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**Developing Models for Community-Based Coastal
Management in North Sulawesi Province: Progress Report**

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**Proyek Pesisir
(Coastal Resources Management Project)
USAID-BAPPENAS NRM II PROGRAM**

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Project Context

Proyek Pesisir (the Indonesia Coastal Resources Management Project) is part of the NRM II Program, a cooperative effort of USAID and the Government of Indonesia to decentralize and strengthen natural resources management in Indonesia. The project was started in 1996 and will run through 2001. A possible extension of the project to 2003 is under consideration. The North Sulawesi field site was established in 1997, and is one of three provincial field locations where Proyek Pesisir is testing and developing models of effective coastal management. The emphasis in North Sulawesi is on developing models of community-based approaches. Specific models being developed and tested include marine sanctuaries, village-level integrated coastal resources management plans and village ordinances to address specific issues.

Three village level field sites were selected in 1997 and extension officers assigned full time at the village sites in October, 1997. Activities which have been conducted in the province include: (1) development of baseline information on each of the field sites and at several control sites, (2) training and capacity building of local institutions and project staff, (3) establishment of a Provincial Advisory Group and a Kabupaten Task Force, (4) outreach and dissemination of project experience, and (5) project socialization, public education, training, and implementation of early actions at the three village-level field sites.

Current Status of Activities and Short-term Priorities

Staff Capacity: There have been a number of staffing transitions over the last six months which have included:

- Reassignment of the technical advisor to the CRC home office (Nov. 1998).
- Reassignment of the technical extension officer to the Balikpapan office (Jan. 1999).
- Resignation of the research extension officer (March, 1999).
- Contracting of a new technical extension officer (April, 1999).
- Hiring of an additional secretary and administrative clerk (March 1999).

The departure of the technical staff from Manado has had the consequence of reducing staff capacity to undertake field work, and to complete technical studies and reports. The addition of the new technical extension officer and reassignments of some duties for PMP reporting to one of the secretaries has now alleviated some of the loss of capacity suffered earlier in the year. The addition of administrative support staff has also enhanced the ability of the Manado office to provide timely financial reports to Jakarta, service the large amount of activities at three remote village-level field sites, and coordinate an increasing load of outreach visitors interested in viewing project field experience first hand. At this point, the Manado office staffing should be considered mature, with no immediate needs for any further staffing increases. Staff have all been well trained and while there are always opportunities for staff development, they are adequately skilled to perform the activities programmed in the Year 3 workplan.

As village-level management plans become approved and move into implementation, field staff should be able to spend more time working out of the Manado office and start concentrating more on documenting successful community-based management approaches, and providing training and other technical support services to local institutions starting to engage in replication. This is not expected to occur however for at least another six months and perhaps not until early in year 2000.

Training: The first two years of the project invested heavily in training of project staff, local institutions, and more recently in the latter half of 1998, on community core groups. Continuing investments in training will be needed, with emphasis placed on community core groups for village-based plan preparation and implementation, and on local institutions who will be involved in scaling-up or replication of community-based models developed by the project. The North Sulawesi field extension staff have the weakest English language capability of any of the three project field sites. Continuing English training is recommended for project extension staff to allow them to take greater advantage of drawing and applying experience and lessons learned from other regions of the world. Field staff also need to start enhancing their training and writing skills as they will increasingly become more involved in outreach activities as well as building the capacity of local institutions to continue replication of community-based coastal management initiatives beyond the life of the project. Several training reports (for Sept/Oct 1998 training events conducted in Manado) being produced by the Field Program Manager of East Kalimantan are still outstanding. These are desperately needed in North Sulawesi as they contain a large amount of source materials needed for upcoming community core-group training events, and for building the capacity of local institutions for scaling-up and replication purposes. Continuing delays in completing these reports will delay or weaken capacity building efforts in North Sulawesi.

Village Profiling and Planning: The village profiling process started in earnest in September, 1998 and is nearing completion with final profile documents expected to be completed by the end of June. Documentation of this village-level profiling process is described in a detailed working paper attached as an annex to this report. Short-term plans for moving to the next stage of the village-level planning process were developed in a internal staff workshop conducted at the end of May, 1999. A workshop report is being produced and a draft - in Indonesian - is available from the Manado office. The workshop outputs included (1) timelines of all major project activities to date at each field site, (2) an assessment of the first and second phases of the planning process utilizing the common methodology for learning and assessment manual produced by CRC, (3) a review of lessons learned, and (4) short-term work plans to complete the village-planning process to the plan approval phase. The current schedule has village-level management plans being completed and approved, including community participation and review, on or about October, 1999.

Technical Studies and Reports: A large number of technical reports and special reports (Village profiles) are nearing completion. There has been a backlog and delay in their production due in part to staffing transitions which have occurred and the GIS computer transfer to the East Kalimantan field site. These issues have now been resolved and over

the next several months almost one dozen reports will be forwarded to Jakarta for final production. However, quality control problems have resulted on occasion in the final production phase in Jakarta (e.g. Rumbia-Minanga control site baseline report), and several reports submitted six months to a year ago (e.g. Bentenan-Tumbak Ecological History, Public Education Strategy) have yet to be produced. Coupled with a host of other reports now arriving from other field sites and being produced by the National Office, the small publications unit in Jakarta may be quickly overwhelmed. One way to avoid a backlog occurring in Jakarta is to contract part-time help to assist Ibu Khun in completing the layouts and production of these reports, or work on developing a greater capacity and responsibility at the field sites to do layout of technical reports and potentially some special publications (by having field sites provide camera ready documents for printing to the publications unit following project-wide publications guidelines already established), thereby concentrating the publications unit efforts on layout and printing of special publications.

Engaging local NGOs: The project has worked with a number of NGOs over the last two years of the project. These include: (1) the International Marineline Alliance based in the Philippines, (2) FPK and Kelola – local environmental NGOs specializing in community-based natural resources management and development, (3) CRITC – the Coral Reef Information and Training Center, (4) AUSPICA – the North Sulawesi chapter of the Indonesian Research Divers Association, and (5) NSWASA - The North Sulawesi Watersports Association – a local group of private sector diver operators.

Attempting to engage environmental NGO groups on official Provincial and Kabupaten committees has been difficult. This may in part, be due to the reluctance of these NGOs to be seen as too closely associated with Government Institutions or serving on officially sanctioned committees. Engaging these NGOs in project activities remains a challenge and requires additional attention. Working with IMA on cyanide and aquarium fishing issues has also proven difficult due to the part time nature of their engagement in North Sulawesi, and the absence of a skilled local partner organization to follow-through of initiatives started.

The best success to date has been working CRITC, AUSPICA and the NSWASA. CRITC and AUSPICA, both affiliated closely with the local university – UNSRAT, have been very successful partners for assistance with community training on coral reef monitoring, Crown-of-Thorns clean-ups, and coral reef technical studies and surveys. The technical competence of these two organizations makes them suitable partners for clearly identified and discreet pieces of contract work. This is a potential model of services which they could provide to local government institutions for eventual replication of community-based management best practice models. As such, continuing efforts to work with these groups, and build their capacity to provide such services should be emphasized over the next several years of the project.

