

**Fostering Marine Conservation in Indonesia:  
Developing Capacity to Implement  
Community-Based Marine Sanctuaries**

**Final Report  
(October 1999 –April 2003)**

*Implemented by*

**Coastal Resources Center  
University of Rhode Island**

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## 1. Introduction

The Coastal Resources Center at the University of Rhode Island was awarded a three-year grant (\$368,230) in September 1999 by The David and Lucile Packard Foundation's Western Pacific Conservation Program to foster marine conservation in Indonesia. The activities funded under this grant were completed at the end of April 2003. This report summarizes the activities undertaken during the three-year grant period and the resulting outcomes.

The project goal was to develop local institutional capacity to implement community-based marine sanctuaries in North Sulawesi province of Indonesia. This province is at the global center of marine bio-diversity and its marine resources are still in good condition. However, this resource wealth is under threat from a variety of unsustainable human activities. The Foundation supported work built on the initiatives started through the USAID-funded coastal resources management project locally known as *Proyek Pesisir*. In North Sulawesi, *Proyek Pesisir* has successfully developed models of community-based management in four villages in the Minahasa Regency of North Sulawesi Province. The current challenge is to build on these pilot examples and set in place institutional infrastructure and capacity whereby they can be replicated in additional coastal villages throughout the province. This process of institutionalization and replication based on pilot site experience is referred to as "scaling-up". The Coastal Resources Center has catalyzed scaling-up with the combined financial support of USAID and The David and Lucile Packard Foundation.

The objectives of the marine sanctuaries project grant were to:

1. Document methodologies and develop materials for use in widespread adaptation of community-based marine sanctuary technology to specific local site conditions.
2. Build the capacity of local institutions in North Sulawesi to replicate models of successful community-based marine sanctuaries by developing human resource capacity and providing supporting resource materials.
- 3) Replicate small-scale, community-based marine sanctuaries in selected North Sulawesi communities through on-going programs of local institutions.

First year activities concentrated on the first objective – documentation of methodologies and lessons learned. A large portion of this work took place in the Philippines where hundreds of community-based marine sanctuaries have been established over the last two decades. In the second year, activities have concentrated on capacity building activities in North Sulawesi province and the development of extension, training and outreach materials to support replication initiatives. The final 18-month period concentrated on materials development, capacity development and the last objective – replication of community-based marine sanctuaries. This report provides an overview of progress with special emphasis on the grant's final 18-month period of the project from October 2001 to April 2003. However, activities and lessons learned from the previous two years that have been documented in previous interim reports are also described here so that this report provides a comprehensive picture of the activities and results over the entire life of the project. This report is structured following the organization of the original proposal.

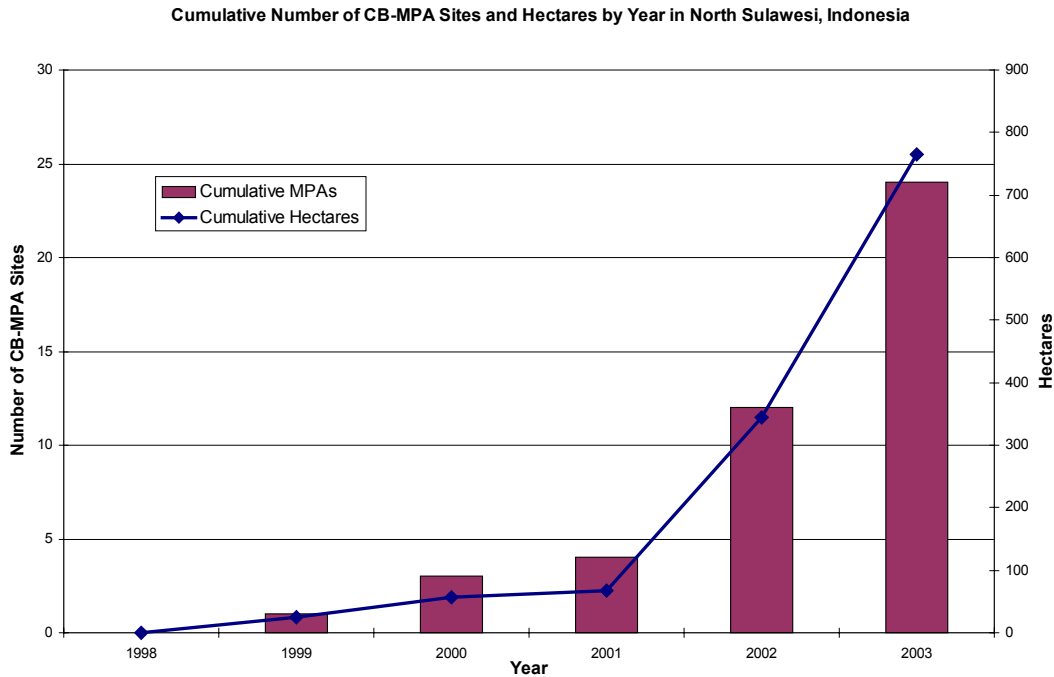
## 1.1 The Project Contribution to Marine Conservation

The long-term intent of the project is to conserve and protect coral reefs in the North Sulawesi region while sustaining viable livelihoods for resource dependant coastal communities. The project aims at developing the institutional foundations and preconditions necessary for conservation to occur in multiple North Sulawesi locations. There are over 500 coastal villages in North Sulawesi province and we have estimated that if each were to develop a small-scale community-based marine sanctuary, approximately 5,000 hectares of coral reef can be put under effective protection. This is approximately twice the reef area currently under protection in Bunaken National Park. Ultimately, a substantial area of coral reefs can be protected through community-based efforts, but only if a substantial number of communities embrace locally managed conservation initiatives. Community-based marine sanctuaries are one of the ways in which this can occur. While communities are often more interested in marine sanctuaries as a means of sustaining and enhancing fisheries production, community managed no-take areas in the heart of the geographic zone for global marine biodiversity will have benefits for marine conservation as well. The project strategy for contributing to biodiversity conservation has been to foster development of on-going local initiatives that assist communities to establish community-based marine sanctuaries. A side benefit is that activities designed to promote marine sanctuaries teach communities to appreciate the value of maintaining healthy marine environments for their own well being. Therefore these communities are more likely to ADOPT new attitudes and change resource use practices that are less destructive and more sustainable. The expectation is that communities will not only protect the no-take zones, but also use more sustainable and less destructive practices in areas surrounding these zones.

Major threats to coral reefs in the North Sulawesi region include destructive fishing (bombs and cyanide), coral mining, over-fishing and dive tourism. The process of developing institutional capacity in local organizations, as well as within communities where community-based marine sanctuaries are established can be expected to reduce these threats by creating a greater conservation ethic among resource users as well as among institutions with management responsibility. In North Sulawesi, there are encouraging signs that such changes in attitudes and behaviors are taking hold. There are ongoing news reports of increasing numbers of arrests of bomb and cyanide fishers in Bunaken National Park and in communities located in the southern section of the park. In Blongko village (site of the first community-based marine sanctuary) the community has been demanding greater enforcement actions by local authorities. Sea Patrols with local police have taken place to counter threats by outside bomb fishers. In Tumbak village, an article in Newsweek International reported that past bomb fishers are protecting a sanctuary (the third established in North Sulawesi) located just in front of their village.

An exciting development was the enactment of a Minahasa District law that creates a formal community-based coastal resources management program. The law was passed in July 2002 and gives authority to coastal villages to enact coastal management ordinances including establishment of community-based marine sanctuaries. The law also provides mechanisms for the formal recognition of traditional management practices. North Sulawesi Province has also passed a coastal resources management law in May of 2003 that further strengthens community conservation initiatives. Hence, a strong legal framework that provides unambiguous legitimacy for community control and management of local resources is now in place.

Another encouraging trend is the substantial increase in the number of formally established community-based marine sanctuaries in North Sulawesi (see figure below). Most of this growth is due to the Foundation supported activities undertaken in two Likupang sub-districts of the Minahasa Regency. There are now 24 community-based marine sanctuaries located in 20 villages in the Minahasa district (see figure below) that have placed a total of 765 hectares of coral reef and mangrove forests under protection (533 hectares of core no-take zones and 212 hectares of buffer zones). A detailed inventory is provided in Appendix I.



There are still many challenges to sustaining the growth in the number of community sanctuaries and sustaining those that currently exist. For instance, in Lembeh Strait, local government is becoming more receptive to the concept of conservation areas developed with local communities. However, there are increasing conflicts between villagers and the expanding dive industry that will complicate planning. Additionally, while the Minahasa local government has passed an ordinance that legitimizes community-based marine sanctuaries and designates a lead agency to assist villages with their establishment and management, funding from the local legislature remains quite small. Current levels are probably too small to expand activities to other communities while providing a minimal level of on-going support to those that have already been established. However, it is an encouraging start.

## 2. Programmatic Activities

First year activities emphasized documentation of experience and lessons learned with respect to community-based marine sanctuaries in the Philippines as well as limited capacity building activities for local institutions in North Sulawesi. The second year targeted development of materials along with on-gong strengthening and capacity building for local institutions in North

Sulawesi. The third year concentrated on continuing capacity building and institutionalization, a major effort to support marine sanctuary development in an additional 25 villages, and development of supporting guides and training materials. The following section details the activities and accomplishments by major activity area as detailed in the proposal. A list of spin-off publications and international presentations is provided in Appendix II.

## **2.1 Documentation of Experience and Lessons Learned**

### **2.1.1 Documentation and of Analysis of Community-Based Marine Sanctuaries in the Philippines**

Documentation and analysis of Philippine experience consisted of two major activities in Year 1: a series of focus group meetings followed by empirical field research. This work was unique in several ways. First, it combined both qualitative and quantitative research methods for lesson drawing, complementing and expanding on the case study approach typical of past efforts. Secondly, the comparative quantitative research moved beyond the anecdotal approach inherent in the case study method by empirically verifying expert opinion. In some cases, the field research indicated that some assumptions of experts, such as the need for a full time field worker in the village might not be necessary for success.

- *Implementation of four, one-day focus group meetings with 54 experts in community-based coastal resources management in the Philippines.* These meetings were formally convened by PCAMRD (Philippine Council for Aquatic and Marine Research and Development) and conducted in January 2000. The University of the Philippines, CRMP-Philippines and Silliman University assisted in planning and hosting these events. The purpose of these events was to discuss and summarize experience and lessons learned with respect to the establishment, implementation, promotion and widespread replication of community-based marine sanctuaries in the Philippines. Over 500 copies of this report have been distributed in the Philippines, Indonesia, and internationally, and the report is available on-line in PDF format at <[http://crc.uri.edu/comm/asia\\_pubs.html](http://crc.uri.edu/comm/asia_pubs.html)>.
- *Implementation of field research in 45 community-based marine sanctuary sites in the Philippines to validate factors considered by the focus group participants to contribute to success.* The field research was conducted in the February through March period of 2000. Several field assistants from Silliman University participated in this work. Silliman University, CRMP-Philippines and the Leyte State University all provided support to and cooperation with this effort. Preliminary analysis of the field data collected was written up as a technical report. Over 500 copies were distributed widely in the Philippines, Indonesia and internationally. The CRC-PCAMRD technical report is available on-line in PDF format at <[http://crc.uri.edu/comm/asia\\_pubs.html](http://crc.uri.edu/comm/asia_pubs.html)>. A version of this report was published in the Journal of Ocean and Coastal Management (Volume 44, Issue 7, Discovering Factors that Influence the Success of Community-based Marine Protected Areas in the Visayas, Philippines, by R.B. Pollnac, B.R. Crawford, and M.L.G. Gorospe. An on-line copy is available at: <<http://www.sciencedirect.com/science/journals>>). The research results were presented at several conferences meetings including: the August 2000 Iloilo workshop on cross-portfolio learning co-sponsored by The David and Lucile Packard Foundation, at the

Philippines-Indonesia Regional Workshop held in September 2000, and again at the International Coral Reef Symposium held in Bali Indonesia in October 2000. Additional analysis of the data has been made and the results disseminated in presentations at: the 10<sup>th</sup> Pacific Science Inter-Congress, held in Guam in June 2001, the Munson Distinguished Lecture Series at Yale University in September 2001, and at the American Museum of Natural History Marine Conservation Symposium in March 2002 in New York City. Another analysis of the data will be published in a collection of case studies by the World Resources Institute this year (Multiple component assessment of coral reef marine protected areas. In: World Resources Institute, Ed. *Coastal Protection for and by the People of the Indo-Pacific: Learning from 13 Case Studies*. Washington DC: World Resources Institute).

The publications resulting from the above mentioned activities continue to be in high demand and reprints are still being distributed by CRC.

### **2.1.2 Elaboration of the Community-Based Marine Sanctuary Model**

- *Implementation of a regional workshop between the Philippines and Indonesia with a group of 40 community-based coastal management practitioners.* This workshop was conducted in September 2000 and was jointly coordinated by PCAMRD, CRMP-Philippines, and the CRC's North Sulawesi field office for CRMP-Indonesia. The purpose of this workshop was to share experience and lessons learned between the two countries as well as discuss ways to improve success rates and promote more widespread replication of community-based marine sanctuaries. The workshop also elaborated on guidance to be provided to field workers and program managers, and commented on a draft table of contents for a guidebook on community-based marine sanctuaries. The proceedings of the workshop were printed in 2001 and 500 copies distributed in the Philippines, Indonesia and globally. The publication is also available on-line in PDF format at <[http://crc.uri.edu/comm/asia\\_pubs.html](http://crc.uri.edu/comm/asia_pubs.html)>.

### **2.1.3 Building Local Capacity for Community-Based Marine Sanctuaries in Indonesia**

In Indonesia, first year work focused primarily on preparing the North Sulawesi individuals and institutions to benefit from the experience in the Philippines. In addition, funds were provided to a local agency (BAPPEDA) to start experimenting with on-the-ground extension activities on their own. Specific activities are described below.

- *English training for representatives of the Minahasa Regency Task Force for Natural Resources Management so they could be better prepared to contribute to and benefit from the regional workshop and other outside experience.* Originally we had planned for two individuals to participate in English language training. However, by conducting the training locally in Manado, we were able to have 13 participants from the Minahasa Regency Coastal Resources Management Task Force participate in an intensive language program. This course was conducted immediately prior to their participation in the regional workshop conducted in September 2000 and course curriculum was directly related to community based marine sanctuary topics.

