

# Community Based Coastal Resources Management in Indonesia: North Sulawesi Early Stage Experiences

By:

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## Abstract

Proyek Pesisir (Coastal Resources Management Project – Indonesia), is a cooperative initiative between the government of Indonesia and the U.S. Agency for International Development (USAID), aimed at decentralized and strengthened coastal resources management in Indonesia. It has been working for 18 months in the province of North Sulawesi to establish effective models of participatory and community-based coastal resources management. Proyek Pesisir has selected several village-based field sites where small-scale models of coastal planning and implementation are to be developed and tested. Models, or examples of best practices being developed include: the formulation and implementation of village-based integrated coastal management plans, community-based marine sanctuaries, village ordinances, and participatory early actions such as Crown-of-Thorns (COTs) clean-ups and mangrove replanting. This paper describes the experiences and lessons learned by Proyek Pesisir in establishing community-based coastal resources management at several field sites in North Sulawesi, particularly the development of a marine sanctuary in the Blongko field site. The current institutional framework of openness and reform have created windows of opportunity for establishing community-based and decentralized coastal resources management programs in Indonesia.

*A paper presented at:*

*Convention of Integrated Coastal Management Practitioners in the Philippines  
Grand Men Seng Hotel, Davao City, Philippines, 10-12 November, 1998*

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## INTRODUCTION

Despite the longstanding interest in improving national capacity for the development of the vast marine and coastal resources of the Indonesian archipelago (e.g. BAPPENAS/CIDA, 1987), active involvement in various pilot scale integrated coastal management (ICM) initiatives (e.g. USAID/ASEAN CRMP: Chou *et al.*, 1991; ASEAN/US-CRMP/DGF, 1992) and recent investments in large scale planning initiatives (e.g. ADB, 1992), integrated coastal management in Indonesia remains in its infancy. The political will for ICM exists (Sloan and Sughandy, 1994) and has been formalized in State Policy (e.g. DFIS, 1993) and national plans (e.g. SME/UNDP, 1997). However, outside protected areas there are no examples of implemented ICM plans, and ICM capacity at the provincial and local levels is considered weak throughout most of the archipelago (ADB, 1992). Additionally, the capacity of local and provincial governments to develop and implement ICM programs and the capacity for communities and other stakeholders to participate in them remains low, particularly when compared with other countries in the East Asia region (Chua and Garces, 1993; White, *et al.*, 1994).

In view of the pressing need for more effective management of the mega-diverse and highly productive Indonesian coastal seas (Thomascik, *et al.* 1997), USAID and the Indonesian National Development Planning Board (BAPPENAS) undertook a detailed analysis of mechanisms and options for ICM as part of the design of the USAID-assisted Natural Resources Management Program (CRC, 1995). That analysis involved extensive consultation with a range of stakeholder groups and resulted in the formulation of a coastal resources management component (known as Proyek Pesisir) within the USAID-BAPPENAS Natural Resources Management Program (NRM II).

Proyek Pesisir is implemented via the Coastal Resources Center of the University of Rhode Island and several Indonesian partner agencies. At the national level, activities are coordinated with BANGDA - the Directorate General for Regional Development - of the Ministry of Home Affairs. At the provincial level, activities are coordinated with BAPPEDA - the Regional Development Planning Board - under the Provincial Governors, along with a range of other provincial level agencies and national line agency local offices. Proyek Pesisir also involves a range of other partner institutions including universities, environmental NGOs, and private sector groups. Most importantly, at the field site level, the needs, aspirations and issues of the coastal communities and other local stakeholder groups are incorporated into the planning and implementation process.

The mission of Proyek Pesisir is to contribute to the strategic objective of NRM II: to decentralize and strengthen natural resources management in Indonesia (Proyek Pesisir, 1997). This is to be achieved by developing models of decentralized, and participatory coastal resources management initiatives in several provincial locations. Lessons learned concerning "best practices" for coastal management from field experience will be documented and disseminated widely within the project provinces and nationally. This will also serve as a basis for considering alternative provincial and national policies and practices which can foster more effective coastal management nationwide. The long term aim is to have effective models of best practice in coastal management adopted widely within the country by government and non-government institutions engaged in coastal management initiatives and programs.