Work with the NSWASA has been very informal, and has included participation at their regular meetings, on occasion providing informal technical advice on certain issues, and participation as judges on a mooring buoy competition for Bunaken National Park. Since

relationships are cordial, these low key cooperative efforts should continue. As scaling up of marine sanctuaries starts to occur, and as ecotourism opportunities derived from community-based marine sanctuaries, as well as from other project activities arise, the NSWSA could play an increasingly beneficial and cooperative role in supplemental and alternative tourism livelihood ventures for local communities at project sites as well as at replication sites initiated by BAPPEDA.

Working with Local Government: Most coordination with local government has been through BAPPEDA both at the Provincial and Kabupaten level (Minahasa only), and more infrequently, through a project Provincial Advisory Group and Minahasa Kabupaten Task Force. This coordination is carried out primarily by the Field Program Manager, Senior Extension Officer and Local Advisor. It requires a substantial amount of time of the senior field staff and will become increasingly important over the next year for village-based plan review and approval, as well as for discussions and planning of scaling-up strategies of community-based models developed.

Coordination with village level government and at the Kecamatan level is regularly carried out by the field extension workers. Coordination at this level seems to be adequate and working well, but will also need to be intensified during the village management plan preparation, approval and initial implementation phases over the next year.

A Scaling-up Strategy: The provincial BAPPEDA office has expressed a desire to be more engaged in the annual work planning process, and is now extremely interested in pursuing a scaling up strategy for community-based marine sanctuaries encompassing a demonstration site in each Kabupaten/Kotamadya of the province. In addition, they are keen to start a planning initiative with community-based sanctuaries as a foundation of a Lembeh Straights conservation area which is being promoted by the Lembeh Straights Preservation Society and Kungkungan Bay Resort.

High expectations of local government and current demands to start replication are outstripping our ability to provide such services. In addition, the initial community-based models are still in a very early stage of development, and only the Blongko Marine Sanctuary has entered the implementation phase. This presents concerns about scaling-up and replicating these models prematurely, before the models are developed enough (at least starting on the implementation phase), before our experience and approaches have been well documented, and before we are ready to transition human and financial resources from developing and testing models, to documentation, outreach, and building capacity for replication. It is also uncertain whether local government institutions fully understand the investments needed to build this into a sustainable GOI initiative, rather than relying solely on USAID funding.

The desire to scale-up our community-based approaches is a good sign, but we need to be paying increasing attention to how this should be carried out. This year, increased efforts will be required to better educate local government of the resources needed to start replication. We need to start working with them now on planning these replication

initiatives for the next fiscal year, using counterpart GOI funds, and USAID funds for supporting activities. Roles and responsibilities need to be clearly defined and mapped for next year, and will require a more engaged and prolonged series of planning meetings with BAPPEDA. Visits of senior staff of Proyek Pesisir, CRC and USAID should be used to help engage BAPPEDA in these discussions, and help better educate them to the resources and capacity required to carry out these activities. A full day or two-day workshop should be planned as part of the scaling-up discussion, to map out a detailed long-term strategy for scaling-up and develop a short-term plan of activities for Year 4 of the project. An initial policy discussion outline for scaling-up/replication has been prepared during May (outputs of the meeting of Brian, Johnnes, Janny and Devi from BAPPEDA), and is attached as an annex to this report.

Technical Studies and Local Consultant Work in Year 3: Several technical studies/projects will be contracted to local consultants this year. These include:

- Agroforestry demonstration plots in Talise and Blongko
- Coastal erosion, shorefront development and flood control monitoring and planning
- Crown-of-Thorns broadscale survey of the North Sulawesi Maluku seacoast
- Public education at the field sites and pilot school curriculum development

Discussions among the Field Program Manager, Technical Advisor and most of the consultants for these work activities were held in May, 1999. The bulk of these activities are to support planning or implementation initiatives at the three field sites. The Crown-of-Thorns survey is designed to determine whether the outbreak experienced at the Bentenan-Tumbak field site is part of a larger regional phenomena and what policy implications this may have. The pilot school curriculum development, while targeted within the field sites initially, may provide models for a province-wide initiative at some later point in time, and possibly as a part of a provincial community-based coastal management program. Draft terms of reference for the first three items listed above are provided as annexes to this report. It is recommended that the COTs survey be directly supervised by the Senior Extension Officer (Chris Rotinsulu), and the public education work be supervised directly by Meidi Kasmidi, the Blongko field extension officer, who will transition later this year from Blongko to the Manado Office, and become a technical extension officer servicing the field sites and coordinating outreach and training.

Recommendations:

More education is needed with local government as to the level of effort required to implement community-based coastal management initiatives. In addition, closer coordinated planning with BAPPEDA will be required this year and needs to focus on planning for scaling up in the next fiscal year, rather than starting ad-hoc scaling-up initiatives this year.

Visitor traffic through Blongko has become quite heavy and may be causing negative consequences. Villagers are starting to express that long term outcomes such as increased fish catches are starting to occur. It is highly unlikely that this is a causal result

from the establishment of the marine sanctuary just a few months ago. More likely, it reflects their understanding of the result expected due to experience in other locations such as Apo Island, Philippines, and may be a desire to please visitors interested to learn about their experience. Visitor traffic to Blongko needs to be reduced, and intensified efforts are needed for monitoring marine sanctuary implementation and long-term impacts.

A detailed monitoring plan needs to be initiated for the Blongko marine sanctuary and can be incorporated into the sanctuary management plan under development. Initial concepts of a simple scheme are outlined in a memo (attached as an annex) from the Technical Advisor and were discussed with the Manado team. Manado staff recommended that an effort to monitor local reef-related fish catch also be incorporated into the monitoring plan.

While North Sulawesi has developed a good set of baseline information for long-term project monitoring, more attention should be given to monitoring intermediate objectives, including intermediate project outputs and outcomes which are not captured in the PMP reports. The learning team could help facilitate initial development of an intermediate monitoring strategy with the field staff. In addition, it is suggested that the learning team concentrate year 3 documentation and lesson drawing activities in North Sulawesi on the following:

- Blongko Marine Sanctuary: Documentation of the process of sanctuary establishment and its initial implementation as well as assistance in development of a longer-term monitoring strategy.
- Early Actions: Assessing their relative success in terms of the coastal management issues they attempted to address (e.g. Were mangrove reforestation efforts in Benetenan and Tumbak successful? Are the MCKs in Blongko being used and maintained?) and assistance in developing monitoring strategies for the various types of early actions which have been implemented.
- Profiling and Plan Development: Preliminary documentation of profiling activities is provided as an annex. Subsequent documentation should add more detail to this start and also include preliminary plan preparation experience as well. This paper uses a new writing style which has boxes inserted throughout the document to summarize key points and highlight lessons to keep in mind for subsequent replication. This could be a model for Year 3 learning team documentation papers.

Development and testing of community-based management approaches is not yet completed and requires additional commitment of effort this year. Staff could easily become preoccupied with documentation, outreach and replication activities which would be at the expense of model development. While some outreach and documentation activities are necessary, it needs to be recognized that the priority over the next six months needs to be on village plan and ordinances development and their approval.