- *On-the-job training in the Philippines at the Negros Oriental Provincial Natural Resources Management Office for two individuals from the Regional Development Planning Boards of North Sulawesi Province and the Minahasa Regency.* We originally planned to have only one person participate in this activity but were able to stretch the budget to allow for two persons to participate in 2000. These individuals also undertook enhanced English language training prior to their participation in the on-the-job training. The individuals shadowed the Negros Oriental provincial staff during their routine duties of providing advisory services to local municipalities. They were able to visit approximately a dozen locations where marine sanctuaries have been established and talk to mayors, municipal planners and communities about their experience.
- *Provision of a block grant to the Regional Development Planning Board (BAPPEDA) of North Sulawesi province to experiment with and start replication of community-based marine sanctuaries at new sites.* An agreement was negotiated with BAPPEDA and a \$5,000 grant provided to start replication of a community-based marine sanctuary in another location. BAPPEDA selected Lembeh Strait as the general area for this initial replication and went through a process of selecting a community to start replication. Factors found to be significantly correlated with community-based marine sanctuary success from the Philippine field work and focus group activities were incorporated into a community selection process. The village of Makawidei was initially selected as a target site. Lembeh Strait is a small area but an important dive tourism destination (especially for macro-photography). Dive tourism is increasing rapidly at popular dive sites and conflicts have arisen with local fishers and communities. In one incident, villagers threw rocks on top of divers who were occupying a dive site also used for fishing. Lembeh Strait provides an opportunity to develop a community-based marine sanctuary example in an area where direct benefits from dive tourism (from dive fees and provision of other services such as sale of handicrafts, meals and refreshments, etc.) can be achieved. However, communities adjacent to these local dive sites have not yet realized any direct benefits from the existing dive tourism along their coast. The situation in Lembeh has become increasingly complicated with additional conservation groups taking an interest in developing the area as a conservation zone, including WWF and the USAID Natural Resources Management Project implemented by EPIQ. Due to the engagement of these other groups, we stopped activities in Lembeh Strait and are allowing these other groups to take the lead as they have more resources to apply to this situation. Lessons learned from our activities in Lembeh Strait are described later in this report.
- *Participation of Indonesian representatives in the Philippine focus group events.* Two North Sulawesi project staff members participated in the focus group discussions held in Cebu and Dumaguete City in January 2000. They also visited several successful community-based marine sanctuary sites in the Visayan region. Originally, we planned to have one North Sulawesi project staff member participate in the Philippine field research. However, this individual could not take several months away from his work responsibilities in North Sulawesi. Hence, we substituted participation in the focus group events to achieve our objective of having North Sulawesi staff better understand the Philippine experience.

On assessment of progress and needs at the end of Year1, we changed the order in which some of the planned activities were carried out in the second and third years of the project. We



originally had a main emphasis planned in the proposal on developing training and extension materials with limited capacity building and training activities in Year 2. However, we felt that undertaking several capacity building initiatives were warranted while simultaneously working on the extension support materials in Year 2. Year 3 activities included continuing development of materials not completed in Year 2 along with continued capacity building and program institutionalization. These activities are described below.

## **2.2 Development of Materials to Support Replication**

### **2.2.1 Targeting Replication**

A database of coastal communities in Minahasa was developed by CRITC (Coral Reef Information and Training Center at UNSRAT). An electronic copy of the database and a hard copy summary in the form of a technical report were produced. From 132 coastal villages in Minahasa Regency only 33 villages have information about their environmental coastal resources. Out of these 33 villages, only 12 have complete detailed data on all ecosystems such as mangroves, coral reefs, and sea grasses. This database was used as part of the rapid assessment of the Likupang Sub-District (secondary data review prior to fieldwork) of the Minahasa District and where the Project started scaling-up activities in 24 villages in 2002. Socioeconomic and environmental surveys were conducted in Likupang coastal villages to establish a baseline prior to the start of scaling-up activities. This information was incorporated into simple village coastal issue profiles developed by community core groups and community organizers in 16 villages. This issue identification process started the planning process for marine and mangrove sanctuary establishment as well as the basis for development of village integrated coastal management plans. One hundred copies of each village profile was produced in a simple format and distributed in the village, and to Kecamatan, and Minahasa Regency governments.

### **2.2.2 A Guide to Establishing Community-Based Marine Sanctuaries**

Substantial progress was made on writing the guide in Year 2 and a final version was produced in Year 3. We used a more extended process to develop this guide than initially anticipated. First, an international intern conducted a needs assessment among potential guidebook users both at the national and local level, including government officers, NGOs and university representatives. This needs assessment was used to revise the working outline developed previously. Johnnes Tulungen then traveled to URI for a writing workshop on this guide earlier in the year. However, he developed Dengue Hemorrhagic Fever on the plane and was immediately hospitalized on arrival in Rhode Island. Minor progress was made after his recovery, but this set us back somewhat on the timeline for document production. Brian Crawford and Tom Bayer helped produce some sections of the book. We went through an extensive process of developing a set of figures to complement the text developed. These figures help to graphically illustrate concepts of overfishing and the ecological theory behind marine sanctuaries and no-take zones. They have been used for training purposes as well. The Manado team conducted a writer's workshop to translate a few sections that were drafted in English, finalize the remaining sections of the guidebook and provide internal peer review of the complete document. In Year 3, the final draft underwent external peer review as well as review by staff at

the Ministry of Marine Affairs and Fisheries. The guide was printed in cooperation with the Ministry of Marine Affairs and Fisheries (providing an additional degree of national endorsement for CB-MPAs) and 2500 copies have been distributed throughout the country. The guide has also been used for training activities conducted in Likupang Sub-District and as a basis of the curriculum and structure of the marine sanctuaries outreach course held in March 2003.

### **2.2.3 Developing Public Education Materials**

A number of public education materials have been developed and are described below. These materials target local government officers, field workers and village management groups and coastal resource users. They have been utilized in conjunction with several guidebooks as the basis for local training, outreach and public education events in the Likupang Sub-Districts in support of the scaling-up activities in 24 coastal villages. The Likupang scaling-up sites have been our experimental area for testing draft materials prior to final production, ensuring that they are relevant and understandable by the target audiences.

- *Two posters* were developed on Marine Sanctuaries that target local government officials and community members. These posters complement two posters also developed on coral reefs and mangroves (printed with USAID funds) – all using local North Sulawesi dialect. The process of development of these posters took longer than anticipated. Posters were field tested in several communities to make sure that the messages and language used in them could be understood by a sample of the target group. After field testing, revisions were made and final drafts were sent to Jakarta for final layout and printing. Rather than develop this poster only for local use, by local government, we were able to get endorsement of the posters by the Ministry of Marine Affairs and Fisheries (Departemen Kelautan dan Perikanan - DKP). In addition to the Minahasa local government logo, the DKP logo and address also appears on the posters. 500 copies each of each poster was printed and distributed to every coastal village in North Sulawesi. Additional copies were provided to DKP for national distribution. Due to high demand, 5000 reprints have been made and distributed.
- *Calendar posters* of the three marine sanctuaries (Blongko, Talise and Tumbak) showing the sanctuary boundaries and ordinance rules of allowable and unallowable activities inside and surrounding the marine sanctuary were developed and printed (500 copies of each). The posters were distributed in each respective village as well as in surrounding villages so that neighboring fishers would be aware of the rules and to reduce violations from non-residents.
- *Four Fact Sheets* (Marine Sanctuary, Coral Reef Ecosystem, Manta Tow Monitoring and Crown-of-Thorns) were also produced using the same process as for the posters. These were printed in Year 3 and used for training and extension activities in the replication sites in Likupang sub-districts. 3000 copies of each fact sheet have been distributed.
- *3000 copies of a bookmark on mangroves* were also produced and distributed in Likupang and outside Likupang for public awareness.
- *The Coral Reef Monitoring Guide* developed in the Philippines was translated into Indonesian and field tested in local field sites prior to printing in Year 3. 500 copies have been printed and distributed. Rather than printing this guidebook in Jakarta, North Sulawesi

staff undertook all aspects production from layout through printing and distribution. This demonstrates a capacity to develop quality publications locally without dependence on Jakarta-based support services.

- *Public Information* about marine sanctuaries (e.g. posters) along with other conservation posters, fact sheets, and pictures were framed, distributed and exhibited in two four star hotels in Manado, pilot site community information centers, Sub-District Offices in Belang, Likupang and Tenga, BAPEDAL Minahasa, BAPPEDA Minahasa, Fisheries and Marine Affairs Office of Minahasa, the Governor's and Minahasa Regent's Office, and other North Sulawesi offices. The frames and photos also have been use in several provincial and national exhibits in 2001 and 2002. Recently, there have also been several recent full page articles on co-management and marine conservation in the national and local North Sulawesi press featuring community-based examples in Likupang and Blongko as well as in Bunaken National Park.
- *Three 30 minute TV shows on Community-Based Marine Sanctuaries* was produced and shown on the local TVRI program entitled "Laut Ku, Cinta Ku" (My Sea, My Love) that reaches an audience of several million people in North Sulawesi. Copies of this program were made and used in community and outreach training events. While we originally considered producing a separate video, the quality of this video was sufficiently good so that copies can be used as an educational and training aide. In addition, three talk shows (30 minutes) on marine sanctuaries, the process on CB-CRM law development and CB-CRM law approval were conducted. National figures (Mr. Sarwono Kusumaatmadja, Mr. Widi Pratikto), provincial government officials (Bapelitbang) and DPRD members discussed these topics in a panel format.
- *One-hour radio talk shows* also have been used as media for public education and awareness programs. Five radio stations (one government public radio and four private radio stations) aired discussions concerning the Likupang CB-CRM program. Three talk shows were also held on public radio, and two talk shows on private radio stations, covering the Minahasa, Manado and Bitung area. Radio shows are a good choice for public education and awareness due to the fact that radio is widely listened to by coastal communities and especially *fishermen* compared to TV and newspapers. Radio can also reach isolated coastal villages where there is no electricity.
- *One (6 x 4 meters) billboard* was placed in Likupang in cooperation with an NGO's Network for CB-CRM and 2 – 4 billboards (1.5 x 3 Meter) on mangrove and marine sanctuaries were installed in 13 villages in Likupang that show the boundary and rules of sanctuaries developed.
- *Two Songs* for a public awareness campaign were written and taught to school children in each elementary school in Likupang as well as to community volunteers (CO). These songs were sung at each of public education and workshop events in Likupang. These songs were also used in TV and radio shows.

- *A puppet show* was developed for public education targeted specifically for children and adults. More than 125 shows were performed in public education activities in Likupang. The puppet show is presented by local school children trained by project staff and performed live in front of community audiences. The script uses local dialect and can be changed according to local issues. Local NGOs have also used the puppet show in their public awareness program and campaigns in Bunaken National Park. Religious organizations in Likupang have also used the puppet show in their environmental education programs in Likupang.
- *Religious speeches* were prepared that focused on environmental protection and awareness. They were distributed to religious leaders of Churches and Mosques and used in their community religious gatherings. The speeches have also been used in radio programs. Content focused on CRM and MPAs and the importance of protecting the coastal and marine environment. Quotes from the Bible and Koran that support environmental protection were incorporated into the materials.
- *A series of CB-CRM training modules* were developed to support the scaling-up program in Likupang and to train Community Organizers (CO) as trainers for the community. The training modules were developed on the following topics: facilitation techniques, conflict resolution, governance strengthening, community based CRM, village ordinance development, mangrove monitoring, proposal development and public education curriculum development.

#### **2.2.4 Training of Trainers**

Two individuals were trained in how to develop and implement adult training and extension programs. This was a skills development program in adult training, rather than a training program in coastal management. The premise is that replication will require the implementation of a large amount of training courses and workshops for coastal community members. Hence, in addition to the CRM technical skills staff have acquired, they developed an additional set of trainer skills to complement their technical expertise. This is important as their roles change from field extension implementers and become senior level supervising extension officers capable of developing training programs for field workers, local government as well as community groups in addition to mentoring field staff from local line agencies. These skills have been put to good use implementing numerous training events in the Likupang scaling-up sites and during the outreach training conducted in March 2003.

### **2.3 Capacity Building and Institutionalizing a Sustainable Community-Based Marine Sanctuary Program**

#### **2.3.1 On-the Job Training and Mentoring**

- At the time the proposal was written the institutional arrangements for the implementation of the CB-CRM program were still not known. Much progress has been made. The new Minahasa law has designated the Fisheries Office (Dinas Perikanan) as the lead agency to assist villages and the Regional Development Planning Board (BAPPEDA) as the secretariat

for the District Coastal Resources Management Board. Since we choose Likupang as the sub-district to focus scaling up activities for village-level activities, on-the-job-training and mentoring was targeted at those groups involved in this effort, rather than at BAPPEDA. This included 12 field extension workers assigned to coordinate with Dinas Perikanan and assist villages with the planning process, staff from the District Fisheries Office assigned to supervise the scaling-up activities, and local government staff from the sub-districts of Likupang. In addition, the Village Community Development Board also played a strong role in the process and therefore they were also trained and mentored in this process. At the end of April, most villages have established CB-MPAs and one has developed a management plan as well. Hence, staff from these agencies and a group of new field workers have been able to go through one cycle of the CB-MPA planning process. However, most of these villages are starting implementation, so understanding what continuing services should be provided to villages after planning has been completed and how, remains an area where they have little experience. Mentoring was also provided to JICA on their marine sanctuary development in Basaan, Belang. Individual villages such as Boyong Pante (Tenga) and Rap-rap (South part of Bunaken National Park) were also provided mentoring for their monitoring and general CB-CRM program. Mentoring was also provided to one University based student's group for their awareness program on CB-CRM. Support was also provided to the Regency CRM task force for monitoring and evaluation of the CB-CRM program in Likupang in order to learn how to support community based CRM, marine sanctuary, mangrove sanctuary and ordinance development. This also provided on-the-ground capacity development of local government officials in sustaining the program through implementation of the Minahasa CB-CRM law. In addition, the project assisted local governments of Bitung, Minahasa and Manado and the faculty of Fishery and Marine Science at UNSRAT with implementation of a regional training course funded under the ADB-financed Marine and Coastal Resources Management Project (MCRMP). Modules were delivered on CB-CRM and Marine Sanctuary establishment.