The Center for Coastal and Marine Resources Studies at Bogor Agricultural Institute is slated to play a key role in lesson drawing, documentation and dissemination components of the project. Partners at BAPPENAS and BANGDA will be critical to promoting and actualizing adoption of best practices on a more wide-scale basis. This two-track approach integrates the local emphasis on development of best practice models with national activities of documentation, dissemination and policy development for replication or adoption in other localities.

## **PROVINCIAL FIELD SITES**

### **Selection of Provincial Locations**

Three Provincial locations have been selected for implementation of field activities: North Sulawesi, East Kalimantan, and Lampung (Figure 1). Several provincial locations were chosen in order to ensure a diversity of field sites for model testing given the diversity of development, local institutional capacity, demographics, type of coastal resources and their conditions within various regions of Indonesia. Activities in each province are being initiated through a phased schedule. North Sulawesi started in February of 1997, Lampung started in July of 1998, and East Kalimantan started in September, 1998.

Figure 1: Provinces selected for Proyek Pesisir implementation activities



### **Provincial Field Site Goals**

At the provincial field site level, the goal is to establish best practices of coastal resources management - through the development and application of methods, strategies, actions, local ordinances and plans - which can lead to improved or stable quality of life for the coastal communities, and stable or improved conditions of the coastal resources from which much of their livelihood depends. Reaching this goal will require efforts directed

at achieving: (1) increased stakeholder participation in the coastal planning and management process, (2) improved local policy development and implementation, and (3) strengthened capacity of local institutions.

A key project assumption is that in a country as large and diverse as Indonesia, no one planning model will be appropriate to all regions, provinces or for the thousands of coastal communities within the country. Any one province may also need to apply more than one approach to coastal planning and management. Therefore, it is likely that a range of models will be needed and the approach selected will depend on several factors including: state of the resources (overexploited or not, good or poor condition); level of development; population pressures; capacity of local institutions including government, university, NGOs and community; financial resources available for planning and implementation activities; the scale of planning required to address issues of concern; etc. An example of a multi-approach to coastal management planning is seen in the United States - a country with a similar geographic size, population, socioeconomic and ecological diversity as Indonesia - through the Federal Coastal Zone Management Program (Archer, 1988). Within the three project provinces in Indonesia, a range of planning approaches will be developed and tested. The primary planning approaches being tested in North Sulawesi are community-based village-level models of coastal resources management.

## **NORTH SULAWESI**

### **Field Sites Selection Process**

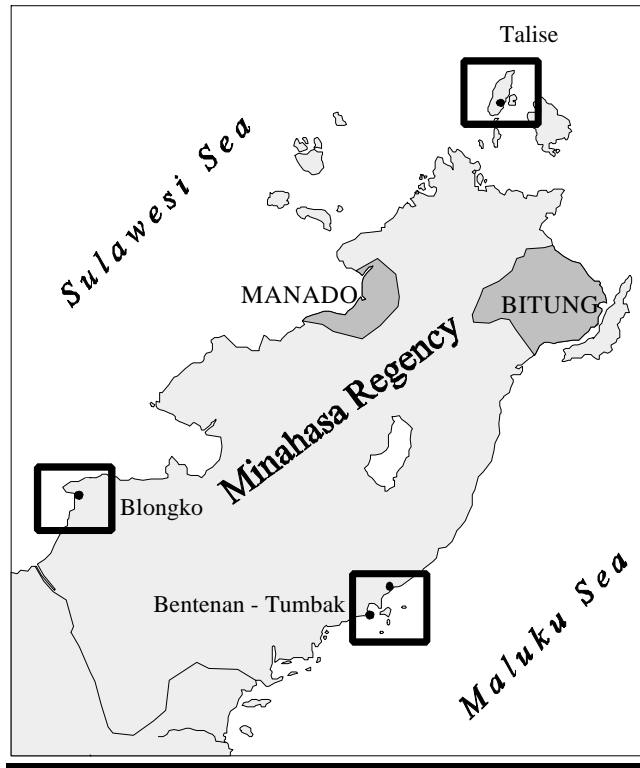
One of the initial tasks in North Sulawesi was the selection of several field sites. It was decided to place all North Sulawesi field sites in the Minahasa Regency for several reasons.