Annexes

1. Preliminary Documentation of the Village Profiling Process in North Sulawesi
2. Internal Workshop Design and Outputs on Results, Reflections and Lessons Learned
3. Scaling-up Policy Discussion Outline
4. Draft Terms of Reference: Crown-of-Thorns Broadscale Assessment of the Maluku Sea Coast
5. Draft Terms of Reference: Erosion/Shorefront Development Specialists
6. Draft Terms of Reference: Agroforestry Specialists
7. Marine Sanctuary Monitoring

Preliminary Documentation of the Village Profiling Process in North Sulawesi

By Brian R. Crawford and Johnnes Tulungen

Background:

Three village-level field sites were selected in North Sulawesi in June of 1997 for pilot development and testing of community-based coastal management models. Socio-economic and environmental baseline surveys were conducted in the field sites between June 1997 and March 1998. Full time field extension officers were assigned to the field sites in October 1997, and in 1998, local assistants from each village were contracted to assist with project activities in the villages.

Extension officers initiated a process of project socialization (orientation for the community of project goals, objectives and activities) upon assignment to the community, followed by a number of other community preparation activities including public education, training, participatory

Project Socialization and Community Preparation Activities

1. Formal & informal meetings/discussions
2. Public education & training events
3. Early implementation actions
4. Community monitoring & assessments

monitoring and implementation of early actions on selected issues of concern. Initial training on coastal management was provided to the extension officers in December 1997, including material on the issue identification and profiling process. Extension officers started to outline issue-based profiles at that time. The profiling activity was then set aside for various reasons, particularly to give more time for socialization of the project at the field sites, and to enable the staff to initiate public education and early action activities to build community support and awareness. In addition, staffing transitions in 1998 (including new field extension officers in Bentenan and Tumbak, a new senior extension officer, and a new field program manager) required additional adjustments and renewed efforts in staff development. As part of staff development, the field program manager underwent a one-month training at the CRC-URI Summer Institute in coastal management in June 1998. Civil unrest within the country also resulted in the departure of the resident technical advisor for a period of over one month in June 1998, and a slow down in field activities occurred during this period..

The Village-Level Profiling Process:

The purpose of the profiling exercise was to identify, assess and prioritize coastal management issues of concern to the local

Steps in the Profiling Process

1. Summarize issues identified from socioeconomic & environmental assessments, community meetings & discussions.
2. Identify a community core group.
3. Assemble a technical support team.
4. Train the core group and support team.
5. Draft a profile document.
6. Review of draft by community and technical team.
7. Revise draft.
8. Produce a final profile document.

community. On return of the field program manager and the technical advisor from the United States in July, 1998, plans for resuming the profiling process were drawn up. This resumption in the profiling effort had a different approach from the initial effort that was started in early 1998. Instead of the profile drafting effort being initiated by a technical team in Manado and the extension officers, a much more participatory approach was chosen. This was in part due to criticisms and feedback received that the baseline survey process was not participatory enough. We also felt that a more participatory approach would help build greater ownership of the process and results by the community and local government.

The Role of Baseline Surveys in the Profiling Process

The purpose of the baseline surveys was to develop a substantial information base using systematic and empirical methods, including control sites, for project impact evaluation. The goal is to document concrete evidence of resulting outcomes from adopting a participatory community-based coastal management approach, and use this information to promote subsequent replication of successful models developed. The socio-economic and environmental baseline surveys, and the ecological and human histories developed during the first year and a half of the project were very instrumental in identifying and assessing coastal management issues in the villages. In addition, much of the information gathered from the baseline survey activities was subsequently used in the profiling process and incorporated into the profile documents.

Types of Baseline Information Collected in Bentenan & Tumbak Villages

1. Socio-Economic
 - household productive activities
 - existing resource use & trends
 - household types & possessions
 - residents perceptions about resources
 - present well being and future outlook
 - perceived problems by the community
 - governance regimes
2. Environmental
 - coral reef condition
 - reef fish abundance
 - coastal habitat location, type & extent
 - beach trash surveys

Developing the Capacity of a Profiling Team:

We decided that in order to develop a issue-based coastal resources profile using a participatory process (issues are defined as an existing or anticipated problem or a development opportunity within the community), a profile development team would have to be formed and their capacity built to undertake the profiling process. The team consisted of a community core group, project extension staff, and personnel from BAPPEDA. In August, 1998, extension officers were asked to identify participants from the community who would become a community core group for profile and plan development. Factors to consider in selecting core group members are: What criteria and process will be used to identify and select core group members? What type of backgrounds and occupations should they have? What formal and informal positions do they hold within the community? What stakeholder groups can they represent?

The community core group participated in an initial one-week training program on coastal management which was conducted in September 1998. In addition to training the core group from the village field sites, the field extension officers were also involved in the training course as participants and training co-facilitators. The course was conducted by the senior extension staff and the Field Program Managers (FPM) from Manado and East Kalimantan. Local government counterparts (BAPPEDA Tk. I and II) also participated in the training course in an effort to involve them more in the profile and plan development phase and to educate them more about the coastal management process. During this one-week training, the basic principles of coastal management were presented, and initial outlines for village profiles and management plans were developed in small groups for each field site. These working groups included the community core group members, local government (BAPPEDA) representatives and project extension officers. The group outputs mentioned above included a list of key management issues, their causes and consequences, location and extent, and trends if known. The outputs also included drafts of (1) a vision statement for the community, (2) objectives for management for a few of the issues identified along with selected actions, and, (3) a recommended process for plan development and approval.

Priority Issues Identified in Talise Village

1. Lack of land tenure
2. Deforestation and loss of wildlife
3. Conflicts between fishers & a pearl farm
4. Poor drinking water supply & sanitation
5. Low agricultural productivity
6. Beach erosion & flooding

At the request of the training participants, a second coastal management training workshop was then held in Tomohon in November for an expanded core group from the villages with participation from BAPPEDA Tk. I and II. At this workshop, the village profiling and planning process was further elaborated and more detailed profile outlines developed, along with specific activities for community review and input of the draft management plans.

Preparation and Review of Draft Profiles:

Extension officers then wrote a draft profile document based on the outlines developed in the training workshops. The draft profiles were then reviewed by the village core groups and other village officers such as the Kepala Desa, and presented to the wider community through formal and informal meetings and discussions. During this process, many corrections were made to the text, and additional issues added. For

Examples of Community Participation for Blongko Village Profiling

1. Core group training & workshops
2. Dusun & village-wide meetings
3. Informal discussions of issues
4. Editing of draft text
5. Taking photographs illustrating issues
6. Coral reef monitoring using manta tow
7. Compiling village statistics

instance, in Bentenan, a section on farming was added. In Talise, two additional issues were added; (1) improving communication between the dusuns and the village government, and (2) the village not being allowed by government to elect their own Kepala Desa. In Blongko, recent storm events resulted in flooding and the wash out

of a culvert along one of the village roads, and severe beach erosion near the small river mouth in Blongko Bay. Subsequently, sections on these topics were added at the request of the community.

For the Blongko profile, the text of the issue descriptions was actually written by the community core group during the training workshops. The format of the Blongko profile is different from the Talise and Bentenan-Tumbak profile. For Blongko, the profile format was to be more pictorial in nature with only a very small amount of text. Core group members then edited initial text statements developed in the training workshops during subsequent review, and most of the photos included in the profile were taken by community members. In the Blongko profile, where appropriate, a short one or two sentence description was included in the issue description which indicated what actions were already being taken by the community or local authorities to address the problem.

The Talise and Bentenan-Tumbak profiles are more text oriented and include a large number of maps developed for the environmental and socio-economic baseline reports. Introductory sections on the village abstracted information from the socioeconomic and environmental baseline reports, ecological histories and from technical studies of local consultants, and some preliminary information from participatory monitoring activities already started.