### **2.3.2 Short-term Training of Personnel**

- *Training on Community Coral Reef Monitoring.* In order to train local communities to monitor their marine sanctuaries, we engaged a reef monitoring expert from the Philippines who has worked with the USAID Coastal Resources Management Project – Philippines to develop community-appropriate monitoring methods and who developed a community-based reef monitoring guide. This expert from the University of the Philippines, Andre Uychiaoco, attended the Cebu-Manado Workshop and visited marine sanctuary sites in Manado as part of this event. One of the outcomes of that workshop was the realization that the Philippine methods could easily be adapted to the Indonesian context. While we did not originally plan this activity we felt it was important to take advantage of this opportunity. The Philippines developed fish census and fish production community monitoring methods as well as benthic coral cover snorkel transect methods. Although we have developed community-based methods for reef monitoring using Manta Tow, this method is most appropriate for broad-scale monitoring of entire reef areas as well as developing reef maps with the community from which marine sanctuary sites are selected. The Manta Tow method, however, is not appropriate for monitoring the relatively small areas (10 – 20 hectares) of community marine sanctuaries. The Philippine guide was translated into Indonesian and underwent a process of

adaptation and testing in Indonesia. In Year 2, this included a training of trainers program followed by training of community monitors. The training of trainers was for those who will conduct training of community monitors and included fifteen participants (12 male and 3 female) from NGOs, the local university, and local government officials (BAPEDALDA, Dinas Perikanan, and a TV cameraman from the local TV studio). Following the Training of Trainers, local NGOs have used these methods with the communities outside Proyek Pesisir sites (one in Bunaken and one in Sangihe Talaud). A second training was also conducted for community leaders/monitors in our pilot field sites so they can understand the importance of coral reef and fish monitoring. 95 participants took part in this training. The community monitoring leaders then conducted training with other villagers and even students from local schools. Further follow-up training for pilot project field sites and in replication sites in Likupang sub-districts occurred in Year 3. An Indonesian version of the monitoring guide was also printed in Year 3. In addition to manta tow training, monitoring training was conducted in the scaling-up site including two mangrove monitoring training events (51 participants), Mangrove management training (54 participants).

- *English Training for Community Members.* Support for English training was provided to members of the marine sanctuary management committee in Blongko who host foreign visitors to the Marine Sanctuary. Nine participants were trained in English (4 male and 5 female). Blongko continues to be inundated with both local and foreign visitors. USAID funds were used to develop a visitor center and a standardized visitor program to capitalize on this interest.
- *Staff Training.* One Manado-based staff member was trained in design graphics to help with the development of guides and public education materials such as posters and fact sheets. Adobe PhotoShop and PageMaker software were also purchased to support development of training and extension materials. English training for one female senior project staff member was also conducted prior to her participation in the international training workshop at CRC on Gender and Population Dimensions to ICM.
- *Training on Gender and Population.* One senior extension officer leading the scaling-up efforts in Likupang participated in the CRC-based training workshop on Mainstreaming Gender Equity and Population in Coastal Management Programs. Travel of the participant was provided by the Marine Sanctuaries grant and other costs of the workshop were provided by another grant from the David and Lucile Packard Foundation.
- *Training in support of scaling up activities in Likupang.* Funds also supported scaling-up in 24 villages in Likupang sub-districts. This included support for field extension officer training, training of volunteer field assistants from each village, assorted community training events and workshops with sub-district and district officials. A consortium of NGOs was assembled to support village CB-CRM planning and develop the training materials used. Some of the NGOs have performed well but many did not. Some complaints were received from communities concerning NGO capacity. Most dropped out of this initial consortium and the continuing work was conducted primarily by the project and two local government agencies (Fisheries Office and Village Community Empowerment Board - *Dinas Perikanan* and *Badan Pemberdayaan Masyarakat Desa*). The grant-funded training in Year 3 was almost entirely focused in the Likupang sub-districts in support of the scaling-up efforts.

Hence, rather than the trainings focusing on general awareness raising and skills building, it was linked to on-the-ground CB-MPA planning and management efforts. This targeting of training and combining it with on-the-ground activities has resulted in the excellent progress made in establishing additional CB-MPAs in the Minahasa District. As previously mentioned, there are now 24 community-based marine sanctuaries in the Minahasa District and 17 new ones have been established in Likupang as a result of the Packard supported activities.

- *Cross visits* to the original pilot sites were made by 70 participants (54 male and 16 female) from the local communities and government personnel from 23 villages in Likupang to learn first hand about the marine sanctuary development process and lessons learned. These cross visits demonstrate how important they can be and how quickly local communities can learn and understand the concept and benefits of marine sanctuary establishment from places with concrete demonstrations of success. The villagers and local government from Likupang quickly understood the concept and immediately started the similar MPA planning processes in Likupang. Within one year, by April 2003, 17 marine sanctuaries were established in the Likupang area.
- *Training in governmental coordination* with the Minahasa government institutions (Village Community Development Board (BPMD), Regency Planning Board (BAPPEDA), Fishery and Marine Department (DPK), Forestry Department and Environmental Assessment Office) were conducted for village development and planning program.

#### **The KKN Program - An Unrealized Potential**

Local universities such as UNSRAT implement a student community service internship program (KKN) as part of their ongoing activities. In 2001, the project had several discussions with UNSRAT on the concept of a KKN program in coastal villages. Several discussions and meetings were held on how to develop and implement a coastal community extension program using KKN students as part of a CB-CRM approach. Participants agreed that the KKN program could be used to support and strengthen a long-term outreach program for coastal community development and resources management. Other local universities in Manado (Public and Private Universities) have expressed interest in the approach as well. The concept is that students would spend three months in a village undertaking extension and outreach activities such as public education, assistance in developing community coastal profiles, establishing CB-MPAs, conducting training on community-based monitoring, among other activities. The emphasis is on community service and not on student research projects. Students would be assigned consecutively to a village over a two-year period, and activities sequenced to assist communities through the various steps in the process of establishing and implementing CB-CRM and MPA initiatives. It was agreed that the UNSRAT administration would develop policies for this type of program. It was also agreed that the approach for a CB-CRM KKN program should be based on community interest and requests. The project facilitated discussions with local government representatives from 25 villages in Likupang and 15 village governments sent letters to request assistance from the UNSRAT KKN program. Unfortunately UNSRAT took no action on these requests. UNSRAT felt that such a program should be funded by the project that should provide fees to student supervisors as well as provide travel allowances and honorarium for the students. The project felt that since this was an on-going program of the university and had been in operation without external funding, providing such funding support would make the program unsustainable. In addition, we did not allocate funds for this purpose. Due to these differences of opinion on how the program should be implemented, the KKN program supporting CB-CRM in coastal villages was never implemented.

### **2.3.3 Awareness Raising Workshops**

Awareness raising workshops and public consultations were conducted in coastal villages as part of the process of developing a district law to establish a community-based coastal resources management program. Once the Minahasa CB-CRM law was passed that explicitly allows villages to establish marine sanctuaries among other things, grant funds were used to socialize the ordinance. Awareness raising workshops were conducted in coastal villages and among local government so they know their new authority, what the law means and how it will be implemented. A total of 47 workshops were held at the Regency, sub-district and village level with participation by more than 1500 representatives from 170 coastal and non-coastal villages. Participants also represented 70 institutions at all levels of government in Minahasa and also included representatives from neighboring Regencies such as Bolaang Mongondow and Sangir Talaud. Besides workshops, three general public awareness raising events were held in Likupang as part of the CB-CRM scaling up program. This public awareness raising was held on Indonesia's Environmental Day (June 19<sup>h</sup>2002), Soccer Final Cup in Likupang (September 2002). Puppet Shows, environmental clean ups, and singing contests were held to raise community awareness and support conservation efforts in Likupang.

Several presentations were made by project staff and university consultants in several workshops held outside North Sulawesi such as in East Kalimantan, Jakarta and Makassar, and South Sulawesi. These presentations emphasized the establishment of community-based marine and mangrove sanctuaries, as well as the establishment as well as Minahasa CB-CRM Law. In a workshop conducted by the Minister of Marine Affairs and Fisheries for 17 Provinces and more than 50 Regencies, the Minahasa Perda (Law) has been used as model of law to be adapted and disseminated to other provinces and regencies. In East Kalimantan, the Minahasa Law (content and development process) is the basis for development of a Berau Regency CRM Law. In a Makassar a workshop attended by all Sulawesi provincial governments, the community-based marine sanctuary model presented and was used as an example for improved fishery management.

### **2.3.4 Provision of Material Support**

A limited amount of equipment has been provided to local government agencies involved in scaling-up activities as well as to communities that established CB-MPAs. At the community level, grants were provided to villages for; the installation of marker buoys (for reef sanctuaries) and marker posts (for mangrove sanctuaries); signboards concerning rules; snorkeling gear for community reef monitoring; typewriters for writing proposals; reports and village ordinances as well as megaphones to village government for use in conducting community meetings. Equipment provided to local institutions and communities are detailed in Appendices V and VI.



**Computer and Type Writers Distributed to Government Institutions in the Minahasa Regency to Support the CB-CRM Program**



## Inauguration of Marine Sanctuaries by the Minahasa Bupati



### 2.3.5 Outreach Workshop

This training event was the final major activity conducted under the grant. The course was implemented in March 2003 and attended by 27 participants (8 female and 19 male) from all over the country with an emphasis on North Sulawesi, East Kalimantan and other locations in Eastern Indonesia. A number of program managers who will be working with the ADB funded MCRMP under the Ministry of Marine Affairs and Fisheries also attended this workshop.

In cases where participants came from government agencies and were affiliated with external donor-supported projects, they were required to cost share for the workshop. This allowed us to make more funds available to support participants from local NGOs. The course utilized the community-based marine sanctuaries guide as the basis of the curriculum and included several in class sessions and field visits to several CB-MPA demonstration sites in North Sulawesi.

### Participants of the Outreach Workshop



### 3. Coordination with Related Initiatives

We have undertaken several efforts to cooperate with related initiatives that complement and benefit the work conducted in North Sulawesi. This included participation in the cross-portfolio learning workshop on Locally Managed Marine Areas implemented by the World Resources Institute in 2000. We also integrated a sea grass watch component into the work at our pilot and scaling-up sites through coordination with Fed Short's project on seagrass monitoring. Two UNSRAT faculty members were sent to the training in the Philippines and UNSRAT/CRITC tested and implemented community-based seagrass monitoring activities in several of our field sites. They translated the seagrass watch monitoring protocols into Indonesian under a sub-contract funded by this grant as well. We have also assisted the Wildlife Conservation Society concerning their David and Lucile Packard Foundation supported research project on Marine Protected Areas. Dr. Richard Pollnac and Brian Crawford spent a day with the socio-economic specialist discussing research methodologies and providing relevant background literature. Manado project staff also assisted WCS with field logistics and introductions during their field research activities in Manado in 2002. Feedback on their preliminary report of findings in North Sulawesi were also provided and discussed with their socio-economist. Project staff at all levels in Indonesia and at CRC have assisted Dr. Patrick Christie at University of Washington on the sustainability project. This included participation in the January 2002 workshop to review Philippine research results and a planning workshop at IPB for the Indonesian research component, as well as participation in preparing one background document on decentralized

ICM in Indonesia. One North Sulawesi participant also participated in the CRC-based training workshop on Mainstreaming Gender Equity and Population in Coastal Management Programs also supported by the David and Lucile Packard Foundation. Lastly, the USAID CRMP has provided all of the infrastructure and salaries of full time personnel working on the scaling up and other Marine Sanctuaries Project related activities. This has allowed us to implement a much greater number of activities, produce more documents and educational materials, and stretch funds out over a longer length of time than would have been possible with the Marine Sanctuaries funds along.

## **4. Lessons Learned**

### **4.1 Major Lessons Learned in the Philippines**

Several important conclusions resulted from the Philippine lesson drawing activities. First, there is a surprisingly high failure rate of community-based marine sanctuaries. Most experts believe this is due to implementation failure and not due to failure of basic program theory. One of the key factors behind these failures is believed to be the lack of adequate community participation in their planning and implementation. The field research pointed to six important predictors of successful community-based marine sanctuaries. They include:

- Population size (relatively small)
- A perceived crisis in terms of reduced fish populations before the MPA project is started
- Successful alternative income projects
- A relatively high level of community participation in decision making
- Continuing advice from the implementing organization
  - Inputs from the municipal government

If all of these factors are exhibited within any given site, it greatly increases the probability of success. The research results also suggest that project factors tend to be more important than most context factors. Hence, community-based marine sanctuaries can be applied in a wide variety of settings. Appropriate application of proven implementation strategies is the key. More recent analysis of the data has also indicated that marine sanctuaries located in proximity to tourism areas also tend to be more successful. Hence, in addition to the sustainable fisheries objective, they may also provide benefit if linked to tourism development strategies.

The Cebu-Manado workshop also ended with several important conclusions and observations. First, the planning and implementation models for community-based marine sanctuaries is quite similar in both countries. In the Philippines, there is a greater degree of formal decentralization of authority to local government. Philippine municipalities have sea jurisdiction out to 15 kilometers. In Indonesia, villages have no formal sea jurisdiction as this resides with the District out to 4 nautical miles and with the Province out to 12 nautical miles. Hence, there is a need in Indonesia for districts to provide formal authority to villages to establish marine sanctuaries. In the Philippines, hundreds of examples of community-based marine sanctuaries have been established and critical masses of individuals and institutions have been developed over the last two decades to provide support services to local communities and municipalities. This process of capacity building in Indonesia is just starting. Another observation made by Philippine

participants is that in North Sulawesi coastal communities seem to be much better off than their counterparts in the Philippines and (perhaps not coincidentally) the coastal resources and coral reefs in North Sulawesi are generally in much better condition.

## **4.2 Major Lessons Learned in Indonesia**

In North Sulawesi, we believe that the awareness and attitudes of local government, in terms of their desire for increased conservation and greater community empowerment, are strong. In addition, coastal communities are also more aware of their rights, responsibilities and potential approaches to sustainable coastal development and conservation. Communities are starting to demand services from local government. However, we still need to move from attitude changes to behavior changes. Local government is not used to operating in a mode of providing services to local communities. Additionally, service delivery at the village level (beyond basic services such as health, education and infrastructure development), and participatory planning and decision making are not yet well developed in Indonesia or North Sulawesi. Introducing this into traditional systems of government is proving to be a difficult and long process.

Significant headway has been made however on creating the enabling framework and structures necessary to foster local organizational changes that will lead to greater support for and development of community-based marine sanctuaries. This includes the enactment of a district law that gives villages direct authority to create and enforce marine sanctuaries and other conservation oriented initiatives. The law also mandates a lead agency (Fisheries and Marine Affairs Office of Minahasa District) to assist communities. Training materials, practitioner guides, and supporting extension materials (posters, fact sheets) necessary to train and guide field workers and communities in the process of establishing and managing community-based marine sanctuaries are also available. On-the-ground examples of community-based marine sanctuaries that have been under successful implementation by communities for several years are readily accessible to government and local communities. Limited material support has been provided to key organizations (computers, snorkeling gear, extension materials) and more will be provided at the end of the USAID project. Local personnel have been trained in the basic processes and skills needed to assist and support community planning and actions. However, local budgets to undertake programmatic activities are very minimal and organizational strategic plans to implement the law do not yet exist. Hence, while we are moving closer to an integrated support system, not all the building blocks are yet in place or fully operating. The magnitude of effort needed to build a totally functional and operating CB-CRM program virtually from scratch was not fully realized several years ago when we started the project. While local institutions are gradually moving in this direction, the pace is also much slower than we anticipated. However, we now have a much better idea of what it takes to have a fully developed and operating support system and the steps and actions necessary to get to that stage of organizational development.