- To simplify interagency coordination of activities both horizontally and vertically within the province.
- To reduce logistical concerns for providing administrative and technical support from a Manado Field Office base, and therefore, to decrease expense/financial outlay.
- To select sites which can serve as demonstration sites and therefore to select sites conveniently reached by groups or institutions within the province, from Jakarta, or other provinces wishing to view our results and attempt to replicate them. This is particularly important as the national project goals are not only to develop models of best practices but to disseminate results nationwide.

The Provincial Working Group - chaired by the Regional Development Planning Board for North Sulawesi (BAPPEDA) - developed a set of criteria and selected three field sites (Figure 2) from 20 villages included in a rapid assessment of coastal villages in the Minahasa Regency (Pollnac *et al.*, 1997). As part of the selection process, it was decided that the sites would be geographically dispersed with one on a northern island, one on the eastern shoreline, and one on the western shoreline (Tim Kerja, 1997). As seen in Figure 2, Blongko and Talise are of a single village scale. In the case of Bentenan and Tumbak, it was felt that this field site should encompass both villages as each of these communities

exploit marine resources in the common marine area and island just offshore of these two villages.

Figure 2: Proyek Pesisir field sites in North Sulawesi



### **The Approach to the Coastal Management Planning Process**

### **Conceptual**

Proyek Pesisir will assist the communities and local government to develop an integrated coastal resources management plan and local ordinances encompassing the land and sea area of each of the field sites. The purpose of the plan and ordinances is to guide development and management efforts in order to achieve the goals and outcomes of improved quality of life of the coastal people and stable or improved conditions of the coastal resources. The major steps in the planning and implementation process for developing community-based coastal management models in North Sulawesi are as follows:

1. Communities Identified
2. Communities Oriented and Prepared for the Planning Process
3. Baselines for Models and Replication Sites Conducted
4. Issues Identified
5. Issues Validated and Prioritized
6. Management Options Developed
7. Management Options Selected and Adopted
8. Implementation Initiated
9. Review, Evaluation, Reflection and Adaptation Carried Out

For each step, assumptions of best practice which are to be tested and validated are described below. These assumptions are in essence, a series of hypotheses based on

previous worldwide experience, on how the planning and implementation process should be carried out to achieve final outcomes of stable or improved quality of life of coastal peoples, and stable or improved condition of coastal resources. The project has not completed all of these steps yet, and will require at least another year before management plans are adopted and plan implementation begins. However, through an approach referred to as “early actions,” (designed to build support for the larger planning effort and test implementation procedures), some implementation activities which can be completed quickly and at low cost to address simple issues identified, are conducted while the longer term planning process progresses.

Communities Identified: A set of criteria are used that may predict rapid and easier attainment of sustainable use practices as well as building of the capacity of the community to assume responsibility for management (a priori factors which may enhance project and planning success). These criteria include:

- Degree of resource pressures or the vulnerability of the resources from unsustainable use practices (several CRM issues present at the site, resource degradation not too severe, issues not too numerous, over-exploitation not too severe)
- Social and political cohesion of the community (high)
- Community dependence on coastal resources for livelihoods (high)
- Community predisposition to resource conservation (high)
- Community interest in project goals and activities (high)

Communities Oriented and Prepared for the Planning Process: Initial efforts need to be made to describe and clarify project goals, process to be followed, and potential benefits to the community. Prolonged engagement in the community is necessary and fulfilled by placing a full time extension officer (outsider) at the site, and engaging a part time assistant/motivator from the community. These field staff must be supported by a technical assistance team which can provide specialized technical services as needed.

Baselines for Models and Replication Sites Conducted: Baselines of socio-economic and environmental conditions are necessary to determine ultimate outcomes of project interventions. Model and best practice testing and validation at pilot sites requires detailed surveys and analysis combining empirical and systematic techniques with participatory techniques, as well as use of control sites. Once a model or best practice is validated, replication to other areas will require a smaller set of indicators to be collected and monitored, with more emphasis placed on participatory and rapid assessment techniques, and less emphasis on systematic techniques.

Issues Identified: Issue identification is based on expert technical assessment through environmental and socio-economic surveys, as well as by the community through formal meetings, discussions with key informants, informal meetings and discussions with a wide range of community members and stakeholder groups, and direct observation carried out by the extension officer and community assistant.