Draft profiles for all three sites were then brought to CRC-URI by the Field Program Manager (FPM) and were reviewed by the Technical Advisor (TA) and CRC Associate Director for technical content and structure. The CRC Communications Specialist met with the FPM for discussions and advice on layout design, and to show examples of profile designs from around the world.

Due to time constraints, the FPM and TA concentrated on editing, reorganizing and drafting a layout design for the Blongko profile. Minor text edits were made to the issue statements/sections.

The acknowledgements section was revised to acknowledge support and assistance demonstrated by senior officials in the province (BAPPEDA) and at the national level (BANGDA) who have visited Blongko and encouraged the community with respect to the marine sanctuary and early action projects. Parts of the introductory overview section – background on the goals of the project, etc. - were moved into a preface. A one page section which described the

Contents of a Village Coastal Resources Profile

Preface

The Profiling and Planning Process

Village Background:

- geography
- demography
- socio-economics
- environmental context

Priority Issues (problems & opportunities):

- causes & consequences
- trends
- location & extent
- what is being done

Appendix: Key events conducted for project socialization, community preparation, and the profiling process.

coastal management planning and management cycle was added. At the end of the document, the section on community-based management was expanded, and a description of the marine sanctuary (recently established by village ordinance) was expanded and moved into a separate section. We decided that several attachments/annexes should be included: community-generated coral reef map from community manta tow reef monitoring data, map of the location of the marine sanctuary, and a list of key meetings, training and public education events to illustrate the amount of project activities and depth of community participation in the planning and profiling process.

The FPM and TA recommended changes to the Talise and Bentenan-Tumbak profile as well, following along similar changes made to the Blongko profile. This included a revised acknowledgements sections, a preface to be included by the village heads and/or Camat, movement of information on the project into a preface by senior project staff, a preface to be added by our key local counterpart agency (BAPPEDA), a section added on the coastal management cycle, movement of many figures from annexes into appropriate issues sections, and an annex on key events the project had undertaken in the village (meetings, public education, early actions, training, participatory monitoring). It was recommended that where appropriate, a short explanation be included in the issue description which indicated what actions were already being taken by the community or local authorities to address the problem (as was done for the Blongko profile).

The changes and edits made to the profiles were brought back to Manado by the FPM and reviewed with the extension officers. The TA followed-up with a trip two weeks later to Manado. Additional discussions were then held with the field site team on edits and procedures and timelines to finalize the profiles. In the case of the Talise and Bentenan-Tumbak profiles, we decided that further community review of the documents was not needed. Final text and figure editing could continue in Manado by project staff and layout be done by the Jakarta-based project production unit. We decided that no formal approval signatures were needed for the profile documents, as they did not recommend any management objectives or actions. This is in contrast to the management plans to be developed once the profiling process is completed, where management plans will need formal village approval as well as approval at some higher level of government authority.

For the Blongko profile, the pictorial nature of the document meant that the layout style and text were difficult to separate as serial steps, and a very iterative process of parallel editing of text and layout was undertaken in the Manado office with peer inputs from all the extension staff, FPM, TA, local advisor, and BAPPEDA staff undergoing on-the-job training in the Manado office. A final draft layout was brought to the village of Blongko for a last review before production.

Deciding on the Profile Formats and Replication Considerations:

Consideration was given to the style and content of the profiles for the purposes of replication of similar documents in the future by local institutions. We decided that there are two audiences for these initial field site profiles: (1) the local village and selected local government officials within the province to raise awareness of issues of concern in the village and ultimately, for action to be taken on these issues, and (2)

individuals and institutions outside the province and within the province for outreach and dissemination aspects of Proyek Pesisir work.

In a replication program where a local institution is assisting communities with the preparation of community-based issue profiles, large quantities of the profile document are not necessary. In a booklet or spiral bound A4 paper size format (the Talise and Bentenan-Tumbak examples) several copies within the village are probably sufficient (for the Kantor Desa,

**Key Factors for Profile
Format and Production**

1. Audience
2. Numbers produced
3. Content and length
4. Use of photos or color figures
5. Materials-type of paper, cover, binding
6. Cost

LKMD and/or Kepala Dusun, and local public school), and several additional copies for the Kantor Camat, BAPPEDA Tk. II, and a few selected line agencies (public works, fisheries, forestry) is all that is needed. Hence, production runs of between 5 – 20 copies can be produced at very low cost by photocopying and printing off of a laser printer for maps, figures and photo pages in black and white and/or color. Since an important objective of Project Pesisir is to disseminate lessons learned and promote adoption of models developed, an additional audience of several hundred is anticipated both within the province and outside the province. If maps and photos are to be included in the profile, experience has shown that a photocopied style document will be of poor quality and hence of less interest by potential adopters. Therefore, a production run of several hundred printed copies as a special publication is planned for outreach purposes.

For the Blongko profile, a different format is being tested. In this case, the final profile will be printed on A2 paper size with color photos and text in black and white. The pages will then be laminated and produced as a portfolio style (unbound) or atlas style (spiral bound with a hard front and back cover). The unbound print style profile can then have pages hung in a community center, or in the public schools, and can be moved from place to place within the community as needed. One or two copies of this format would be sufficient at the community level, and perhaps one or two more produced for the Camat and BAPPEDA Tk. II. Therefore production runs of between two to four copies can be produced off of a personal computer and wide carriage color printer at very low cost. However, since an important objective of Project Pesisir is to disseminate lessons learned and promote adoption of models developed, an additional audience of several hundred is anticipated both within the province and outside the province. Since many photos are included in the profile, experience has shown that a photocopied style document will be of poor quality and hence of less interest by potential adopters. Therefore, a production run of several hundred printed copies in black and white as a special publication is planned for outreach purposes.

Timing and Resource Considerations:

Village profile development took about nine months in North Sulawesi. It is difficult to speed up this process if a participatory approach is used as public meetings and core group training events take time to arrange, schedule and prepare for. Also, informal discussions and meetings in the community require a substantial amount of

time on-site as they are typically done one-on-one or in groups of ten or less persons. The importance of informal meetings and discussions is one reason why field extension officers need to be assigned on-site and living in the community. Village sizes on average vary between 1000 – 2000 persons, and often involve several geographically dispersed sub-villages (dusuns). Hence the amount of meetings (formal and informal) required and logistics involved to get full inputs and a consensus from a majority of the community on key issues can be substantial. In addition, it takes time to build the capacity of a profiling team as evidenced by

**Resources Needed for
Community-Based Profiling and Planning**

1. A field extension officer living on site
2. A technical support team for field activities
3. Funds for:
 - public education
 - training
 - early implementation actions
 - extension & technical support team travel
4. Computer and printer
5. Flip chart, bulletin board & related supplies
6. Time

the Manado team which had little experience with community-based coastal resources profiling. This profiling time frame also does not include the amount of time prior to initiation of the profiling process which was put into the project socialization, community preparation and issue identification process. Financial resources are also required for (1) public education events, (2) community training and monitoring activities, (3) initiation of early implementation actions, (4) a technical support team to assist and back up activities coordinated by the field extension officer, and (5) travel to and from field sites and the home office by field staff and technical support personnel. There are not yet examples of village-based coastal resources management profiles in Indonesia which could be drawn on for this preliminary effort in North Sulawesi. As a consequence, the process of trial and error in pioneering initial models has taken time.