The following sections provide more details on important elements of the work funded under this grant in North Sulawesi.

### Lembeh Strait:

A small grant was provided to the Provincial BAPPEDA to enable them to assist communities and in Bitung to establish sanctuaries. We also viewed this grant as a test as to how government institutions can integrate this new model into their existing programs. We helped BAPPEDA by providing funds as well as technical assistance. Site selection was conducted, and discussions initiated with the Bitung city-level government. The concept was widely supported by government institutions and local NGOs. A community was identified (Makaweidi village) and several meetings and presentations on the goals of marine sanctuaries held in the village. One private sector dive operator in the Lembeh Strait (Kungkungan Bay resort) and a local NGO attended the meetings. The community and NGO showed support for the establishment of a marine sanctuary, however the private sector opposed the idea initially. The dive industry seems concerned about the concept of paying a fee to local villages for the privilege of diving in a closed area that communities protect. Up until recently, dive operators have not paid fees for diving anywhere. Dive fees are now being implemented in Bunaken Park and there is increasing acceptance (or resignation) that a similar system may be instituted in Lembeh Strait in one fashion or another.

An important lesson that came out of the Lembeh experience is that villages within a *Kotmadya* system (urban municipality or city government) do not have the same autonomy to enact ordinances that villages in *Kabupaten* administrations (rural districts) have. Hence any marine sanctuary cannot be developed by village ordinance but must be approved at the *Kota* level. This would also mean that villages could not establish or collect dive fees on their own. The *Kota* administration would have to develop a fee system and decide what role villages are to play and to what extent a share of fees would be provided directly back to communities (village-level government) as a reward for protecting a marine zone or to support management by the community. Another important issue in the village of Makaweidi (where meetings were held) was that dive operators identified a dive site (and potential marine sanctuary) in an area that is also an important fishing area for the community.

Hence, a permanent no-take marine reserve might be difficult for fishers in the community to accept. However, it could be managed as a dive site where both diving and fishing could be regulated. Hence, for several reasons, the community-based marine sanctuary model developed in the pilot rural coastal community sites of Minahasa would need significant modifications or adaptation to work in the more complicated Lembeh context. The community-based marine sanctuary concept may still be adaptable in Lembeh Strait, but only as part of a larger conservation and sea use planning initiative. Since this is a much larger task than we can commit to funding and facilitating at this time, we have dropped this site. Other issues to consider for such a planning program include a lack of capacity and commitment of sufficient finances from local government.

Another lesson learned from our Lembeh experience was that under Law No. 22 on regional autonomy, provincial government now has little power or influence over district and city administrations. Therefore, the Provincial BAPPEDA has limited authority for mandating a planning initiative within a city administration. Working directly with the Bitung BAPPEDA would have been a better choice than operating through the Provincial BAPPEDA.

A positive outcome from the initial meetings in Bitung was that we were able to identify conflicts in Lembeh Strait between local communities and the dive industry. We believe these can be resolved if the dive operators are willing to work together with communities and local government in the planning and establishment of marine sanctuaries. However, there are now several groups that want to develop a marine park or conservation zone rather than community managed MPAs in Lembeh Strait. Numerous small-scale community-based marine protected areas as part of a conservation system is seen as an alternative approach for Lembeh Strait compared to a large-scale marine park managed by regional or national level government institutions. Due to the involvement of other conservation organizations with much greater resources than we can provide for a strait-wide planning initiative, we terminated our involvement in Bitung. One concern we have and that has been expressed by some local Indonesians is that external tourism and conservation interests will have a large influence over what eventually happens in the Lembeh Strait; and that their resources and lobbying may overshadow community and local government concerns.

#### Local Government Capacity and Roles in Replication:

Starting up a marine sanctuary program run by local government in North Sulawesi is a greater challenge than we initially anticipated and therefore progress has been slower than expected. Initial plans for scaling-up were coordinated with the provincial government, which now has little authority or role in this regard. The most appropriate level of government for coordinating community based marine sanctuaries is at the *Kabupaten* and *Kota* level where jurisdiction and authority lie, even if capacity is not yet developed and finances are not yet available. Since district (*Kabupaten*) government is the appropriate level of government where scaling-up can be institutionalized, this is where our efforts have been concentrated, especially in the last 18 months. The slow pace of start up has been complicated by a combination of factors including the general uncertainties that have surrounded how the local autonomy laws are to be implemented and exactly what the new levels of authority are. In addition, Law No. 25 resulted in new formulas for funding allocations provided to local governments. This has added to the overall confusion of how the new autonomy laws will be implemented, and in the case of North Sulawesi, has resulted in significant budget reductions. Budget requests to start scaling-up, which is a new initiative, are difficult to get approved by the local legislature since they are operating in an atmosphere where most program budgets are being drastically cut back. In addition, while there was interest in continuing and institutionalizing a community-based coastal management initiative within local government, agencies were reluctant to initiate a program on their own, without a mandate and push from the local legislature. While the institutional mandate is now clearly designated in the District law, budget allocations for the 2003 fiscal year are likely. Without budget allocations for the Fisheries Office, continuing support to existing villages with sanctuaries and assistance to new villages will be difficult to impossible. It is likely that local government will continue to rely on outside donor supported resources to provide these services. In fact, JICA has proposed working in several villages, building on their experience of developing a marine sanctuary in the village of Basaan II, which drew heavily on the Proyek Pesisir experience. USAID is also in the stages of planning a follow-on initiative to Proyek Pesisir that is likely to continue supporting work started in Likupang sub-districts, expand to villages in other districts of Minahasa as well as possible expansion to Sanghir and Talaud districts. The danger is that high levels of donor support may weaken long term commitment

and capacity development in Minahasa as local institutions do not need to do the work themselves, allowing donor projects to do it for them.

### The Importance of the Local Legislature:

We started our replication drive working almost exclusively with local government institutions, and under the assumption that the program could be easily added to existing programs. We came to realize that this assumption was wrong. While a community-based coastal resources management program is housed within a local government agency, institutionalization was not possible without a formal legal mandate which in this case was a local ordinance (*Peraturan Daerah*) passed by the District Peoples Assembly. This work was funded by USAID and involved the contracting of several legal consultants from the local university to assist with the ordinance development and facilitating a public consultation process. This legislative initiative was a significant consumer of staff resources and time. However, we are hopeful this will have a long-term payoff in terms of sustainability of a community-based marine sanctuary initiative in North Sulawesi. It has also precipitated healthy discussions about the best way a community-based program can be efficiently implemented locally with limited resources. Now that the law has been passed, the current challenge is to work with the legislature and lead agency to ensure adequate annual budget allocations to fund the program and organizational realignment that will enable the Fisheries and Marine Affairs Office to implement the program efficiently.

### A Rising Constituency Among Coastal Communities:

One encouraging sign within the Manado area is that while we were busy formulating scaling-up and institutionalization strategies, developing extension materials, and conducting general outreach activities, the diffusion of the community-based marine sanctuary innovation started to occur. Coastal villages other than our pilot sites have expressed a desire to establish marine sanctuaries without a systematic or institutionalized extension system targeting these villages. Therefore we assume that the general awareness, information and outreach activities have influenced this to some extent. The demand for CB-CRM is increasing. However, information is also flowing by word of mouth from community to community through other non-formal communications channels. A challenge is that there are communities that want to move ahead even without local government support services, but are finding it difficult. All examples to date of formally designated marine sanctuaries at the village scale have been supported by external institutions or projects. We hope local extension capacity will catch up eventually with this demand, as it is uncertain whether a general information diffusion strategy can be fully effective without a local technical support structure. Diffusion research has demonstrated that receiving information and generating interest are only the first phases in the adoption process. More hands on interactions are usually necessary for communities to get to the trial stage and long-term adoption. It is likely that the failure rate will be higher among sanctuaries created without the involvement of supporting institutions. This has been a lesson from the Philippines field research. However, further scaling up is likely to be supported by at least two foreign donors in the province (USAID and JICA). Additional donor supported projects (MCRMP -ADB and COREMAP-World Bank) will be starting up in the province as well and it is hoped that they will likely support continuation of these initiatives.



## A Replication Focus in Likupang:

USAID had also asked us to accelerate replication efforts two years ago in spite of the fact that a formal legal mandate and institutional structure has not yet been developed. Likupang Sub-District was selected as an area of focus. This is an important area from a bio-diversity perspective as it is located between Bunaken Marine Park and the Lembeh Strait. It is also an area where there is intensifying marine use and dive tourism activity. An overview of the scaling-up strategy is provided in the box below.

### **The Likupang Scaling-Up Model**

CRC and local partners are involved in an ongoing community based planning effort in 25 coastal villages in the Likupang sub-district of North Sulawesi Indonesia. Activities started in early 2002 with meetings and trainings of sub-district and district officials as well as village leaders in January 2002. Villages were given the option to voluntarily participate in the program or not and were required to submit a letter of interest in order to be involved in the project. Twenty-four of the twenty-five villages are participating in the program. One village did not submit a letter of interest but are invited to participate in sub-district meetings and training events. Project activities at the village level started in March of 2002.

The model used in these “scaling-up” sites is different than the approach used in the original pilot project sites. The intent at the scaling-up sites is to use a simpler and less costly approach that would have more likelihood of adoption by local governments. The concept was to concentrate in only one sub-district in order to obtain economies of scale. Officials at the sub-district level and staff of the Fisheries Office have been more involved in the effort as well. The community-based planning and development process is similar to the pilot sites. However, more emphasis is being placed on early training of community members in a number of areas including CRM, facilitation, conflict resolution, gender, etc. The development of the training modules and their implementation in the villages was done in cooperation with a consortium of local NGOs. In addition, communities are being trained by the Village Community Development Board in how to prepare annual village development plans that include coastal management initiatives. These annual plans can be funded by the sub-districts and district government through the standard bottom up and top down village development planning process.

Another important difference in the Likupang scaling-up sites is in the use of field extension officers and community organizers. In the pilot sites, one full time field extension officer was assigned to the site for a period of one to two years and they were assisted by a part time field assistant from the community. In the scaling up sites a team of field extension agents (FEOs) are each responsible for managing community organizing and planning efforts in several villages. The FEOs are assisted by a group of community organizers (COs) appointed by the village (from two to six individuals) to work with the project. The COs are all residents of their villages and were nominated by village government to organize efforts in the village. The FEOs are all fairly young and are recent graduates from the local university. They do not live in the villages but work out of a provincial office in Manado.

The communities have developed simple issue based profiles similar to the Blongko profile example. Most communities have decided to develop community-based marine protected areas (reef and mangrove environments) as a cornerstone of their early implementation activities. However, the villages are now in the process of developing integrated management plans as well. The pace of progress in the villages varies considerably. Some have already established marine sanctuaries complete with sign board and boundary markers. One has completed their management plan. Others are still in the process of establishing sanctuaries and have not yet started the development. As of the end of April 2003 (14 months after village planning started), 13 marine sanctuaries, 4 mangrove sanctuary and one management plan were formally adopted by the communities.

The scaling-up strategy has presented both challenges as well as opportunities. A multiple village approach to engagement was planned to obtain economies of scale as well achieve a critical mass effect in terms of sanctuary establishment within the area and through a process that requires less financial resources and a shorter time frame that was required for the pilot sites.

This strategy entails some risk, as it is an evolution in our approach that incorporates new ideas that have been untested in the community-based marine sanctuary approach as applied in North Sulawesi to date, but have been effective in other community-based development contexts. At this time, most communities in these sites have developed coastal profiles and established coral reef and mangrove sanctuaries but have not yet completed the development of village CRM plans. In addition, the level of community capacity and ability to continue with minimal support from external supporting institutions is still weak compared to the original anchor sites. While actual village engagement has been on-going for one year, it is likely another year will be needed before external facilitator support is phased out. Fortunately, USAID has verbally committed to ensuring that termination of activities in Likupang will not end abruptly this year and will be carried forward into the new follow-on project.

In Minahasa and North Sulawesi, the marine sanctuary model and the associated ordinances are easily understood and widely supported by local communities and government. They already can see the benefits of marine sanctuaries for fish production, conservation as well as local community empowerment and rights to manage their local resources. Additionally, at the village level, the marine sanctuary and local ordinance best practice model are more manageable by local communities compared to the more complex Integrated Village Management Plans. One of our lessons learned concerning the implementation of the management plans came out of an implementation evaluation workshop conducted with the village management committees and *Kabupaten* Task Force. The local communities and government are not yet fully capable to implement the comprehensive integrated plans. The integrated management plan model will need to be refined and simplified compared to the process and outputs developed in the pilot sites. However, as articulated in the Philippine focus groups, marine sanctuaries as part of larger community-based coastal management initiatives are viewed as a more successful approach. Hence, marine sanctuaries will be developed as part of a community-based planning and management initiative in each village. From the Likupang experience – marine sanctuaries have become the entry point and initial focus of broader community-based planning. However, we will not know for a year or two, how well the CB-MPAs are being implemented in Likupang and therefore, how successful our revised approach has been.

There are several lessons emerging from the Likupang scaling-up experience. These include:

- Early involvement of local government is effective at obtaining quicker endorsement and agreement from the local community for establishment of CB-MPAs.
- Cross visits from Likupang to other villages to show concrete examples of successful marine sanctuaries and talk directly with communities implementing these examples fostered the adoption of CB-MPAs by newly involved communities.
- The above two points demonstrate the importance of local government and peer communities as important networks for diffusion of CB-CRM and MPA innovations.
- NGOs that do not have a focused program on CB-CRM or marine sanctuaries shows less interest compared to those that do such as Kelola. Most NGOs involved in the first stage in the Likupang CB-CRM scaling-up are broad based community empowerment NGOs, and are looking for substantial financial support from the project before they will become fully involved.

