also have diversified their incomes to include reef and pelagic fish, tourism, fruit harvesting, tourism, and an innovative tourism program whereby visiting fishermen pay to stay on their Fish Aggregation Device for several days to fish for pelagic game fish. The community of Hatta and Ai are now similarly working to diversify their income. They are currently developing their village regulations on marine tourism. Right now, tourists coming to Hatta and Ai Island never pay anything, so with high numbers of tourists visiting, the community is missing out on a potentially important source of income.

4. Dissemination

Briefly identify any dissemination of project results and/or lessons learned to external audiences, such as the public or other conservation organizations. Specifically outline any management uptake and/or actions resulting from the project and describe the direct impacts of any capacity building activities.

ILMMA made several presentations and undertook outreach with related to our approaches and the results of this work. This helped to promote the concept of working with local communities using the latest science based management guidance to support them to design effective and resilient LMMA that provide for the ecological need of priority species that in turn provide for the needs of the communities. Various dissemination approaches included:

1. June 2015, presentation on RBFM (Right Based Fisheries Management) and effective and resilient LMMA design at national workshop, invited by Office of Minister Marine Affair and Fishery (MMAF). International and National NGOs and MMAF Office from 12 province and 3 national University attend this workshop;
2. April 2015, meeting with MMAF Biak District, on conductin monitoring and surveillance together

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3. Since early 2015, the Tourism Department of Jayapura District working together with ILMMA and community of Tablanusu and Tablasupa village to develop Regulations on Tourism. We hope this regulation will be finished in September 2015. NFWF is supporting the community meeting on developing this regulation.
4. February 2015, presentation on RBFM (Right Based Fisheries Management) at MMAF Jayapura District Office;
5. November 2014, discussing on plan to develop maps on Customary Fishing Ground of Tanah Merah Bay Community at MMAF Jayapura District Office
6. September 2014, MMAF National announce Upper Padaido Islands (110,000 hectares) and Auki Island (15,000 hectares) as traditional fishing ground with LMMAs designed using the Guide and resiliency principles. These were announced on the radio to help ensure people are aware of the regulations.
7. August 2014, declare the Tablanusu Village Natural Resources Management Regulation and announce this on the radio. NFWF is supporting the community meeting on developing this regulation.
8. April 2014, meeting with MMAF Jayapura District, discussing the important of Sasi as re-stocking and also as spawning, breeding and aggregation site

5. Project Documents

Include in your final programmatic report, via the Uploads section of this task, the following:

- 2-10 representative photos from the project. Photos need to have a minimum resolution of 300 dpi. For each uploaded photo, provide a photo credit and brief description below;
- Report publications, Power Point (or other) presentations, GIS data, brochures, videos, outreach tools, press releases, media coverage;
- Any project deliverables per the terms of your grant agreement.

POSTING OF FINAL REPORT: *This report and attached project documents may be shared by the Foundation and any Funding Source for the Project via their respective websites. In the event that the Recipient intends to claim that its final report or project documents contains material that does not have to be posted on such websites because it is protected from disclosure by statutory or regulatory provisions, the Recipient shall clearly mark all such potentially protected materials as “PROTECTED” and provide an explanation and complete citation to the statutory or regulatory source for such protection.*

Captions for Uploaded Photos in Order

1. Dina LaRae, Banda Islands Focal Area Coordinator was presenting program planning on zoning for Hatta Island Resilience. Photo by Elizabeth Holle
2. Group discussion on resilient plan for Banda Islands, using Hatta Island map as example. Photo by Elizabeth Holle
3. The Banda Marine Tourism Park team are discussing about resilient plan. Photo by Elizabeth Holle
4. Hatta Island Adat Leader is signing the map of traditional fishing ground. Witnessed from left to right: The Head Mosque, The Village Head, The Head of Banda Islands Sub-district and Hatta Island Conservation team member. Photo by Cliff Marlessy
5. Hatta Island community and Focal Area Coordinator (blue t-shirt) are learning to tide seaweed seeds from the Tanimbar Kei’s community. Photo by Cliff Marlessy
6. Community to community learning. Tanimbar Kei people sharing their experiences on how to do biological monitoring using belt transect and quadrant. Photo by Cliff Marlessy
7. Maya, Tanimbar Kei conservation team member was sharing for Hatta Island on how to do to conceptual model, as part of the village program planning. Photo by Cliff Marlessy
8. Hatta Island community is fishing using net at the shallow water. Photo by Nilam Ratnawati
9. Restriction board at Hatta Island to prohibit people from littering, cutting the trees, collecting sand and stones from the beach, using net at the coral area, damaging coral reef. Photo by Nilam Ratnawati
10. Trochus harvest during open Sasi (tambu) at Hatta Island. They use the 7CM nails as tools to measure the minimum size to harvest. Photo by Sandra Tjan