#### Issues Validated and Prioritized

Empirical estimates of severity are made by technical teams. Perceptions of severity of issues and priorities for action are provided by the community through formal and informal meetings, discussions and workshops. Specific participatory monitoring is

initiated with the community where appropriate and depending on the issues (e.g. participatory coral reef mapping and monitoring using Manta Tow, beach profiling of erosion prone areas). Technical studies pertaining to specific issues can be carried out by outside researchers or experts when additional information is considered necessary for management planning and decision making. However, results of the studies and management recommendations must be shared with the community.

Management Options Developed: Options developed are a combination of technical suggestions and inputs from the technical team along with community generated ideas and recommendations. There must be widespread community commitment and approval before any action is implemented. Early actions to test implementation arrangements and procedures, and build support for the longer-term and more comprehensive planning are initiated by the community with or without project support (e.g. mangrove planting, well and latrine building/construction), or, are suggested by the project team and carried out after community approval (e.g. Crown-of-Thorns clean-ups, marine sanctuary establishment).

Management Options Selected and Adopted: The community decides the priorities among the issues, objectives for management, actions selected to achieve objectives, management structure and implementation arrangements. Extension officers and technical teams can add ideas and recommendations, but final decisions are the community's responsibility and prerogative. The process should strive for consensus and majority support, but if a minority is not supportive, this is all right as long as the minority will not try to actively sabotage the decision and actions to be carried out. The decisions making process must be transparent and fair so while some individuals or groups may not fully agree or be fully satisfied, they at least understand how decisions were reached and can live with the majority viewpoint. Final ordinances or plans must be formally approved by the village government and the village head.

Implementation Initiated: To the greatest extent possible, implementation actions are carried out by the community acting as the primary resource managers. Funding and technical support are provided by the project and or local/provincial government where considered necessary. Where certain actions cannot be carried out by the community alone (improvements in road infrastructure, drinking water supply development) they are forwarded to the appropriate level of government and to the agency concerned through an annual work planning process. Annual action plans are developed by the community and submitted to the village and higher levels of government through the normal bottom-up top-down development planning and budgeting procedures and meetings ("*Musbang*", "*Rakorbang*", etc).

Review, Evaluation, Reflection and Adaptation Carried Out: Annual reviews are conducted by the community with or without local government assistance and support. Reviews are conducted before the Government of Indonesia (GoI) budget planning cycle begins and are used as input for annual action planning.

## **Short-Term and Long-Term Goals in North Sulawesi**

The project design and life-of-project strategy is constantly evolving and has become more focused on specific community-based models to be tested based on initial experience and lessons learned in the first year of the project. Three specific models which are under development and being tested include the following:

- Community-based village-level marine sanctuaries
- Community-based village-level integrated coastal management plans
- Community based village-level ordinances and policies

While the short-term goal is to develop these models and document how they can be implemented effectively, the long-term goal is to promote such models as part of a provincial and/or national coastal management extension program where they can be replicated and adopted throughout the province and nation. Our vision of the future, perhaps 20 years from now, is one where every coastal village has a marine sanctuary, every coastal village has an integrated coastal management plan, and every coastal village can and is developing ordinances to deal with specific issues such as coastal tourism, erosion control and protection, etc.

The concept currently being discussed to achieve this vision is some form of a decentralized coastal management extension program. It is being proposed that such a program be a voluntary program similar to coastal management programs in the United States and similar to how the Philippine Local Government Code also provides for local authority over marine resources management. In such a program, coastal communities can choose to participate or not. While planning and decision making is done at the village level, technical support, training and facilitation of the planning process is provided by a lead government agency. The major responsibility for decision making and determining how the resources are to be managed would be delegated to local communities. However, communities would need to follow a set of broad guidelines and policies established by the program. For instance, in the development of a marine sanctuary, the area selected must be permanently closed to fishing and other extractive uses; the area selected must have a high level of live coral cover; and, a high level of community participation involving all key stakeholders must be ensured for developing the village ordinances to establish the sanctuary. The location of the sanctuary, size, allowable uses (diving, passage of boats on the surface), management committee structure, and penalties for violations, are decided by the community. The lead agency is responsible for ensuring plans and ordinances are developed and implemented within these parameters, but allowing a broad level of discretion by the community of how they are actually implemented. As an incentive to establishing marine sanctuaries, villages following these guidelines would then be eligible for implementation block grants.