### ***What was left behind? Useful follow-on work.***

In the Philippines, focus group and regional workshop participants felt that periodic structured discussions and experience sharing are useful and not done often enough. Participants expressed a desire to engage in group lesson drawing on a periodic basis. This is not in the scope of the project design. In retrospect however, we probably should have planned for more follow-up of this nature for the Philippines. Potentially useful activities to consider in the future include developing an institutional capability for learning within the country, perhaps a role that PCAMRD or one of the local universities could play. More training and capacity building in community-based marine sanctuary establishment and management targeted at provincial level institutions may help address the high rate of failures. We believe that the field research could usefully be expanded to include more sites in the country. We also think that a more in-depth examination of what was learned during the first round of the quantitative comparative research would be extremely useful. For example, given the importance of alternative livelihood development to MPA success, what were the alternative livelihood projects used in successful sites? How much income did they generate? Who obtained the income? How was it used?

In Indonesia, an extensive set of extension, training and public education materials that will be of use for some time to come in North Sulawesi as well as elsewhere in the country are now available for use. COREMAP II is currently being designed and is expected to have a community-based management as a major strategy, and many of the models and materials developed through the project have the opportunity for recycling on a national scale. The Ministry of Marine Affairs (DKP) is preparing guidelines for the establishment of community-based marine sanctuaries and is utilizing the guidebook as a basis for these official guidelines. The promotion of marine sanctuaries is also a component of the draft national law and considering the establishment of a formal community-based marine sanctuaries program. As these guidelines and laws are adopted, the materials generated for North Sulawesi can be immediately applied for these national initiatives. This is why we coordinated closely with DKP and had materials produced as joint publications with the national ministry. This also provided a greater sense of national level ownership and support for local initiatives. Much work remains to be done in linking the national initiatives in a way that provides more substantive support to local initiatives. For instance, at present, national programs within the Ministry of Marine Affairs and Fisheries have not provided any material or financial support to the Minahasa Fisheries and Marine Affairs Office for the Likupang scaling up activities. Many of the pieces to a complicated puzzle are on the table, but not all the pieces have been assembled nor have they been fully connected.

Physical infrastructure has also been provided by the project. The grant has provided snorkeling gear, public address systems and typewriters to villages involved in the scaling up program in Likupang. Sub-district and District institutions have also been provided with limited equipment including computers and printers (Dinas Perikanan, DPRD Minahasa, BPMD Minahasa). More equipment purchased under the grant and additional USAID-purchased equipment used by project staff will be provided to key groups including UNSRAT and local NGOs in August when the USAID project is completed. In the scaling up sites, the grant supported the installation of marine sanctuary marker buoys, signboards and materials for village environmental information centers.

In addition to the publications, physical materials and equipment left behind, there are less tangible results that also remain. This includes the District Ordinance establishing the CB-CRM program, a multitude of village ordinances that have established CB-MPAs and management committees and a wealth of local individuals in a number of institutions that are capable of organizing and leading CB-MPA planning and capacity building initiatives at the community level.

## 5. Assessment of Results

### *How are we doing with respect to indicators?*

Evaluation questions included in the project proposal, along with summary responses, are provided below.

#### Process and Activity Indicators:

- *What activities were carried out?*

All of the activities planned were carried out as intended and are described in the previous sections of the report. In many cases we exceeded the expected numbers of participants in capacity-building activities or conducted more training events than originally planned. This was in part due to the ability to rely on the USAID funds to support local salaries and local logistics and thereby concentrating the David and Lucile Packard Foundation grant funds on a number of products and key events related to community-based marine conservation efforts. A list of key training and workshop events held are provided in Appendix III.

- *How well were they implemented?*

Most activities have been adequately implemented as indicated in participant evaluations of events and as exhibited in the response we have received concerning the reports and documents produced and distributed to date. The replication work in Lembeh Strait was perhaps the area where we have not met our original expectations. This was due to the situation in the locality being more complicated than it started out as well as our expectations about the similarity of the context to other areas of Minahasa being more or less the same –it was not, as previously explained. Focusing our strategy within one Sub-District of Minahasa for scaling-up and on institutions in Minahasa has worked well. However, the ability of communities to sustain implementation is still weak. In addition, we have not yet figured out how to integrate tourism development into these community-based plans. Most of the CB-MPA sites are not dive sites, but some are and more dive sites could be designated as CB-MPAs. This work will require more involvement with the dive operator community and tourism associations. Communities alone will not have the capacity to undertake this level of policy development and coordination and outside advocates and catalysts will most likely be needed if it is to succeed.

- *What products were produced, what is their quality, to whom and how many have been distributed?*

A large number of products have been produced and distributed. We produced more materials and guidebooks as well as copies of these documents than originally anticipated. A list of the

products and documents produced are provided in Appendix IV. Minor training reports and technical reports not intended for widespread distribution are not listed in the Appendix. Rather, the list includes only those documents or products intended for outreach training and extension activities:

- *How many people have been involved in training activities and to what extent are they applying new knowledge and skills to promoting community-based management initiatives in the province?*

In the first year of the project over 100 persons were involved in workshops and training events. The North Sulawesi participants have made good use of the knowledge gained. In the second year of the project, approximately 25 persons were trained in specific skill areas as described previously. Project staff are applying Philippine lessons through continuing implementation at existing field sites and in the scaling-up replication strategy. Philippine community-based reef monitoring techniques are being actively used in North Sulawesi. North Sulawesi Province BAPPEDA staff are knowledgeable and supportive of replication in Minahasa and are encouraging other districts in North Sulawesi to consider similar programs. DPRD members led the development of the ordinance that formalized a community-based coastal resources management program in the Minahasa District. Staff in several local agencies (Dinas Perikanan and BPMD) directly involved with Likupang scaling-up are applying their skills by working with these communities and sites.

- *In how many village sites are replication activities being attempted?*

The project has undertaken scaling-up activities in 24 of the 25 coastal villages in Likupang sub-districts of Minahasa. This work is ongoing under USAID funding support and the results are detailed in a later section of this report.

There is also continuing interest in other regencies of North Sulawesi for establishing CB-MPAs but to our knowledge, none have been formally established by ordinance outside of the Minahasa District. Therefore, it is uncertain whether the diffusion of this innovation elsewhere will occur on its own, only through information dissemination and personnel training strategies. Theory concerning the adoption of innovations suggests that certain thresholds need to be reached before adoption can occur and this often occurs through specific networks among individuals and institutions. In addition, information alone is often not sufficient for adoption to occur. On-the-ground intervention strategies most likely will be needed to complement communications strategies that emphasize only awareness raising and training. In addition, institutional arrangements now in place in Minahasa (e.g. district law, designated lead agency) are not yet present in other districts of the province. This points to several possible future opportunities. First, a better understanding of diffusion networks and what makes communities and local institutions adopt and embrace CB-MPA initiatives is not well known and needs more research. Secondly, catalytic organizations that can assist in creating examples of CB-MPAs in other districts as on-the-job learning and demonstration sites may be needed before we will see a adoption in these areas.

## Outcome Indicators:

At this stage in the project implementation cycle in North Sulawesi we are starting to see some progress in terms of outcome indicators. Most of these outcomes are of an institutional nature and cannot yet be linked to in-situ bio-diversity conservation outcomes. (e.g. improved bio-diversity inside the CB-MPAs) or community benefits (e.g. revenues from tourism, increased fish catch).

- *To what extent have local institutions in the province incorporated services and activities supporting the establishment of community-based marine-sanctuaries?*

Local institutions, particularly the Fisheries Office have assigned full time personnel to scaling-up activities and requested specific budget allocations for continuing activities. Budget for the District Coastal Resources Management Board has been included in the FY 03 budget and appointment of the Board Members by the new Bupati is expected shortly. In addition, the Village Community Development Board is focusing their training efforts in coastal villages grafting the CB-CRM and CB-MPA process into their village planning processes.

- *Has a provincial program been formally established?*

A district law formally established a community-based coastal resources management program in 2002. This is a major milestone to support a sustainable program. The law clearly lays out a participatory process for establishing CB-MPAs and provides formal rights to villages to enact marine conservation ordinances. Minahasa is the only District in Indonesia that has taken this step. However there are as many as a dozen other districts considering similar laws modeled after this example. In addition, the Provincial legislature has also drafted coastal management legislation that is scheduled for a vote this year. This Perda will formally establish CRM program and will encourage other Regencies outside Minahasa to develop similar programs. This will further reinforce the legal mandates and authorities for local government to promote and implement marine conservation initiatives including CB-MPAs.

- *What are the funding levels that support community-based marine sanctuary initiatives and how have they changed from previous years?*

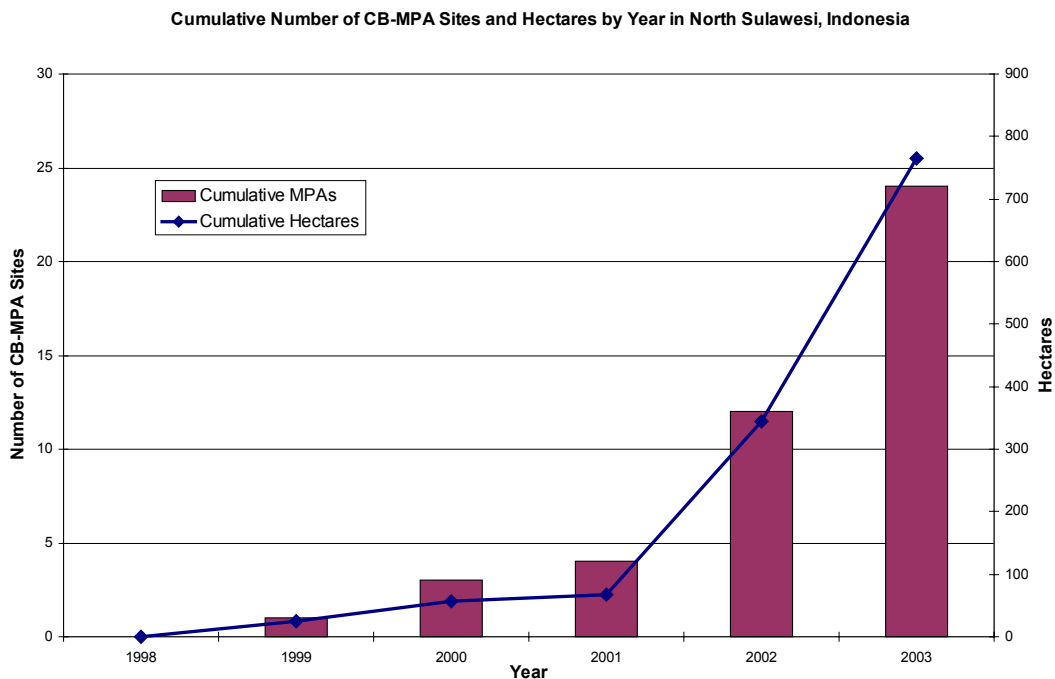
Funding in FY 03 is expected to support to the District CRM Board, The Fisheries Office as well as the Village Community Development Board with implementation of the District Law. However, budget allocations in North Sulawesi are very tight. For the previous two years, there have been no local funds allocated for village development activities. Most development is funded through support from donor assisted projects or from central government funds. North Sulawesi's funding situation has worsened since decentralization. Scaling-up activities in Likupang continue to be funded primarily by USAID. JICA is planning to support similar activities in three new villages later this year. Hence, donor support is still the driving force of community-based marine sanctuary initiatives in Minahasa and North Sulawesi. COREMAP II may also provide additional funding once it starts up as well. The lack of local funding commitment on the one hand is disconcerting and worrisome. On the other hand, if donor initiatives continue to provide the resources necessary, local government does not need to allocate their own funds and can use their scarce resources for other pressing problems and needs not funded by external donors. The long-range effect of donor dependence as positive, negative, or both, remains to be seen.

- *To what extent are staff capable of implementing the program?*

Project office staff are highly capable of implementing and supporting the establishment of community-based marine sanctuaries. Government counterparts have participated in the planning and implementation process but have not directly managed planning initiatives in the coastal villages or supervised field workers on site completely on their own. They have a general understanding of what this involves, but as yet, have not demonstrated the capacity or skills to conduct this fieldwork independently. The replication effort in Likupang involves local institutions in the planning and implementation process but is still not implemented in a way that puts the burden of responsibility for performance on local government institutions. A real need at the moment is to work closely with the lead institution, the Fisheries Office, and help them internally structure by developing an operational plan. At the moment, the program is still too ad-hoc and not fully integrated into the organization's daily business. Therefore, an organizational development strategy is needed.

- *Have community-based marine sanctuaries been established (i.e. has a formal village ordinance been signed by community leaders, and to what extent is the overall process following the guidelines for best practice (e.g. the need for a high level of community involvement in planning and site selection, a well-functioning management committee)?*

There is a continuing increase in the number of CB-MPAs formally established in Minahasa District of North Sulawesi. This is depicted in the figure below. Most of this growth is due to the Foundation supported activities undertaken in two Likupang sub-districts of the Minahasa Regency. There are now 24 community-based marine sanctuaries located in 20 villages in the Minahasa district (see figure below) that have placed a total of 765 hectares of coral reef and mangrove forests under protection (533 hectares of core no-take zones and 212 hectares of buffer zones).



The majority of this new growth has been in the Likupang sub-districts. However, a CB-MPA supported by JICA was established in the village of Basaan II. In addition, at the original pilot sites, Tumbak has created a new mangrove sanctuary on their own, and Bentenan has developed an entire sea use zoning scheme including a no-take marine sanctuary.

- *What impact have marine sanctuaries in replicated sites had in terms of community attitudes and behaviors towards coral reef use and management, changes in environmental conditions and/or fisheries production, and, livelihoods of coral reef dependent users and other community members?*

In *Proyek Pesisir* sites, socio-economic monitoring has demonstrated positive changes in attitudes and behaviors. Reef monitoring has shown improved coral conditions in the pilot field sites. Hence, there is strong evidence that the community-based approach as implemented in the pilot sites has been successful. There is anecdotal evidence that fish catches are up in Blongko based on key informant interviews. One spear fisher stated that catches before the sanctuary was established were only about 5 kg. per day and that has now increased to 7.5-10 kg. per day. Key informant interviews and direct observation suggest that destructive fishing in pilot sites has declined considerably but still occurs in the Tumbak area, but now further away from the village settlement. It is too early in the process to know what the impact is in the scaling up sites since these CB-MPAs have been in existence for less than one year. However, while community members in the scaling-up sites are not yet as articulate as the original pilot sites, they are off to a good start. The level of effort and time since activities started has been much less than the pilot sites so it is difficult to compare them. We have not been able to address community benefits from tourism associated with CB-MPAs that has been a major driver in the Philippines.

- *What percent of community-based marine sanctuaries are considered to be operating successfully?*

To date, our monitoring has shown that the five marine sanctuaries established in Blongko, Talise and Tumbak villages are operating successfully. It is too soon to determine in the scaling up sites. Systematically tracking of scaling-up villages post-project would be useful to understand whether bio-physical and socio-economic goals are being achieved.