Dissemination of Profiling Results and Next Steps in the ICM Process:

Once the profile is completed, it will need to be distributed within the community and to appropriate local government agencies. Extension officers are planning additional community presentations, as part of a continuing socialization process of the issue findings and to start the plan preparation phase. On completion of the profiles, extension staff are also planning another core group workshop to obtain additional community inputs for plan preparation (objectives for management, policies and

What to do Once the Profile is Completed

1. Distribute and discuss profile contents with the community and local government.
2. Conduct another core group workshop to start plan preparation.
3. Hold community meetings to discuss a draft plan.
4. Ensure technical review of draft plans by a technical support team.
5. Allow review by local government agencies.
6. Obtain formal approval of the plan by the community and local government.
7. Secure a budget and plan annual activities.
8. Implement the plan by the community and local agencies concerned.

actions needed to solve issues or seize opportunities). Then, a similar cycle of draft plan review with the community will occur. However, for plan development, the Kabupaten task Force (KTF) will also be involved in draft plan review as these agencies will need to take responsibility for implementation of many of the actions proposed (those which cannot be done by the community themselves). Also, the management plans will need both official approval by the village government, as well as at some higher level of local government authority (Kecamatan and/or Kabupaten and/or Propinsi).

Conclusions and Lessons Learned:

The primary purpose of the profile is not the document itself, but a process of developing a greater understanding of issues of concern to the community and to build greater awareness within the community and among local government officials concerning these issues. The profile then provides the foundation and beginning consensus for plan preparation.

Technical studies and baseline information are useful to developing a profile document. Key conclusions and information from these reports as well as figures and maps can easily be integrated into a profile document. However, technical studies and baselines should not take up an inordinate amount of time and be tailored to the financial resources and staff capacity available.

Strong attention needs to be given to developing the capacity of a profiling team to conduct the profiling process. Profiling done primarily by outsiders, with little involvement of the community and local government institutions, while perhaps adequately defining the issues, does not build understanding and set a foundation of support for the next step of developing a community-based management plan. Field extension officers, local government officers and community core group members will unlikely have the background, experience or skills needed to undertake this process, and therefore need to be trained and mentored by more senior and experienced technical support staff.

The process of community preparation and profile development takes time. Time is needed for (1) project socialization (project orientation), (2) community preparation (public education, training, and early actions), (3) issue identification (baseline and/or technical studies, or eco-histories, or PRA, combined with formal and informal community meetings and discussions), and (4) capacity building of field extension staff, technical support staff, and the community. Once these activities are well underway, then the profiling process

Key Points to Remember for Village Profiling

1. Plan sufficient time for project socialization and community preparation activities.
2. Build staff and community capacity.
3. Ensure adequate community and local government participation.
4. Use previous studies and secondary information where available for issue identification and profiling.
5. Allow the process to move at a pace which is comfortable for your extension staff and the community.

(issue definition and prioritization) can be initiated. It is highly unlikely that preliminary activities (step one in the ICM cycle) of project socialization, community preparation, issue identification and profiling can be completed in a time frame of less than one year. Depending on staff experience and capacity, and resource availability, this process could take up to two years to thoroughly complete. Attempting to reduce the time required to adequately conduct the process, by reducing participation and/or capacity building activities, increases the likelihood of failure in attempting to address issues through subsequent planning and implementation phases of a community-based management process.

This initial effort at village-level coastal resources profiling in North Sulawesi is to our knowledge, the first effort of it's kind in Indonesia. The process and documents produced represent preliminary examples and experience. Subsequent efforts at replication should draw on the lessons learned, but by no means feel constrained in applying creative energy to modify and improve on this first generation of experience. Replication needs to adapt the approaches outlined above to the local socio-cultural and political context, and consider the resources and capacity available to conduct such an effort.

**Proyek Pesisir North Sulawesi Workshop
Reflections, Lessons Learned and Short-term Planning
Community-based Coastal Management Models and Scaling-up**

Participants:

Extension officers, FPM, TA and BAPPEDA on-the-job training participants.

Dates: April 27-28, 1999

Objectives:

1. Summarize and review project progress and activities to date.
2. Self-assess where each site and the scaling-up strategy is in the policy cycle.
3. Self-assess how the activities have been conducted to date.
4. Summarize lessons learned, challenges to further progress, and ways to overcome them.
5. Develop short term plan of action for developing village management plans and initiating the scaling up strategy.
6. Develop an outline for a policy working paper on scaling-up.

Activities/Schedule:

1. Ask participants to **state the goals of Proyek Pesisir**
 - At the village level:
 - Improved quality of life and environment* through implementation of participatory CB-CRM initiatives and strengthened capacity of village-based institutions (resource users becoming resource managers).
 - At the provincial level (short-term and long-term):
 - Short - *Develop CB-CRM models* at village field sites
 - Document successful approaches* and lessons learned
 - Long - *Replicate models* through development of a Provincial CB-CRM initiative and by developing sustainable capacity of local institutions to replicate successful approaches
 - Project wide: contribute to *decentralized and strengthened CRM* in Indonesia
2. Show framework for **summarizing project progress** and activities (timeline).
 - Have large group fill out the timeline for PP generally.
 - Break in pairs and develop a timeline for each site and scaling-up work.
 - Plenary sharing and discussion.
3. Large group – ask participants to **outline and discuss steps in the policy cycle**.
 - In pairs, ask participants to **determine where each site/scaling-up** is in the policy cycle.
4. In pairs, answer questions from the **self-assessment** manual on selected themes, focusing on steps one and two.
 - List **general lessons learned/principles** for implementing CB-CRM initiatives in Sulut.

5. Outline **steps/activities in completing** village-level management plans and to develop a provincial CB-CRM initiative (scaling-up).
Indicate **key milestones** (formalvillage/KTF approval, white paper discussed, program initiative funded, SK signed).
List **challenges** (problems, hardships, difficults) to achieving results and ways to overcome them.
6. Ask participants to **evaluate** the workshop themes and methods.
7. Team building dinner together, location of participants choice.

Scaling-Up Policy Discussion Outline
for a
A CB-CRM Program in North Sulawesi
DRAFT: (30/4/99)

Background:

Outputs of the Manado, April, 1999 meeting of Brian, Johnnes, Janny, Devi.

Introduction:

Proyek Pesisir goals in North Sulawesi

Summary of project progress to date

Evidence of the demand for CB-CRM in Indonesia and Sulut

Rationale-Why develop a CB-CRM program in Sulut?

Coastal villages poorer than non-coastal communities(Crawford et al)

Negative environmental trends

declining nearshore fisheries production,

coral reef and mangrove degradation

erosion, pollution, poorly planned shorefront construction, etc.

Extended coastline and islands hard to centrally manage at prov./kab. level

Limited gov. resources

Reformasi and autonomy daerah

Existing development priorities of province

Existing provincial strategic framework plan which supports CB-CRM

Issues:

1. *What should be the program mission/goals?*

Improve quality of life for people in coastal communities by promoting and supporting community-based management initiatives at the village level.