### **The Role of the Extension Officer**

We believe that one of the most important factors to ensure a successful outcome is a high level of participation in the planning and implementation process. The extension officer in each of the field sites is critical to facilitating this process. The extension officer acts as the principal catalyst and coordinator of community-based activities by the project with technical support provided by the CRMP Manado Office, local consultants and local



government agencies. The extension officer must live in and work full time in the communities, and must also be well trained in a range of knowledge and skills including marine ecology, and community development. Significant investments are required to build the capacity of these officers. Field extension officers come into the Manado office on a monthly basis for work reporting and planning. In meeting with other field extension officers, peer problem solving and feed backing of work activities and plans occurs. In addition, senior extension staff mentor the field staff and provide periodic, incremental training activities to constantly build the capacity of the field extension team.

The field extension officers will not remain assigned in the communities forever. Hence over the long term, they will need to ensure that local institutions within the communities have the capacity to be the principle stewards and managers of local resources. Once plans are developed and approved, and the community has developed sufficient capacity, the extension officer will be withdrawn from full time assignment in the community. They will then start outreach and planning activities in neighboring coastal villages as well as documentation of lessons and approaches based on the results at the initial field sites. The full time assignment of the field extension officer will be for an estimated period of from one to three years, followed by part time visits for at least one year after their full time withdrawal.

Another important factor to consider is the length of time spent within the community. It is important that an exit strategy be developed so that communities do not become dependent on the extension officer. The communities must be empowered to manage on their own, and their capacity developed to sustain management independently or with minimum outside assistance beyond the initial planning intervention. Each community is different, and the pace of development of community capacity and completion of the planning process cannot be specifically determined in advance. Rather than placing time limits on when the planning process should be completed or extension officer withdrawn, a better approach is to look at what milestones and outcomes need to be reached before the intervention is considered completed and sustainable.

### **Marine Sanctuaries as the First Community-Based Coastal Management Model (Example of the Blongko Field Site)**

Adapting global experience to the Indonesian context of coastal resources management has been suggested by Dahuri *et al.*, (1996). The successful Apo Island marine sanctuary in the Philippines (White, 1989; Calumpong, 1993) is an example of one type of model which Proyek Pesisir is attempting to adapt and test in North Sulawesi. The purpose of a community-based marine sanctuary is twofold. First, it provides a biological function of biodiversity protection and serves as a protected spawning and nursery ground for marine organisms. Secondly, and particularly important to the local community, is the economic function of sustaining or increasing reef-related fish production, and in some cases, acting as a marine tourism destination for divers and snorkelers. Global experience on approaches to developing collaborative and community-based management of coral reefs (White *et al.*, 1994) is also a basis for the process being followed in the establishment and management of the first Indonesian community-based marine sanctuary in the village of Blongko. The specific steps in the process are as follows:

1. Community Socialization
2. Public Education and Capacity Building
3. Community Consultation and Village Ordinance Formulation
4. Village Ordinance Approval
5. Implementation

Community Socialization: This process started with the selection of Blongko as a field site, followed by the formal assignment of a full time extension officer to the site in October, 1997. The extension officer established a project office within the village office, and conducted a series of meetings and discussions with various social and religious groups to inform them about the project goals and process. During this initial period, the extension officer also prepared an ecological and human history of the community (Kasmidi, 1998) by interviewing elderly residents and other key informants about changes in population and settlement patterns, and changes in long-term conditions and use of coastal resources. This helped community members get to know the extension officer and visa versa and helped them obtain a better understanding of the management issues within the community. Through this process the villagers also provided a historical perspective of how the present state of the environment and community had come about. In addition, a technical team conducted initial baseline surveys of the reefs and mangroves in the village, and the extension officer initiated a systematic socioeconomic survey of the community to document baseline conditions.