## **6. Telling the Story**

The Philippines activities, in retrospect, should have put more resources into follow-up activities after the regional workshop. Feedback from the Philippine's focus group and regional workshop was that periodic meetings to discuss lessons learned and share experience is rarely done and, if structured properly, can be quite useful. Additionally, while we conducted some innovative research with respect to comparative quantitative research in this field, there is little local Philippine capacity at present to carry on such work. Training of local researchers in quantitative comparative research methods - a method few social scientists in the CRM field in the Philippines or Indonesia currently use or apply - was not an objective of the Philippine activities but would be a valuable capability to establish. The Philippine field research demonstrates that comparative quantitative assessments are very useful for validation of expert opinion and for increasing the reliability of the guidance we provide to managers. The research should perhaps be expanded within the Philippines and more widely in the Western Pacific region. We do not



know yet know how transferable the results are across regions and countries, and need to look into this further.

Currently, we have a good understanding and confidence of the theory for the community-based marine sanctuary “model”. We feel that there is much interest in North Sulawesi to develop more community-based marine sanctuaries and a general understanding of what it takes to do it right. The North Sulawesi experience is at a critical stage of development. The initial pilot sites are successful and we believe they are sustainable over the long term. A small core group of human resource capability exists to continue scaling-up in North Sulawesi. Institutional arrangements are in place and legitimacy of CB-MPAs is assured. Organizational and legal mandates needed have been put in place for sustainable replication. In addition, local institutional capacity with respect to human resource capability is developing but the organizational side remains weak. Budget allocations are still problematic. These two elements – organizational capability and financing - are the biggest threats to sustainability. We hope that the new USAID project will continue to work on these constraints. Whether this occurs or not will be known in the next several months once the USAID scope of work for the follow-on project is completed. The North Sulawesi project office transition plan – transforming the project office to Sam Ratulangi University has been abandoned due to the lack of a champion for this idea within the university. However, there are indications that a new private university in Manado– Le Salle’s Environment Institute - may be interested in pursuing CB-MPA activities. Most existing project staff will likely stay with the new USAID project as salaries are high. However, there is a small core group interested in eventually becoming independent – either as an NGO or within a university setting. It is still uncertain how this will play out over the next year. Regardless of what happens over the short term, eventually, some form of institutional capacity outside of local government will be useful to provide an advocacy and catalytic role.

One factor that has served us well during the implementation of this project is the ability to be agile and flexible with respect to implementation. There have been numerous twists and turns over the last few years as the situation in Indonesia remains fluid and uncertain. Within the chaos of uncertainty however have also been opportunities. Reflecting back on the three major objectives of the project is a useful way to consider what the overall accomplishments have been.

*1. Document methodologies and develop materials for use in widespread adaptation of community-based marine sanctuary technology to specific local site conditions.*

This objective has been achieved and a large amount of resource materials and documentation has been produced in both English and Indonesian which will be of great value for years to come.

*2. Build the capacity of local institutions in North Sulawesi to replicate models of successful community-based marine sanctuaries by developing human resource capacity and providing supporting resource materials.*

Local capacity in North Sulawesi and the Minahasa District in particular have been substantially strengthened. However, in spite of great leaps forward, there still remains much work that needs to occur on this front if existing efforts and investments are to be truly sustainable. Local financing and organizational development of the lead institutions for implementation of the CB-CRM program are critical.

3. *Replicate small-scale, community-based marine sanctuaries in selected North Sulawesi communities through on-going programs of local institutions.*

There has been a great deal of replication (scaling-up) that has occurred in the province and much more is likely to occur in the next few years. However, there is still a great deal of dependency on donor supported funds to make this occur. While exponential growth in the number of CB-MPAs is occurring, a great challenge will be to ensure that these are not only established on paper by ordinance, but are providing real benefits in terms of marine conservation as well as socio-economic gains for local communities.

Overall, this three-year initiative has made a significant contribution to marine conservation efforts in the Minahasa District of North Sulawesi. It has provided an abundance of resource materials, trained personnel, a legal regime, and numerous on-the-ground community-level MPAs. The situation however is still fragile given budget constraints but we are hopeful that a strong foundation from which to build has been developed. Institutional development for marine conservation is a long and enduring process. More effort will be needed beyond what has been accomplished over the last three years. However, we are confident that this project will have a lasting impact to this long-term endeavor.

## **7. Financial Accounts**

Attached is a summary financial report for the first and second 12-month period of activity and the final “Year 3” period which was 18-months duration. In reviewing project expenditures by major activity, we spent slightly more than anticipated on the regional workshop in the first year. However we were also able to have more participants attend than originally planned. Overall, we spent the first year’s funds as planned and had a small balance remaining which was allocated to printing the regional workshop proceeding. In the second year of the project we spent less money on public education materials and the marine sanctuary guide than anticipated as materials planned to be printed in Year 2 were printed in Year 3. We spent more funds on building local capacity in Year 2– essentially starting some of the activities scheduled in Year 3 earlier than originally proposed. Expenditures in Year 2 on elaboration of models were more than expected; the additional resources were put into the Cebu-Manado workshop along with printing and distribution of the proceeding. Carry-over from Year 2 was reprogrammed into the final year of the project. Expenditures in Year 3 were also extended several months to the end of April 2003, as approved by the Foundation. Since we spent less funds on activity support and personnel, so more funds were utilized for material support to local institutions. A good deal of this was for physical works – marker buoys, posts and sign boards as well as snorkeling gear for the community marine sanctuaries.

FINAL FINANCIAL REPORT

June, 2003

GRANTEE NAME: University of Rhode Island, Coastal Resources Center GRANT NUMBER: 999163

PROJECT TITLE: Fostering Marine Conservation in Indonesia:

Developing Capacity to Implement Community-Based Marine Sanctuaries

AWARD LETTER DATE: October 28, 1999 CONTACT PERSON: Brian Crawford PHONE: 401-874-6224/6225

	<b>Actual</b>	<b>Budgeted</b>
<b>A. Project Budget</b>		
October 1999 - September 2000 Project Budget	\$156,000	\$156,474
October 2000 - September 2001 Project Budget	\$112,000	\$99,769
October 2001 - April 2003 Project Budget	\$100,000	\$111,988
<b>Total Received/Budgeted</b>	<b>\$368,000</b>	<b>\$368,231</b>
<b>B. Other Sources of Income for the Project</b>		
<b>C. Year One Expenditures</b>		
Documentation	\$13,419	\$14,570
Field Work/Research	\$25,114	\$34,491
Elaboration of Models	\$47,673	\$30,000
Experience and Lessons Learned Documents	\$1,595	\$10,000
Building Local Capacity	\$10,959	\$11,000
Activity Support Operations and Personnel	\$47,609	\$56,413
<b>Subtotal</b>	<b>\$146,369</b>	<b>\$156,474</b>
<b>Year Two Expenditures</b>		
Targeting replication	\$5,796	\$6,000
Marine Sanctuaries Guide	\$8,014	\$14,000
Developing Public Education Materials	\$6,175	\$19,000
Training of Trainers	\$4,943	\$4,500
Building Local Capacity	\$10,712	\$0
Elaboration of Models	\$6,003	\$0
Activity Support Operations and Personnel	\$49,395	\$56,269
<b>Subtotal</b>	<b>\$91,038</b>	<b>\$99,769</b>
<b>Year Three Expenditures</b>		
On-The-Job Training and Mentoring	\$1,873	\$3,200
Short-term Training of Personnel	\$26,723	\$27,000
Awareness Raising Workshops	\$4,681	\$8,000
Provision of Material Support	\$30,283	\$13,200
Outreach Workshop	\$13,355	\$10,000
Marine Sanctuaries Guide	\$9,320	\$0
Developing Public Education Materials	\$10,039	\$0
Activity Support Operations and Personnel	\$34,319	\$50,588
<b>Subtotal</b>	<b>\$130,593</b>	<b>\$111,988</b>
<b>Total Expenditures</b>	<b>\$368,000</b>	<b>\$368,231</b>

Total Expenditures by Programmatic Area

	<b>Actual</b>	<b>Budgeted</b>
<b><i>Documentation of Experience and Lessons Learned</i></b>		
Documentation	\$15,014	\$24,570
Elaboration of Models	\$53,676	\$30,000
Fieldwork/research	\$25,114	\$34,491
Building Local Capacity	\$21,671	\$11,000
<b>Subtotal</b>	<b>\$115,475</b>	<b>\$100,061</b>
<b><i>Development of Materials</i></b>		
Targeting Replication	\$5,796	\$6,000
Marine Sanctuaries Guide	\$17,334	\$14,000
Developing Public Education Materials	\$16,214	\$19,000
Training of Trainers	\$4,943	\$4,500
<b>Subtotal</b>	<b>\$44,287</b>	<b>\$43,500</b>
<b><i>Building Capacity and Institutionalizing a Sustainable Community-Based Marine Sanctuary Program</i></b>		
Provisions of Material Support	\$30,283	\$13,200
Short-term Training of Personnel	\$26,723	\$27,000
Outreach Workshop	\$13,355	\$10,000
Awareness Raising Workshops	\$4,681	\$8,000
On the Job Training	\$1,873	\$3,200
<b>Subtotal</b>	<b>\$76,915</b>	<b>\$61,400</b>
<b><i>Activity Support, Operations, and Personnel</i></b>		
Support Operations and Personnel	\$131,323	\$163,270
<b>Subtotal</b>	<b>\$131,323</b>	<b>\$163,270</b>
<b>Total Expenditures</b>	<b>\$368,000</b>	<b>\$368,231</b>
<b>Remaining Balance</b>	<b>\$0</b>	

CERTIFICATION

We the undersigned hereby certify that the amount in Part A above has been received and expended as reported in Part C above and that all expenditures were made in accordance with the purpose of the award.

\_\_\_\_\_  
Project Manager  
Brian Crawford

\_\_\_\_\_  
Business Manager  
Cindy Moreau

Other Sources of Income: The CRC North Sulawesi field office receives support from the USAID-funded Indonesian Coastal Resources Management Project. Funding in FY 2000 and FY 2001 for North Sulawesi activities (April 2000-March 2001) were budgeted at \$300,000. These funds are being used to develop pilot models of community-based coastal resources management in four village sites (including the establishment of marine sanctuaries), development of a provincial extension program in support of village level coastal management initiatives, as well as outreach within and outside the province. Of this amount, direct in-kind support for the Marine Sanctuaries Project includes the use of office space and equipment as well as the time of local staff working on marine sanctuaries project activities. Total estimated value of this support is on the order of \$40,000 from the October 1999 to November 2001 period.

## **Appendices**

- I. Marine Sanctuaries Established in North Sulawesi Indonesia**
- II. International Presentations and Spin-off Publications**
- III. Key Trainings and Workshops**
- IV. Major Products Produced**
- V. Equipment Provided to Local Institutions**
- VI. Equipment Provided to Local Communities**

## I. Marine Sanctuaries Established in North Sulawesi Indonesia

### Scaling up Sites in Likupang sub-district of Minahasa

NO	VILLAGE	Dominant Habitat	MPA Established		MPA Committee Established		AREA (Hectares)		
			DATE	ORD. NO.	DATE	ORD. NO.	TOTAL	CORE ZONE	BUFFER ZONE
1	Mubune	reef	November 2002	01/2007/PD-DM/XI-2002	November 2002	02/SK/HT-DM/XI-2002	20	8	12
2	Sarawet	mangrove	November 2002	02 TAHUN 2003	November 2002	01/2002	90	90	0
3	Pulisan Jaga 1	reef	December 2002	01/PD-DPL/D-P/XI/2002	August 2002	01/SK/D-P/VIII-2002	13.7	7.6	6.1
4	Pulisan Jaga 2	reef	December 2002	01/PD-DPL/D-P/XI/2002	August 2002	01/SK/D-P/VIII-2002	13.6	8.7	4.9
5	Airbanua Jaga 1	reef	December 2002	01/PD/ARB/X-2002	October 2002	01/SK/HT-ARB/IX-2002	21	10	11
6	Airbanua Jaga 2	reef	December 2002	01/PD/ARB/X-2002	October 2002	02/SK/HT-ARB/VIII-2002	16	5	11
7	Serei	reef	January 2003	02/PD-DS/XII-2002	October 2002	01/KD-DS/X/2002	6.9	2.6	4.3
8	Tanah Putih	reef	January 2003	01/PD/TNPH/01-2003	January 2003	02/SK/HT-TNPH/ 2002	20	13	7
9	Tarabitan	reef	January 2003	02/PD-DT/X/2002	October 2002	01/SK-HT/DT/X/2002	15	10	5
10	Gangga 2	reef	January 2003	03/PD-GD/DPL/I-2003	September 2002	01/SK/G.D/IX/2002	26	1	25
11	Libas	reef	January 2003	02/PERDES-DLIB/I/2003	August 2002	01/SKHT/DLIB/X/ 2002	27	22	5
12	Lihunu	reef	January 2003	02/PERDES/D.LIH/II/2003	September 2002	01/SKHT-DL/IX/2002	18	13.5	4.5
13	Sonsilo	mangrove	January 2003	01 TAHUN 2003	November 2002	01/SK/HT/2012/IX/2002	37	37	0
14	Libas	reef and mangrove	January 2003	02/PERDES-DLIB/I/2003	October 2002	01/SKHT-DLIB/X/2002	131	131	0
15	Maen	reef	February 2003	I/PD/DM/XI/2003	August 2002	01/17/SK/DM/VIII-2002	49	33	16

16	Gangga 1	reef	February 2003	02/GS/PERDES/DPL/2003	N/A	08/GS/SK-I/2002	26	1.6	24.4
17	Teremaal	reef	March 2003	01/PD-DPL/DT/III/2003	N/A	01/SKHT-DT/I-2002	18	14	4
18	Maliambao	reef	March 2003	01/DPL/DM.2006/II-2003	NFE	NFE	46	26	20
19	Kalinaun Jaga 3	reef	NFE	NFE	October 2002	04/SK/HT/2001/2002	10	6	4
20	Kalinaun Jaga 4	reef	NFE	NFE	October 2002	04/SK/HT/2001/2002	6	3.5	2.5
21	Munte	reef	NFE	NFE			19	19	0
	<b>Total</b>		<b>21</b>		<b>19</b>		<b>649.2</b>	<b>475.5</b>	<b>173.7</b>

NFE - Not yet formally established by ordinance.