2. *What should be the initial program emphasis/objectives?*

Promotion/replication of community-based marine sanctuaries as the initial model which aims to :

1. Strengthen community capacity to manage resources themselves for local benefit

2. a means to enhance fisheries production

3. a means to protect coral reefs and conserve bio-diversity

4. as a means to change behaviors of coastal communities towards their resources

- users start to view themselves as managers

- become responsible for solving their own CRM problems locally where they can and with their own resources

- ultimately, to get them to address additional CRM issues through the marine sanctuary experience

5. For CB eco-tourism alternative livelihoods in some selected locations only

A marine sanctuary is a simple model of integrated coastal management as it helps to reduce destructive fishing practices, conserve bio-diversity and protect coral reefs, improve fisheries, and by addressing land based issues (with the goal of sanctuary protection) such as sedimentation from poor agricultural practices and sanitation (trash and human excrement).

Over time, broader CRM planning and implementation issues could be addressed and/or additional packages of services provided to communities and local government, but a focused program needs to build experience, capacity and credibility first before tackling more difficult and intractable issues. Larger and wider scale issues take more resources and more capacity – and may be viewed as a threat to other institutions with related or similar mandates.

3. *Who will be the lead agency and who will be the supporting agencies involved in coordination and implementation?*

Give a few examples of similar programs in US/Philippines-Negros Or./Sri Lanka

Outline roles of existing institutions:

BAPPEDA

Kehutanan

Perikanan

BAPEDDALDA

Pariwisata

BAPPEDA as lead agency

At what level within BAPPEDA (program or proyek, seksi or sub-seksi)

Planning and/or coordination role or implementation role?

Draw on related institutions for what level of implementation?

Technical services and training and public education

(forestry/fisheries/UNSRAT-CRITC)

Role of a PAG or KTF, or a new coastal coordinating board?

Role of NGOs?

4. *What would be the roles and responsibilities of lead and supporting agencies/institutions?*

Provide services to communities

Full-time field extension officers

Manta-tow training

Public education programs

Participatory monitoring/baselines

Legal advice of preparing an ordinance

Funds for early actions in the communities

Funds for implementation grants to communities

Document production services – simple profiles/maps/mgt. plans

Monitoring province wide success rate and impact of sanctuaries

5. *Is a new agency needed, or can the program work through existing institutions?*

New agency would be difficult – would require new law, lots of staff, taking responsibility from other agencies, mandate would have to be large enough to justify a new agency, but if start just with sanctuaries/new agency not justified or needed.

Plenty of existing agencies so better to add sanctuary proyek to existing institution(s) mandate.

Start at what level (Propinsi or Kabupaten (also see Question 7 below))?

6. What should be key principles/guidelines for program implementation?

Guidelines for (1) the Program (2) extension officer guidelines (3) communities
Framework of what the program will and will not do (boundaries)
Focus on services provided to villages
Need to have EOs full time in the field for 1-2 years
Voluntary participation by villages
Program guidelines for developing marine sanctuaries and village plans?
Financial incentives offered for implementation if villages meet program guidelines?
Simple baselines established on PSR (socio-economic, environmental, governance)?
Participatory transparent/open
co-management approach essential?
Early actions conducted?
Demand driven services rather than supply/from above (review PPL experience and IPM experience for local extension models)

7. What should be the program's initial targets and how should progress/results be evaluated?

Geographic focus: Start in Minahasa or all Sulut Kabupatens simultaneously?
Number of villages targeted per year (5-10 initially)
Acceptable success rate of marine sanctuaries (greater than 50%)?
Villages asked to submit simple annual reports of indicators: MT survey data, village management activities, fish catch stats., simple socio-econ. indicators.
Lead agency prepares annual report and state of coasts/marine sanctuaries province wide.

8. How should the program be formalized and funded (SK or new law)?

Law or SK not needed if developed as a proyek/program with an existing institutions current broad mandate/goals or program of activities – integrate as activity with annual budget process and get funding approval.
List existing programs where MS extension activities will currently fit.
Decide if best through APBN or APBD

9. What resources will be needed to implement the program (human, material, operational)?

Depends on size of program and geographic scope, larger the program larger geographic scope – more resources needed.

Minimum staff to start - 5 FEOs + Supervisor
resources for contracting or conducting technical training/public ed
Funds for early actions
Funds for implementation grants
Travel/transport budget (one vehicle is ideal)
Minimum equipment: computer PC/scanner/color and laser printer/camera

10. What is the current capacity of lead and coordinating agencies and institutions to implement the program, and therefore what are the priority capacity development needs?

Training!

11. What are the key steps and milestones to establish the program and to achieve sustainable institutional capacity and successful implementation?

- Decide on the program goals/objectives/structure/resources needed
- Approval/Agreement by lead and coordinating/implementing agencies
- Budget approved
- Hiring/assigning staff
- Staff trained
- Selecting additional sites for replication
- Establishing sanctuaries at additional sites
- Monitoring program in place
- Second round of program/village expansion started
- Etc.

**Terms of Reference
Agroforestry Specialists
Proyek Pesisir North Sulawesi
(DRAFT: May 25, 1999)**

Background:

Proyek Pesisir objectives in North Sulawesi are to develop models of community-based coastal management which result in improved quality of life for the coastal communities and improved quality of environment in several field sites.

In the village of Talise, on Talise Island, loss of forest habitat and declining agricultural production have been identified as key coastal resources management issues. Related to these problems is the lack of land tenure among the majority of residents, and in particular, of the farming plots used by the villagers. In addition, loss of forestlands and hunting pressures are resulting in the loss of endangered species of wildlife. The forests also are important to recharging springs and groundwater which provide residents with drinking water supplies. Forests also provide many products for the villagers including food and lumber for boat building and housing construction. Many of the farming plots of the villagers are on the edge of the forest or within the forest. Slash and burn farming techniques are also prevalent. A government owned coconut plantation also rings a large portion of the island.

A project goal on Talise island is to improve the agroforestry systems as one means of achieving the following set of related and integrated objectives:

- protect the forest, associated wildlife, and critical watersheds for drinking water supply,
- reduce dependence of island residents on unsustainable forest use practices,
- increase food sources and farming income among the residents,
- reduce soil loss and sedimentation of nearshore coral reefs,
- resolve land tenure issues which perpetuate unsustainable use practices and which are a disincentive to promoting forest stewardship among the residents.

In Blongko village, coral reef degradation, poor agricultural systems and deforestation of watershed areas have been identified as key coastal management issues among others. A community-based coral reef marine sanctuary has been established, an information center and a number of MCKs constructed. Like Talise, the majority of residents in Blongko are farmers or farmer-fishers. Unlike Talise, they typically own the land where they farm or obtain permission to grow short term crops within lands owned by a large-scale coconut plantation.

Objective:

Develop demonstration agroforestry systems which aim to reduce soil erosion (and sedimentation of nearshore waters), improve agricultural production and contribute to forest/watershed protection in the villages of Talise Island and Blongko.

Tasks:

- Conduct a rapid assessment of the current hillside agricultural systems in use in the villages of Talise and Blongko,
- Sample and analyze soil conditions in the area.
- Identify potential farming systems appropriate to the socio-economic and ecological conditions of the villages which can contribute to improved farm production, reduced soil loss/sedimentation and forest/watershed protection.
- Conduct training and education programs for farmers groups from at least one dusun of each village on improved agroforestry techniques and systems.
- Identify appropriate sites for demonstration agroforestry plots in one dusun of each village.
- Identify an innovative farmer, farmers or farming group willing to establish a test/demonstration agroforestry plot for each village.
- Establish test/demonstration plots in each village.
- Provide hands on assistance, advice and monitoring of the test/demo plots.
- Evaluate the success of the test/demo plots after one season and make recommendations for further action programs to establish improved agroforestry systems in the villages.
- Feedback results of the test/demo plots and recommendations to farmers and farmer groups in each village .