Public Education and Capacity Building: The idea of making six hectares of the coast containing a fringing coral reef and mangrove forest into a marine sanctuary came about after a representative of Blongko village visited the marine sanctuary at Apo Island in the Philippines. This was followed by a reciprocal visit by the Apo Island Barangay Captain and member of the women's cooperative to observe Blongko and exchange ideas. The *Kepala Desa* (head of the village) in Blongko and the community quickly understood the Apo Island group's description of how their community-driven marine sanctuary effort was developed and implemented. The extension officer held numerous public education events on marine and coral reef ecology and the marine sanctuary concept. Training was also conducted on coral reef mapping and monitoring. This information was then incorporated into the marine sanctuary planning process (see community consultation section below). Realizing the potential benefits of increased fish production from a sanctuary, and the value of the local fishery to their community in supporting the livelihoods of future generations, the community engaged in efforts with Proyek Pesisir staff to identify a proper site, and to develop a local ordinance to regulate the proposed protected area. Within a few months, the community fully supported the marine sanctuary concept. This was a major milestone in the process of establishing the marine sanctuary.

As part of developing the community capacity to manage a marine sanctuary, a grant program was created as part of the project strategy. Communities could prepare simple two to three page proposals for funding grants provided by the project to address simple coastal management issues which did not require large sums of money or a long duration to complete. The objective behind these "early actions" was to help build support for the marine sanctuary planning effort, and test implementation strategies. Proposals were approved if they followed the procedures and met established criteria which include public participation in the proposal development, widespread community support for the

proposal, and community contributions (labor, materials or partial financing). These early actions in Blongko and other communities have typically been small scale, only several hundred dollars, and have been for actions such as construction of latrines and wells in Blongko, construction of a community meeting and information center, mangrove replanting, and small scale drinking water supply development. Blongko is currently preparing proposals for installation of signboards and sanctuary boundary markers. Community groups who implement the grants are trained in simple accounting and financial reporting procedures, and are required to submit a finance report and technical report upon completion of the grant project. Expenditure reports are posted in the village office for full public disclosure and accounting books are open to public review by anyone in the community. The early action program was instrumental in developing trust with the community, and demonstrating the project desire to listen to community needs, and commitment to move to action, not just talk and plan. The extension officer at the field site has remarked that by helping to address concrete needs of the community as seen from their perspective, they became more willing to listen to project ideas concerning the establishment and management of a marine sanctuary.

Community Consultation and Village Ordinance Formulation: After the extension officer conducted a series of formal and informal meetings and small group discussions, an ordinance was drafted by a local legal consultant based on inputs provided by the community. Additional meetings were held to discuss the draft ordinance and modify the contents. One stakeholder group - reef gleaners - never attended the formal meetings, but it was proposed that no walking over the reef flat would be allowed, which would impact their ability to reach gleaning areas on the other side of the sanctuary. The extension officer had to make special efforts to meet with gleaners informally and discuss this proposed prohibition. After much discussion, the gleaners agreed with this proposal as they had an alternative trail behind the mangroves they could use with minimal inconvenience to reach the other side of the sanctuary.

Site selection was also another area of important discussion and decision making. A series of three community training programs on coral reef monitoring and mapping using the Manta Tow technique were conducted where the community themselves mapped the coral condition along their community. Fraser, *et al.*, (1998) showed that the community generated data was not statistically different from professionally collected data. This map was used as the basis of discussion for selecting the actual marine sanctuary site. The area recommended by the technical team was on a far point which had the best coral cover and fish abundance. The community however rejected this location as it was often visited by bomb fishers from outside the community and was typically a resting location for fishers returning from offshore fishing trips. Other alternatives were considered. A spot in front of the village was proposed, but this area had tidal fishponds (locally called “*bonor*” and constructed from coral rock) on the reef flat. The technical team was concerned this might have a negative impact on the sanctuary concept. Finally a third site was selected with moderately good coral cover and within sight of the village.

The technical team recommended that the marine sanctuary only consist of a core zone as a way of keeping management and the language in the ordinance simple. However, the community was concerned that light boats used for night fishing of anchovies, if fishing too close to the sanctuary, would attract small fish out of the sanctuary, thereby having a negative impact on it's function. Therefore, the community decided to include a buffer

zone around the sanctuary which prohibited the use of light boats within 100 meters of the core zone boundary. This is one of several cases where the community decided on a stricter set of regulations than was recommended by the technical team.