### Anchor Sites in Minahasa District

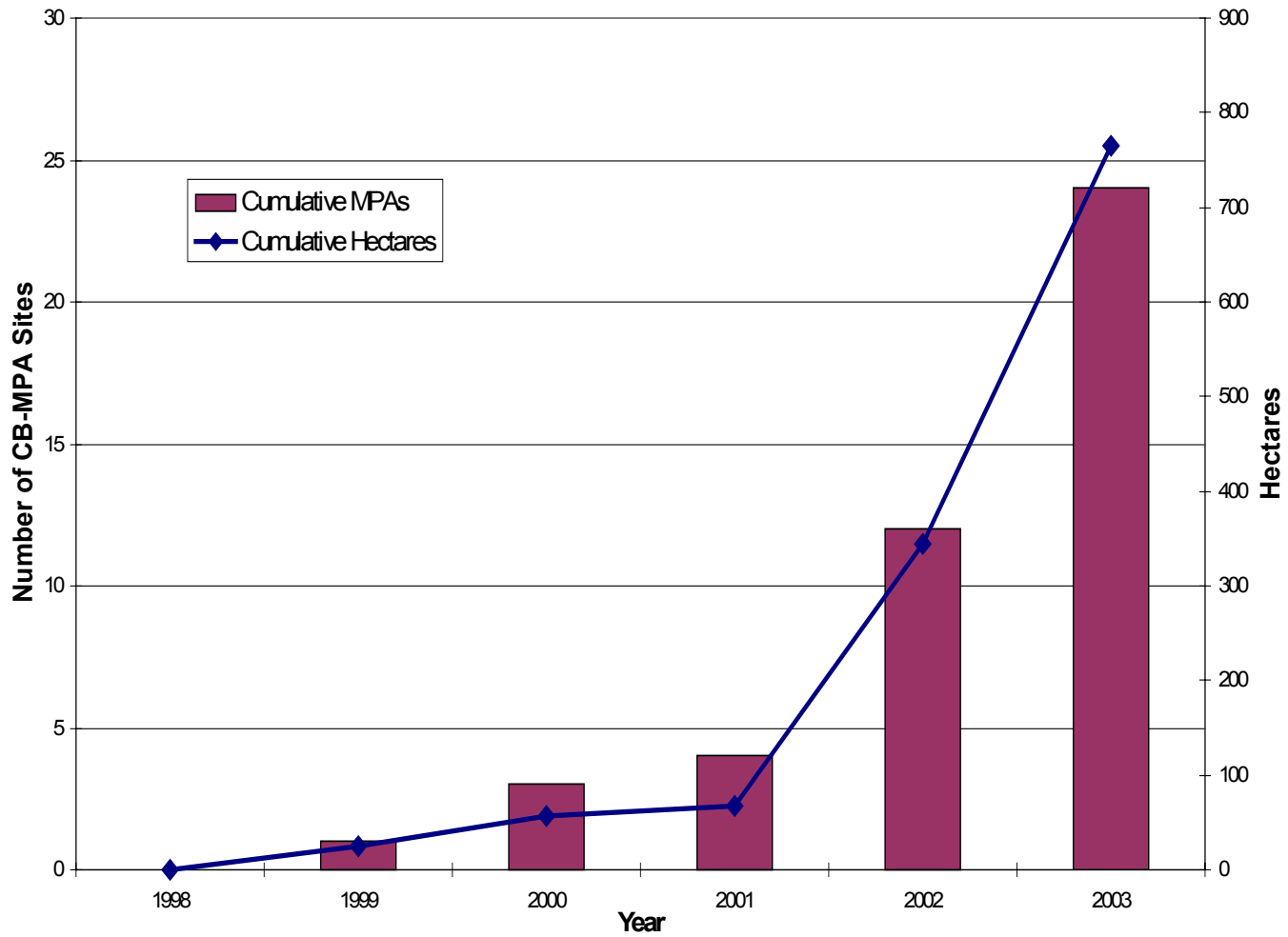
NO	VILLAGE	Dominant Habitat	MPA Established		MPA Committee Established		AREA (Hectares)		
			DATE	ORD. NO.	DATE	ORD. NO.	TOTAL	CORE ZONE	BUFFER ZONE
1	Blongko	reef	November 1999	04/2004A/KD-DB/XI/99	July 2002	02/2004A/KD/VII/2000	25	15	10
2	Talise	reef	August 2000	01/2028/PD-DT/VIII/2000	August 2002	03/2028/SK-DT/VIII/2000	22	10	12
3	Tumbak	reef	November 2000	01/2009/PD/TBK-XI/2000	November 2002	02/SKHT-Tbk/XI/2000	9	2	7
4	Bentenan	reef	October 2002	3 TAHUN 2002	September 2002	02/SKHT-bnt/X/2000	30	22	8
5	Tumbak	mangrove	November 2002	1 TAHUN 2002	November 2002	02/SKHT-Tbk/XI/2000	72.7	16.4	56.3*
	<b>Total</b>		<b>5</b>		<b>5</b>		<b>158.7</b>	<b>65.4</b>	<b>93.3</b>

\*Tumbak mangrove sanctuary buffer zone total hectares includes a buffer zone of 31.3 hectares and a limited use zone of 25 ha.

### Non-CRMP Developed Sites

1	Basaan II	reef	2001	01/PERDES/DPL/BSN.I/iii-2002	-	-	12		
	<b>Total</b>		<b>1</b>		<b>1</b>		<b>12</b>		

Cumulative Number of CB-MPA Sites and Hectares by Year in North Sulawesi, Indonesia





## II. International Presentations and Spin Off Publications

### *Publications*

Pollnac, R.B. 2003. Multiple component assessment of coral reef marine protected areas. In: World Resources Institute, Ed. *Coastal Protection for and by the People of the Indo-Pacific: Learning from 13 Case Studies*. Washington DC: World Resources Institute

Pollnac, R.B. B. Crawford and M. Gorospe. 2001. Discovering factors that influence the success of community based marine protected areas in the Visayas, Philippines. *Ocean and Coastal Management* 44(11):683-710.

### *Presentations*

2002 Quantitative approaches to the analysis of human factors influencing marine protected area success. Invited paper presented at the symposium *Sustaining Seascapes: The Science and Policy of Marine Resource Management*, the American Museum of Natural History, New York, NY 7-8 March 2002.

2000 Discovering factors that influence the success of marine protected areas in the Visayas. Paper presented at the Philippines-Indonesia Community Based Marine Sanctuary Workshop, Cebu City, Philippines, Sept. 4-11.

2001 Multiple component assessment of coral reef marine protected areas. Invited paper presented at the 10th Pacific Science Inter-Congress, Tumon Bay and the University of Guam, Mangilao, Guam 1-6 June 2001.

2000 Assessment of socioeconomic factors influencing the success of marine sanctuaries in the Philippines. Paper presented at the 9th International Coral Reef Symposium, Bali, Indonesia, 22-28 October.

### III. Key Training and Workshop Events

Training Events	Date	Number of Participants	Male	Female
English Training for Staff (TOEFL)	April 00	5	1	4
English Training for OJT	9 Jun–7 Jul 00	2	2	0
English Training for KTF	21 – 31 Aug 00	14	13	1
On the Job Training in Philippine	7-21 Aug 00	2	2	0
Training of Trainers Community Reef Monitoring	21-25 Nov'00	17	13	4
English Training for Blongko Villagers	16Jan-21Feb01	8	5	3
2 <sup>nd</sup> Training of Trainers Community Reef Monitoring	15 – 17 Mar 01	24	17	7
Graphic Training for Staff	9-21 July 01	1	0	1
Cross Visit/Training of Community Organizers from 23 villages in Likupang to anchor sites	22 – 26 & 6 – 8 May 02	70	54	16
Training “Facilitation Technique” Module for EOT and CO in Zone I, Likupang	5 – 8 May 02	41	32	9
Training/Simulation “Conflict Resolution” Module	13–18 May 02	19	16	3
Training “Government Strengthening” Module	17 – 20 Jun 02	18	15	3
Training “Facilitation Technique” Module in Zone II, Likupang	10 – 14 Jun 02	32	23	9
Training Manta Tow I	10 – 14 Jun 02	23	16	7
Training Manta Tow II	18 – 20 Jun 02	19	19	0
Training on CB-CRM Public Awareness Raising with BAPADELDA Minahasa	19 Jun 02	190	80	80
Training Manta Tow III	24 – 29 Jun 02	20	19	1
Training “CB-CRM” Module in Zone I Likupang	8 – 13 Jul 02	35	30	5
KTF Visit to Likupang	23 Jul 02	25	19	6
Training Manta Tow IV	15 – 17 Jul 02	33	28	5
Mangrove Monitoring Training	16 – 18 Jul 02	34	27	7
Training “Government Strengthening” Module	8 – 13 Jul 02	34	26	8
Training “Village Ordinance” in Aerbanua	10–11 Sept 02	58	45	13
Training Marine Sanctuary’s Group	23 – 24 Aug 02	15	10	5
Training Village Ordinance	26 – 27 Aug02	16	12	4
Training on Community-Based Coastal Resources Management in Likupang Barat	5 Sept 02	54	47	7
Training CB-CRM I in Gangga Dua	24–26 Sept 02	56	44	12
Training CB-CRM II in Likupang Dua	1 – 3 Oct 02	49	39	10

### III. Key Training and Workshop Events (continued)

Training Events	Date	Number of Participants	Male	Female
Training Village Ordinance in Palaes	23–24 Sept 02	33	25	8
Training Marine Sanctuary Management Group in Serei	22 Oct 02	27	22	5
Training on Public Awareness in Environmental Sanitation and ICM in Pulisan	19 Oct 02	21	14	7
Training of Marine Protected Area Management Group in Maen	14 – 15 Oct 02	35	23	12
Training on Formatting Village Ordinance of Marine Sanctuary in Bahoi	17 Oct 02	24	19	5
Training Mangrove Management in Lihunu	12 – 15 Nov 02	17	16	1
Training of Trainer Curriculum Development in Manado	4 Nov 02	10	5	5
Training of Trainer Curriculum Development in Tomohon	13 – 14 Nov 02	29	20	9
Training of Trainer Curriculum Development in Tomohon	20 – 21 Nov 02	23	14	9
Training in Formulating RPTD	7,11,18 Nov 02	87	78	9
English Private Course for Staff (MK) attending WILD Workshop	2 – 19 Dec 02	1	0	1
Training on Formulating Coastal Resources Management Plan in Sarawet	17 – 19 Dec 02	27	25	2
Mangrove Training	5 - 8 Mar 03	54	47	7
Outreach Training Workshop	9 – 16 Mar 03	27	18	9
<b>Total Training Participants</b>		<b>1302</b>	<b>982</b>	<b>320</b>

Workshops	Date	Number of Participants	Male	Female
Philippine Focus Groups on CB-MPAs		54	33	21
Manado-Cebu Workshop on CB-MPAs	4-11 Sept 00	30	22	8
Western Pacific SeagrassNet Workshop	16 – 28 Jan 02	2	2	0
Workshop on Institutional Frameworks for CB-CRM	11-16 Mar 02	2	1	1
CB-CRM Public Awareness Raising Workshop (DPRD Minahasa – Perda)	26 Jun 02	163	118	45
Mini-Workshop on Socioeconomic Monitoring Protocols	31 Jul 02 – 1 Aug 02	1	1	0
KTF Awareness Workshop	8 – 9 Aug 02	23	14	9
Workshop on Gender Equity and Population Dimensions in ICM	15 – 22 Feb 03	1	0	1
<b>Total Workshop Participants</b>		<b>276</b>	<b>191</b>	<b>85</b>

<b>Radio Station and TV Talk Shows</b>	<b>Topic</b>	<b>Date</b>
State Radio/Pro2 FM	Interactive Dialogue on Community-Based Coastal Resources Management Scaling up Program: Source Person Sarwono Kusumaatmadja	February 2002
Smart FM	Interactive Dialogue with Sarwono Kusumaatmadja on Community Based Coastal Resources Management Law	February 2002
State Radio/Pro2 FM	Interactive Dialogue CB-CRM General Campaign Program	March 2002
RAL FM	CB-CRM Campaign Program with North Sulawesi Conservation Campaign Network	March 2002
SION FM	CB-CRM Campaign Program	March 2002
Montini FM	Interactive Dialogue on CB-CRM	March 2002
Local TVRI	Talk show with on Draft Minahasa Law CB-CRM with Sarwono Kusumaadmadja, Lucky Sondakh (Bapeda) , M.E Ering (DPRD)	March 2002
State Radio/Pro2 FM	Interactive dialogue with Sarwono Kusumaatmadja on Minahasa CB-CRM Law	July 2002
Smart FM	Interactive Dialogue with Sarwono Kusumaatmadja on CB-CRM Law	July 2002
RAL FM	Interactive Dialogue with Sarwono Kusumaatmadja on CB-CRM Law	July 2002
Local TVRI	Talk show on Minahasa CB-CRM Law approval	July 2002
Local TVRI	Talk show on Marine Sanctuary with Johnnes Tulungen, Widi Pratikno (Coastal DG) and Mario Panelewen (Fishery Office)	August 2002
Local TVRI	Talk show on Community Based Coastal Monitoring Program with Christovel Rotinsulu and Irez Ashar	September 2002

#### **IV. Major Products Produced**

##### **Guidebooks:**

<b>Citation</b>	<b>No. Printed/Distributed</b>
<b><i>Manta Tow Guidebook</i></b> Sukmara, A., A.J. Siahainenia dan C. Rotinsulu. 2001. Panduan Pemantauan Terumbu Karang Berbasis-masyarakat Dengan Metoda Manta Tow. Proyek Pesisir. Publikasi Khusus, University of Rhode Island, Coastal Resources Center, Narragenasett, Rhode Island, USA. pp 44.	300
<b><i>Marine Sanctuaries Guidebook</i></b> Tulungen, J.J., T. G. Bayer, B. R. Crawford, M. Dimpudus, M. Kasmidi, C. Rotinsulu, A. Sukmara dan N. Tangkilisan. 2002. Panduan Pembentukan dan Pengelolaan Daerah Perlindungan Laut Berbasis-Masyarakat. CRC Technical Report Nomor 2236. Departemen Kelautan dan Perikanan Republik Indonesia dan University of Rhode Island, Coastal Resources Center, Narragenasett Rhode Island, USA. pp.77	2500
<b><i>Coral Reef Monitoring Guidebook</i></b> Tulungen, C.B., H. R. Paat., C. G. S. Sumakul dan C./ R. S. Rotinsulu (Penterjemah). 2003. Pemantauan Terumbu Karang Dalam Rangka Pengelolaan. CRC Technical Report Nomor 2238. Publikasi Khusus Proyek Pesisir. University of Rhode Island, Coastal Resources Center, Narragenasett, Rhode Island. 105 Hal.	400