Outputs/Products:

1. Test/demonstration plot established in Talise and Blongko village.
2. Farmer group training/education conducted in each village.
3. Report on the results of the demonstration plots and recommendations for additional actions.
4. Feedback to community through farmer group meetings conducted on results of the test/demonstration plots and follow-up recommendations.

Terms of Reference
Erosion/Shorefront Development Specialists
Proyek Pesisir, North Sulawesi
DRAFT: (May 25, 1999)

Objectives:

1. Provide recommendations to the communities of Kinabohutan and Benetenan concerning appropriate policies for sand mining, shorefront construction, erosion and flood control, estuary rehabilitation, and continuing beach profile monitoring.
2. Document and disseminate the process conducted with the communities to date, summary results of the beach profiling data, an analysis of the information to date, and related policy recommendations.

Tasks:

Talise/Kinabohutan:

- Assess the technical adequacy of the flood control dikes built by the community to date and make recommendations if needed for their improvement, or additional areas where dikes may be needed to prevent coastal flooding.
- Together with the beach profiling group, make a presentation to the community of Kinabohutan, on a summary of beach profiling data over the past year and its interpretation, and recommendations for continued beach monitoring, and erosion/flood control.
- Provide simple policy recommendations for incorporation into a Talise management plan concerning prohibited sand mining areas (beaches and offshore), and areas best suited for sand mining. Policy recommendations to be accompanied by a map indicating recommended prohibited and allowable sand mining areas. Written recommendations to be presented to the community (all 3 dusuns) as part of the Talise coastal management planning process, and revised recommendations provided to Proyek Pesisir based on community consultation and inputs.

Bentenan-Tumbak:

- Provide simple policy recommendations for incorporation into the Bentenan-Tumbak management plan on shorefront development in Bentenan including no build zones in overwash and flood hazard areas, building construction restrictions in erosion prone shorefront areas (such as no cement structures within 30 meters of the beach), estuary rehabilitation policies and related solid waste and sanitation issues. Policy recommendations to be accompanied by a map indicating recommended no-build zones, restricted construction zones, rehabilitation area with mangrove reforestation and reclamation areas. Written recommendations to be presented to the community as part of the Bentenan coastal management planning process, and revised recommendations provided to Proyek Pesisir based on community consultation and inputs.

- Prepare a detailed estuary rehabilitation plan for Bentenan which addresses mangrove reforestation, reclamation and solid waste and sanitation issues. The plan should include a rough cost estimate for its implementation.
- Together with the beach profiling group, make a presentation to the community of Bentenan, on a summary of beach profiling data over the past year and its interpretation, and recommendations for continued beach monitoring, and erosion/flood control.
- Assess the technical adequacy of the erosion control dikes built by the community of Tumbak near the Cemetery in Sompini Bay and near the new water supply tank and pumping station, and make recommendations, if needed, for their improvement.
- Participate in KTF workshop review of draft management plans for Talise and Bentenan-Tumbak, and review technical components (erosion and estuary rehabilitation sections) of draft plans.
- Participate in KTF workshop review of draft Talise and Bentenan-Tumbak management plans and review technical aspects of sections pertaining to erosion/shorefront development and estuary rehabilitation.

Documentation and Dissemination of Results:

- Prepare a technical paper which summarizes project experience to date on beach profiling, shorefront development, and erosion control in the villages of Bentenan, Tumbak and Talise. The paper should include information on an overview of the erosion and shorefront development issues in the communities, the process of establishing and conducting community-based beach profiling, results of the first year data on beach profiling, recommendations for sustained monitoring, related activities (planned or already completed) on shorefront development and sand mining policies as part of the village planning process, and the estuary rehabilitation plan. This paper, or an abbreviated version to be submitted to Jurnal Pesisir/IPB for potential publication.
- Prepare and conduct a 1 –2 hour seminar at UNSRAT (cooperatively sponsored by Proyek Pesisir/Facultas Engineering/Facultas Kelautan) on experience and results to date as outlined in the paper above. Key local government agencies to be invited to the seminar including BAPPEDA Tk I and II, PU, Kehutanan, BAPEDDALDA.
- If requested and if an opportunity presents itself, present the above paper at a national conference on coastal management.
- Continue to work on a concept/outline of a best practice guide on community based beach profiling/monitoring, and simple community level shorefront management policies/techniques using examples from Talise and Bentenan.

Other:

- Miscellaneous technical services provided as needed/requested by Proyek Pesisir on technical recommendations for the field sites on information center construction, MCK designs, etc.

Products/Outputs:

- Technical paper documenting experience to date on beach profiling, shorefront development and erosion control.
- Journal version of the technical paper submitted to Jurnal Pesisir.
- Written policy recommendations (sand mining and beach monitoring) and map as input for the Talise management planning process.
- Written policy recommendations and map as input for the Benetenen-Tumbak management planning process (Bentenan erosion/shorefront development/estuary rehabilitation issues).
- Revised annotated outline/concept of a best practices guide (beach profiling and community based policies/techniques).
- Estuary rehabilitation plan and estimated budget.

Terms of Reference
Crown-of-Thorns Broadscale Assessment of the Maluku Sea Coast of
North Sulawesi (Minahasa and Bolong Mongondow Regencies)
DRAFT: (May 25, 1999)

Background (by Brian Crawford):

Baseline environmental surveys conducted by Proyek Pesisir in Bentenan and Tumbak villages in June of 1997 indicated the presence of numerous Crown-of-Thorns (COTs) starfish in Sompini Bay, on the north side of Bentenan island, and on Puten Island. Other areas in front of Tumbak village, the south side of Bentenan island and Balingbaling island were COTs free. Subsequent follow-up several months later indicated an apparent rapid increase in the number of COTs in the areas where COTs were previously observed.

Three COTs clean-ups were organized with community participation (and with the Manado dive operators for the first clean-up) in February, April and December of 1998. Over a thousand COTs were removed during these clean ups. However, lower density COTs populations still remain in the area and COTs were seen in front of Talise village for the first time during a series of community manta-tow training events conducted in November 1998. Coral bleaching (from elevated sea surface temperatures) was also noted at this time on the reefs of Tumbak, Talise and in Bunaken National Park with ranges of 20-80 percent of coral bleached.

Analysis of length frequency data of COTs cleaned from the reefs of Bentenan and Tumbak indicted several age classes of individuals present of from 2 – 4 years. COTs on Puten island tended to be smaller (younger) of from 2-3 years, whereas COTs from Sompini Bay and Bentenan island tended to be larger (older) of from 3 – 4 years. Changes in environmental conditions and human activities were reviewed to determine if their might be any localized events which may have triggered the outbreak of COTs in the area or which could explain the patchy distribution on the reefs. There seemed to be no significant changes in the area between the period of 1994-1996 when the COTs would have first settled on the reef. Bomb fishing had been on-going for more than a decade, tritons have also been collected for over a decade, populations of the coastal villages showed no rapid increases in the last decade, and changed agricultural practices of increased use of fertilizers and pesticides took place in the 1970s, well before the COTs outbreak. Fishing practices showed no major changes although fishermen complain of declining catches recently. Hence, it was concluded that no localized human factors likely resulted in the COTs outbreak, and that the COTs outbreak was the result of successful recruitment of larvae spawned at another location along the coast.