An especially interesting event occurred which helped reinforce the marine sanctuary concept among the fishers in the village. One Blongko fisher was out at a fish aggregating device approximately three hours from shore when he met a Philippine fishing boat. One of the Filipinos spoke Indonesian and they started a conversation about fishing. The Blongko fisher mentioned the marine sanctuary concept being proposed and the visit of Apo Island residents to their community. The Filipino fisher from General Santos City was aware of the success of the Apo Island marine sanctuary and encouraged the Blongko fisher to support the establishment of the sanctuary in his village. The Blongko fisher previously was willing to go along with the sanctuary concept, but after this chance meeting at sea, became a strong supporter and advocate of the sanctuary.

Village Ordinance Approval: Final community approval of the ordinance took place at an all-village meeting called specifically for this purpose in September, 1998. Copies of the final ordinance were made and distributed to every household in the village prior to the meeting. The final ordinance contains sections detailing the following:

- Legal basis that supports the establishment of a community-based marine sanctuary and the goals of a marine sanctuary.
- Location of the marine sanctuary.
- Responsibilities of the management group and community in sanctuary management.
- Allowable activities in the marine sanctuary and buffer zone.
- Prohibited activities in the marine sanctuary and buffer zone.
- Penalties for violations.
- Attached map of the marine sanctuary location.

The approved village ordinance is being submitted to district and regent officials for their concurrence and toward gaining additional strength and support for implementation and enforcement. Provincial, Regency, and District officials have been kept informed concerning the sanctuary development throughout the process. High level delegations from Provincial and National agencies have also visited Blongko and expressed their support and encouragement in promoting the sanctuary concept and continuing this initial experiment in Blongko. The entire process, from the initial assignment of the extension officer at the field site to ordinance approval, has taken one year.

Implementation: Even before the village ordinance was completed, initial implementation activities were started and being planned. Already an information/meeting center is under construction; placement of boundary markers is underway; information signs are being created; a management committee has been formed; and a community group has been trained to monitor coral condition using the Manta Tow technique. A management group is in the early stages of formulating a management plan for the marine sanctuary.

## **The Blongko Marine Sanctuary as Part of a Broader Picture**

The community-based marine sanctuary in Blongko (6 hectare core reef zone) is small in comparison to large scale marine protected areas such as Bunaken National Park in North Sulawesi (1,300 hectare core reef zone). One small marine sanctuary in Blongko may not add up to much, but if this can be viewed as a model and replicated widely in other coastal villages in North Sulawesi (517 coastal villages) it can be a significant addition to the amount of reef area under protection, and ultimately all will add up to a greater area than the national marine park. Unlike land based parks, the small size of these marine sanctuaries does not create a problem of habitat fragmentation. Habitat fragmentation is not a major concern for marine biodiversity protection primarily due to the fact that approximately 80 percent of marine organisms have planktonic larval stages (Hinga, 1998).

Small scale community-based marine sanctuaries are not meant as an alternative to large scale national parks but are meant to complement and support larger protected areas. The Blongko marine sanctuary is miniscule in a global context, but it is extremely important as a model for replication and adoption in a nation that contains approximately 20 percent of the worlds coral reefs and contains the highest marine biodiversity in the world. Imagine if all of the 6000 coastal villages in Indonesia had a marine sanctuary of approximately 10 hectares in size. The total marine area under protection in Indonesia could increase dramatically, and nearshore reef-related fish production on which close to 2 million small-scale fishers depend, could also be significantly enhanced.

Promoting community-based marine sanctuaries also gives chances for the communities to take a more active role in and responsibility for protecting and sustainably utilizing marine resources. By promoting the community based marine sanctuary, Blongko's residents now have a more active role in and responsibility for protecting and sustaining marine resources which directly affect their day-to-day lives. Resource users in Blongko are being transformed into resource managers. The community-based marine sanctuary as a decentralized program adopted widely throughout the province and nation could also have positive financial implications over time. With national budgets for park management being cut due to the national economic crisis, this becomes an attractive and less-costly long-term means of marine ecosystem and biodiversity protection as the majority of costs - like the benefits - can be internalized within the community rather than in the national budget.

## **CONCLUSIONS**

Coastal communities can play a larger role in coastal resources management than has previously been acknowledged in Indonesia. If communities are well trained and empowered, they can be transformed from coastal resource users into coastal resource managers, both from the perspectives of the communities and of local government. Preliminary experience in North Sulawesi has demonstrated that coastal communities can manage funds for implementation actions in a highly responsible and transparent manner, conduct accurate monitoring of coral reef conditions, commit to protecting community-based village-level marine sanctuaries and adjacent reefs from destructive activities, and

switch away from unsustainable use practices. Local resource users can become local resource managers.