## Technical Reports and Proceedings:

Citation	No. Printed and Distributed
Crawford, B., M. Balgos and C. R. Pagdilao (2000) "Community-Based Marine Sanctuaries in the Philippines: A Report on Focus Group Discussions." Coastal Resources Center Coastal Management Report #2224. PCAMRD Book Series No. 30. Coastal Resources Center, University of Rhode Island, Narragansett, Rhode Island, USA, and Philippine Council for Aquatic and Marine Research and Development, Los Banos, Laguna, Philippines.	500
Pollnac, R. B. and B. R. Crawford (2000) "Discovering Factors that Influence the Success of Community-Based Marine Protected Area in the Visayas, Philippines." Coastal Management Report #2229. PCAMRD Book Series No. 33. Coastal Resources Center, University of Rhode Island, Narragansett, RI, USA, and Philippine Council for Aquatic and Marine Research and Development, Los Banos, Laguna, Philippines	500
Balgos, M., T. Bayer, B. Crawford, C. Pagdilao, J. Tulungen, and A. White (eds.). 2001. Proceedings: Philippines-Indonesia Workshop on Community-Based Marine Sanctuaries. Cebu, Philippines and Manado, Indonesia. September 2000. Coastal Resources Management Report #2234. PCAMRD Book Series #34. University of Rhode Island, Coastal Resources Center. Narragansett, Rhode Island, USA. pp. 106.	500
CRITC-IV. 2002. Laporan Monitoring dan Pelatihan Metodologi Penelitian Lamun di Desa Airbanua dan Desa Blongko Kabupaten Minahasa. Proyek Pesisir. Technical Report TE-02/04-I University of Rhode Island, Coastal Resources Center, Narragansett, Rhode Island, USA	10
Christovel Rotinsulu, Sesilia Dajoh (2003), Workshop dan Pelatihan Pembentukan dan Pengelolaan Daerah Perlindungan Laut Berbasis Masyarakat., Training Report, TR-03/08-I, Coastal Resources Center, University of Rhode Island, USA.	10
Sesilia Dajoh, Joke Mewengkang (2003), Pelatihan Pembuatan Rencana Pengelolaan Sumberdaya Wilayah Pesisir, Training Report, TR-03/07-I, Coastal Resources Center, University of Rhode Island, USA. 57 pages.	10
Rosita Agnes Kaiha, Sesilia Dajoh (2002), Pelatihan dan Uji Coba Modul Perencanaan Wilayah Desa untuk Penggerak Masyarakat di Wilayah Likupang (Zone III), Training Report, TR-02/01-I, Coastal Resources Center, University of Rhode Island, USA. 231 pages.	10
Rosita Agnes Kaiha, Sesilia Dajoh (2002), Pelatihan dan Uji Coba Modul Perencanaan Wilayah Desa untuk Penggerak Masyarakat di Wilayah Likupang (Zone I), Training Report, TR-02/02-I, Coastal Resources Center, University of Rhode Island, USA. 92 pages.	10
Rosita Agnes Kaiha, Sesilia Dajoh (2002), Pelatihan dan Uji Coba Modul Perencanaan Wilayah Desa untuk Penggerak Masyarakat di Wilayah Likupang (Zone II), Training Report, TR-02/06-I, Coastal Resources Center, University of Rhode Island, USA.	10
Rosita Agnes Kaiha, Sesilia Dajoh (2002), Lokalatih Modul Mengelola Konflik (Bagian dari Persiapan), Training Report, TR-02/07-I, Coastal Resources Center, University of Rhode Island, USA.	10
Profil Sumberdaya Wilayah Pesisir Desa Mubune, Kecamatan Likupang Barat – Kabupaten Minahasa. Suhatman Sahari, Tanwin bin Raya, Juma Pabicara, Djalil Makatungkang, Santi Soleman, Coastal Resources Center of Rhode Island, USA. Manado 2003. 30 p.	100
Profil Sumberdaya Wilayah Pesisir Desa Sonsilo. Kecamatan Likupang Barat – Kabupaten Minahasa. Weslij Tahulending, Boyke Mamuko, Patryn Katamona, Santi Soleman. Coastal Resources Center of Rhode Island, USA. Manado 2003. 30 p.	100
Profil Sumberdaya Wilayah Pesisir Desa Bahoï. Kecamatan Likupang Barat – Kabupaten Minahasa. Adrianus Balau, J. Sahudege, Frans Lahamendu, Imelda Londa. Coastal Resources Center of Rhode Island, USA. Manado 2003. 17 p.	100
Profil Sumberdaya Wilayah Pesisir Desa Serei. Kecamatan Likupang Barat – Kabupaten Minahasa. Wellem Tahulending, Sutrisna Katulung, Rein H. Sineri, Victor Sadia, Anastasya Diangan, Pdt. Ventje Kindange, Sinorita Sentinuwo, Imelda Londa. Coastal Resources Center of Rhode Island, USA. Manado 2003. 17 p.	100

### Technical Reports and Proceedings (continued):

Citation	No. Printed and Distributed
Profil Sumberdaya Wilayah Pesisir Desa Tarabitan. Kecamatan Likupang Barat – kabupaten Minahasa. Piet Poda, Maksi Bato, Mahonis Ibrael, Swengly Bato, Yavet Tumewu, Yosepus Manarat, Imelda Londa. Coastal Resources Center of Rhode Island, USA. Manado 2003. 32 p.	100
Profil Sumberdaya Wilayah Pesisir Desa Tanahputih. Kecamatan Likupang Barat – Kabupaten Minahasa. Yustus Sarudi, Dalonto Natari, Spencer Kahindatu, Hendrik Lahansang, Katrence Natari, Ramsei Kakondo, Dolfi Dalonto, Jariel Natari, Awumbas Kakondo, Verdinand Gedoan. Coastal Resources Center of Rhode Island, USA. Manado 2003. 29 p.	100
Profil Sumberdaya Wilayah Pesisir Desa Maliambao. Kecamatan Likupang Barat – Kabupaten Minahasa. Boy Kansil, Eduard Hatibae, Abdon Alelo, Yahya Makagansa, Silas Derek, Nmerlyn M. Neyland, Verdinand Gedoan. Coastal Resources Center of Rhode Island, USA. Manado 2003. 37 p.	100
Profil Sumberdaya Wilayah Pesisir Desa Termmal Kecamatan Likupang Barat – kabupaten Minahasa. Samuel lagu, Sersiu Salipeng, Desaman Pieter, Denny Tatengkeng, Tamar Tapahing, Masrurin untilinga, Herman Kundimang, Maerlyn Neyland, Verdinand Gedoan. Coastal Resources Center of Rhode Island, USA. Manado 2003. 30 p.	100
Profil Sumberdaya Wilayah Pesisir Desa Gangga Satu Kecamatan Likupang Barat – Kabupaten Minahasa. Lutfy Basalamah, B. Ramly Aroh, Jemmy Sahempa, Recky Sikome, Eben Kadimateng, Elen Lala. Coastal Resources Center of Rhode Island, USA. Manado 2003. 40 p.	100
Profil Sumberdaya Wilayah Pesisir Desa Gangga Dua Kecamatan Likupang Barat – Kabupaten Minahasa. Lutfy Basalamah, Djen Bakari, Nurdin Bahar, Abdullah Tampolo, Rusly Ali, Said Djumaati, Farida Malurung, Jemmy Daniel, Josafa. Coastal Resources Center of Rhode Island, USA. Manado 2003. 36 p.	100
Profil Sumberdaya Wilayah Pesisir Desa Airbanua Kecamatan Likupang Barat – Kabupaten Minahasa. Victor Bawia, Butje Pudihang, Polykarpus Kending, Sompie Koaatie, Julius Masoa, Fandy Kuemba. Patri Napu, ismail Tampi. Coastal Resources Center of Rhode Island, USA. Manado 2003. 34 p.	100
Profil Sumberdaya Wilayah Pesisir Desa Maen, Kecamatan Likupang Timur – kabupaten Minahasa. James Koagouw, Adi M. Yasin, Rusli ibrahim. Yusi Darui, Marthin Lumihi, Dhalan Pamatua. Coastal Resources Center of Rhode Island, USA. Manado 2003. 31 p.	100
Profil Sumberdaya Wilayah Pesisir Desa Pulisan Kecamatan Likupang Timur – Kabupaten Minahasa. James Koagouw, Estefanus Takumansang, Aplinus Wodi, Yusiu Togelang, Frens Tompo, Rihol Kamea, Ezra Kokambohe. Coastal Resources Center of Rhode Island, USA. Manado 2003. 32 p.	100
Profil Sumberdaya Wilayah Pesisir Desa Lihunu Kecamatan Likupang Timur – Kabupaten Minahasa. Yoke Mewengkang, Dikson Haerani, Apeles Lalaria, Heri Bawole, Abrm Haerani. Coastal Resources Center of Rhode Island, USA. Manado 2003. 24 p.	100
Profil Sumberdaya Wilayah Pesisir Desa Kahuku Kecamatan Likupang Timur – Kabupaten Minahasa. Yoke Mewengkang, Andries Mangintiku, Marianty anthoni, Lexy Tusang. Coastal Resources Center of Rhode Island, USA. Manado 2003. 13 p.	100
Profil Sumberdaya Wilayah Pesisir Desa Libas Kecamatan Likupang Timur – Kabupaten Minahasa. Yoke Mewengkang. Gayus Daluwu, Witje Bintang, Amalia Nagaring, Apner Kudato, Widya Olongsongke. Coastal Resources Center of Rhode Island, USA. Manado 2003. 30 p.	100

**Educational and Training Materials:**

<b>Item</b>	<b>No. Printed and Distributed</b>
Poster on Community-based Marine Sanctuary: Daerah Perlindungan Laut: Inga ... Inga...! Ada Tiga Manfaat Utama	5,000
Poster on Community-based Marine Sanctuary: Daerah Perlindungan Laut: Dari Masyarakat ..., Untuk Masyarakat	5,000
Calendar 2002 – Blongko, Talise and Tumbak Marine Sanctuaries (500 each)	1,500
Fact sheet: Coral Reef	500
Fact sheet: Community-Based Marine Sanctuary	500
Fact sheet: Manta Tow Survey	500
Book Mark Mangrove for Public Education	3000
VCD : Talk Show Dialogue Interactive of Coastal Resources Management Perda	50
Photocopy: Compilation of Anchor site Village Ordinances	800
Photocopy of Perda Kabupaten Minahasa No. 2/2002 – Community-based Integrated Coastal Resources Management in Minahasa Regency	300
Materials for Puppet Shows	-
VCD: Negeri Karang Ajaib	35
VCD: Talk Show Dialogue Interactive of Regulation on Community Involvement, UU No. 22/99	5

## V. Equipment Provided to Local Institutions

<b>Item(s)</b>	<b>Institution</b>
1 Unit Computer & 1 Unit Printer	DPRD Kabupaten Minahasa
1 Unit Computer & 1 Unit Printer	BPPK Minahasa
1 Unit Computer & 1 Unit Printer	Dinas Perikanan & Kelautan Minahasa
1 Unit Computer & 1 Unit Printer	Pemerintah Daerah Minahasa
1 Unit Computer & 1 Unit Printer	Kecamatan Likupang Timur
2 Units Typewriter	Kecamatan Likupang Barat
1 Unit LCD*	TBD
1 Unit CD-RW Writer*	TBD
1 Unit Notebook Dell*	TBD
3 Unit Computer*	TBD
1 Unit Sony HandyCam*	TBD
1 Unit Wireless Sound System*	TBD
1 Unit Filing Cabinet*	TBD
1 Unit Cash Box*	TBD

\*Equipment to be Delivered in August 2003, Institutions to be Determined



## VI. Equipment Provided to Local Communities

Item(s)	Village
Marker Buoys, Information Board (1.3m x 1.5m), Typewriter, Snorkeling Gear, Binocular, Educational Materials	Termmal
Marker Buoys, Information Board (1.3m x 1.5m), Typewriter, Snorkeling Gear, Binocular, Educational Materials	Maliambao
Marker Buoys, Public Address System, Snorkeling Gear, Binocular, Educational Materials	Tarabitan
Marker Buoys, Information Board (1.3m x 1.5m), Typewriter, Snorkeling Gear, Binocular, Educational Materials	Maen
Marker Buoys, Information Board (1.3m x 1.5m), Typewriter, Snorkeling Gear, Binocular, Educational Materials	Mubune
Marker Buoys, Information Board (1.3m x 1.5m), Typewriter, Snorkeling Gear, Binocular, Educational Materials	Tanah Putih
Marker Buoys, Information Board (1.3m x 1.5m), Typewriter, Snorkeling Gear, Binocular, Educational Materials	Gangga Dua
Marker Buoys, Information Board (1.3m x 1.5m), Typewriter, Snorkeling Gear, Binocular, Educational Materials	Pulisan
Marker Buoys, Information Board (1.3m x 1.5m), Public Address System, Snorkeling Gear, Binocular, Educational Materials	Airbanua
Marker Buoys, Information Board (1.3m x 1.5m), Typewriter, Snorkeling Gear, Binocular, Educational Materials	Lihunu
Marker Posts, Information Board (1.3m x 1.5m), Typewriter, Water Proof Flashlight, Binocular, Educational Materials	Sonsilo
Marker Buoys and Posts, Information Board (1.3m x 1.5m), Typewriter, Snorkeling Gear, Binocular, Water Proof Flashlight, Educational Materials	Libas
Marker Buoys, Information Board (1.3m x 1.5m), Public Address System, Snorkeling Gear, Binocular, Educational Materials	Serei
Marker Buoys, Information Board (1.3m x 1.5m), Typewriter, Snorkeling Gear, Binocular, Educational Materials	Gangga Satu
Marker Posts, Information Board (1.3m x 1.5m), Typewriter, Water Proof Flashlight, Binocular, Educational Materials	Sarawet
Marker Buoys	Airbanua, Jaga II Desa Wawunian
Educational Material	Kahuku
Educational Material	Palaes
Educational Material	Jayakarsa
Educational Material	Munte
Educational Material	Bahoi
Educational Material	Paputungan
Educational Material	Rinondoran
Educational Material	Likupang Dua
Educational Material	Wineru
Educational Material	Kalinaun
Information Board (1.3m x 1.5m), Marker Buoys and Concrete Wall for Mangrove Sanctuary	KSM Lambos, Desa Tumbak

## Marine Sanctuary Marker Buoys Installed in Villages in Likupang



## Informational Sign Boards Installed in Villages in Likupang



## Information Center Established in the Village of Serey, Likupang