Proyek Pesisir staff were aware of reports of high COTs populations to the south, on Hoguw island, near the border of Minahasa and Bolong Mongondow as early as 1996 and continuing into 1999. More recently, reports have also been received of COTs outbreaks further south in the Togian islands and in the central Malukus. Rapid snorkel surveys in 1998, north of Bentenan and Tumbak, at Kima village (south of Bitung), indicated only one COTs in over a 100 meter swim of the reef area. No COTs have been seen from several snorkel surveys on reefs in the Lembah Straights or around Talise Island during baseline surveys conducted in 1997. Only one COTs

was spotted around Siladen island in Bunaken National Park, on the west coast of Minahasa in several snorkel surveys in 1998, and no COTs have been spotted during reef surveys conducted in Blongko (west coast of Minahasa, south of Amurang Bay) in 1998. Results of control surveys in the villages of Rumbia, Minanga, Kahuku, Aerbanua, Sapa and Boyongpante indicated no presence of COTs. Hence, this information tends to indicate that COT outbreaks in Bentenan and Tuimbak and on the east coast of Minahasa are the result of larval settlement from parent populations further south along the Minahasa peninsula and perhaps as far away as the Togian islands. It also suggests that COTs outbreaks may be slowly advancing north along the east coast of Sulawesi, with outbreaks then subsequently producing the spawn to create new outbreaks further north. This geographical movement of outbreaks following prevailing currents has been seen in Okinawa, Japan (citation from COTs guide here).

While many of the reef areas in Bentenan and Tumbak have high percentages of coral cover and high abundance of Acropora coral – a preferred food of COTs – this was not correlated with COTs populations. Areas on Balingbaling island and in front of Tumbak village had coral in excellent condition and with a high percentage of Acropora, but these areas were free of COTs. The patchy distribution of COTs populations on the Bentenan and Tumbak reefs, tends to be correlated with only one factor. Maps of the local reefs and location of areas most frequently bombed by local fishers were drawn by Tumbak village participants during a coastal management training seminar conducted by Proyek Pesisir in September, 1998. Areas most frequently bombed were the same areas where high density COTs populations were observed. It is possible that bomb damaged reefs may be more susceptible to successful COTs recruitment. Newly dead coral, as is produced from bomb fishing, tends to be settled initially by calcareous algae, a preferred food of newly settled COTs during early life stages on the reef before they switch to feeding on live coral (Englehart, 1998 personal communication). More research would be needed to examine this hypothesis further. However, if bomb damaged reefs (or reefs damaged from other physical human activities) and reefs where natural COTs predators have been removed are more susceptible to COTs outbreaks, then the impacts of COTs will be more severe in these areas. Undamaged healthy reefs, as observed in Tumbak and Bentenan, may be more fit to survive a period of high larval settling, but with a lower recruitment success rate for juveniles, and therefore avoid potential COTs outbreaks.

Objectives:

Conduct an assessment of the extent of COTs populations along the Maluku Sea coast of North Sulawesi and assess whether populations may be advancing northwards or whether population densities have been increasing over the last few years.

Tasks:

1. Determine a sample of reef sites to be assessed along the Maluku Sea coast starting just north of Bentenan and Tumbak villages (Kima village) and ending not less than 200 kilometers along the coast as far south as possible into Bolongmongondow and/or Gorontalo Kabupatens. At least 30 reef sites should be selected for rapid assessment with a distance of between 5 – 20 kilometers between sample sites. MT survey at each site should be at least 500 meters.

2. Conduct Manta Tow surveys of the reef sites and collect information on live hard and live soft coral cover, as well as on the absence or presence and qualitative abundance of COTs on the reef.
3. Determine areas where spot, incipient, or active outbreaks are occurring.
4. In outbreak locations, collect length frequency data of a sample of at least 30 individuals.
5. In outbreak locations, interview key informants (especially fishers and particularly spear fishers) from adjacent villages and assess whether the villagers are familiar with COTs, and whether they feel current populations on the reef are the same, less, or more than 1-3 years ago.
6. Distribute Proyek Pesisir fact sheets on COTs in villages adjacent to COTs outbreak sites.
7. Prepare a summary technical report on the field survey/assessment results. The report should include the following:
 - Map(s) of the coastline indicating the location of reef sites sampled.
 - Map(s) with information in a pie chart (and supporting data tables) indicating average coral cover at each site from Manta Tow surveys (live hard, live soft, other).
 - Map(s) with information (and supporting data tables) indicating relative abundance of COTs on the reef (total numbers observed per standard distance or time of MT survey – must use a standard tow length/time to be able to compare data) and classification following GBRMP criteria/classification as non-outbreak, spot outbreak, incipient outbreak or active outbreak.
 - For each outbreak location, a bar chart summarizing length (size) frequency data.
 - Results of key informant interviews in outbreak locations.
 - Summary analysis of survey data and recommendations
8. Present the results of the survey in a special half-day seminar at UNSRAT to Proyek Pesisir staff, university faculty and students, and invite key provincial government agencies including Fisheries, Forestry, Bunaken National Park, Tourism, and private sector dive operators to attend.
9. Co-author with Proyek Pesisir staff, a paper for submission to Jurnal Pesisir/IPB summarizing the results of the survey work and COTs information and clean-up actions from Bentenan and Tumbak villages.

Outputs/Products:

- Technical report of survey/assessment
- Seminar conducted
- Journal paper written and submitted

Contract Supervisor: Chris Rotinsulu

Potential Contractors: CRITC or AUSPICA

MEMORANDUM

TO: C. Rotinsulu
M. Kasmidi

FROM: B. Crawford

SUBJECT: Marine Sanctuary Monitoring

Now the marine sanctuary has been formally established, it is important that we develop a good monitoring strategy for the sanctuary. While we have a good socio-economic baseline, and environmental baseline in areas outside the sanctuary, a monitoring plan specific to the sanctuary is needed. Two areas of particular importance are:

- (1) coral condition and fish abundance in the sanctuary (environmental monitoring)
- (2) community management, enforcement, monitoring (governance monitoring)

Environmental Monitoring:

- Establish at least one permanent LIT inside the sanctuary and install permanent cement LIT markers. (should be done over the next two months and involve the sanctuary monitoring committee in building the LIT markers, and if possible, have the Blongko resident who was trained in SCUBA assist in the survey work).
- Work with the community management committee and monitoring sub-committee to develop a schedule for conducting manta tow surveys by the community. I suggest twice annually. Proyek Pesisir should supervise/assist with these surveys but allow the community to analyze and summarize the data in a map.
- LIT and manta tow data should be displayed in the information center for all members of the community to see. It should show a comparison of conditions in the sanctuary and outside, and allow for data over time to be displayed so time series (trends in condition) can be accommodated.

Governance Monitoring:

- Records should be kept (a simple journal book would be sufficient) by the management committee on (1) the number of meetings held, topics discussed, actions taken, (2) any enforcement actions against violators of the village ordinance, (3) any patrols of surveillance activities undertaken, (4) maintenance and replacement of marker buoys, (4) other actions such as maintenance of the information center, training or public education events, development of a formal management plan, etc..

It is recommended that the above items be implemented within the next two to three months.

CC. J. Tulungen