Well trained and experienced extension workers are critical for success. They need to be placed full time in the local communities. They need to be backed by well-trained coastal management professionals with community development and organizing experience and be backed by technical support in areas such as marine biology, fisheries, etc.

Emphasis on capacity building is extremely important, and it must be targeted to develop the capacity of project staff and local partner institutions as well as the community at the project sites. This is best done at the pace of the local clients and project recipients, and conducted incrementally. Skills and knowledge development must be separated into small packets (training sessions of from one half day to no more than one week at a time), and opportunities must be provided to practice new skills and apply new knowledge before new training programs are conducted. Mentoring by experienced and more senior staff is also required to reinforce skills and knowledge introduced in formal and informal training sessions. On-the-job learning needs to occur and requires structuring time for reflection and lesson drawing. Only when new knowledge and skills, and new ways of conducting business become normal behaviors of individuals and their institutions, has capacity building truly been achieved.

Community-based approaches take considerable time to implement and must move at the pace of the local communities and partners, not at the pace of project implementers and sponsors if they are to become truly sustainable. Attempts to scale up or replicate results in other communities too quickly in an effort to show large areas of marine space are under improved management (as is often desired or required by donors and funders) typically means shortchanging the public participation and capacity building process. While this may show cost effective and rapid gains on paper, it will increase the probability of a lack of sustainability of the initiatives over the long term, and may result in a loss of the initial capital investment once the project is completed. Sustainability needs to be built in from the beginning of the project, not at the end. Progress needs to be based on achieving specific outcomes at each stage of the capacity development and local planning process. Developing a solid foundation at each stage first needs to be a priority before movement to the next stage begins. Quality needs to be given equal weight to quantity when tallying outcomes.

The development of community-based models for coastal management is considered a critical milestone for the project and in and of itself will be a significant contribution to developing effective coastal management strategies for Indonesia. However, we do not believe the project will be a success unless these models are well documented, disseminated and adopted more widely throughout the country. Documentation of the approaches and methods used which clearly demonstrates a linkage to improved governance, quality of life and resource conditions is essential if persuasive arguments are to be made for changes in provincial and national policies, guidelines and programs which can promote more widespread adoption of the models. High level support for the project within the province and at the national level has been instrumental in providing a window of opportunity which allows some risk taking in trying and testing new approaches.

An evolutionary and adaptive approach to project design and implementation is essential, particularly given the developmental nature of the program. Project staff and local partners are all learning incrementally as we go through project implementation and are incorporating lessons learned into subsequent work activities and project strategies. The project is not doggedly following a blueprint provided at the start of the project which has no flexibility for changes over its duration.

An adaptive management strategy is crucial for the development of sustainable coastal management programs in Indonesia. Indonesia is at the bottom of the steep sigmoid learning curve, where institutional mechanisms and successful models are in the early phases of development, and skilled community-based coastal management practitioners are much in demand, but still hard to find. The developmental nature of the Proyek Pesisir design requires a long-term perspective before substantive and tangible results can be readily seen, particularly beyond just the few small village sites. This does not mean we do not have a road map, just that the specific route to reach our destination has not yet been fully determined. An adaptive and incremental approach to integrated coastal management is considered essential for program success (Olsen, 1993; Pernetta and Elder, 1993). The project offers a significant opportunity to make a lasting contribution to coastal management in Indonesia, by providing a few small building blocks of a foundation for larger and more widescale efforts which are needed in a country this large, with so many people, and with so much valuable marine and coastal resources.

## **ACKNOWLEDGEMENTS**

The authors gratefully acknowledge the contribution of the Proyek Pesisir team and Government of Indonesia counterpart agencies for contributions to the development of concepts and field work outlined in this paper. In addition, we wish to thank the US Agency for International Development for providing funding support for the field work described in this paper. We also would like to thank Peter Riggs from the Rockefeller Brothers Fund and the Organizing Committee for funding our participation at the Convention of Integrated Coastal Management Practitioners in the Philippines. The opinions and views expressed in this paper are those of the authors, and do not necessarily reflect the views or policies of the University of Rhode Island, the United States Agency for International Development, or the Government of Indonesia.

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