COMMUNITY-BASED COASTAL RESOURCES MANAGEMENT: AN INTERIM ASSESSMENT OF EARLY IMPLEMENTATION ACTIONS IN *PROYEK PESISIR* FIELD SITES IN NORTH SULAWESI, INDONESIA

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By

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Executive Summary (in Indonesian)
Ringkasan Eksekutif

Sejak tahun 1997 sampai dengan June 2000 proyek pesisir melakukan kegiatan dalam rangka pengelolaan sumberdaya wilayah pesisir berbasis-masyarakat di tiga lokasi yakni di Blongko, Talise, dan Bentenan-Tumbak. Berbagai program pelaksanaan awal dilaksanakan sebagai bagian dari strategi proyek sementara proses pengembangan perencanaan jangka panjang dilakukan oleh masyarakat yang difasilitasi oleh Proyek Pesisir. Tujuan dari program pelaksanaan awal ini adalah antara lain: membangun dukungan masyarakat terhadap upaya perencanaan jangka panjang, mencoba mekanisme bagi pelaksanaan masyarakat dalam pengelolaan, dan membangun kapasitas masyarakat bagi implementasi lewat proses belajar sambil melakukan.

Laporan ini merupakan penilaian terhadap berbagai program pelaksanaan awal yang dilakukan oleh masyarakat dan didanai lewat pemberian dana kepada masyarakat (yang berasal dari dana pelaksanaan awal Proyek Pesisir dan dari Bappeda serta swadaya masyarakat) selama periode November 1997 dan Juni 2000. Penilaian yang dilakukan dan dirangkum dalam laporan ini merupakan rangkuman informasi mengenai persepsi dan penilaian masyarakat dan staff Proyek Pesisir mengenai pelaksanaan awal dan juga merangkum penjelasan ringkas mengenai setiap pelaksanaan, evaluasi dan rekomendasi spesifik untuk setiap program dari team penilai. Feedback sudah secara langsung diberikan kepada staff dan masyarakat mengenai penilaian ini sementara laporan ini diselesaikan sehingga laporan ini merupakan penilaian yang berlaku sampai dengan Juni 2000. Penilaian dampak proyek secara keseluruhan (penilaian akhir) termasuk review terhadap pelaksanaan awal ini akan dilakukan di tahun 2002 yang merupakan akhir program di lapang.

Penilaian terhadap program pelaksanaan awal ini dilaksanakan dengan berbagai cara:

- Mengadakan review terhadap berbagai dokumen proyek, proposal dari masyarakat dan laporan pelaksanaan dari setiap program.
- Menyebarkan kuesioner dengan metode “random sampling” kepada penduduk desa setempat
- Diskusi secara pribadi dengan staf proyek dan dalam diskusi focus group
- Interview informan kunci di setiap desa proyek yang dilakukan oleh tim penilai
- Observasi langsung dilapangan

Penilaian dan persepsi masyarakat tergantung kepada program dimana mereka berpartisipasi atau pada program yang bagi masyarakat masih lekat dalam ingatan mereka sehingga masyarakat tidak secara seragam mencantumkan semua pelaksanaan awal yang dilaksanakan di desa. Program pelaksanaan awal berbeda untuk setiap desa tergantung pada prioritas isu dan usulan yang disampaikan oleh masyarakat melalui proposal mereka kecuali Daerah Perlindungan Laut dimana pengenalan program ini merupakan inisiatif dari proyek untuk diterapkan disemua lokasi desa. Dengan demikian persepsi masyarakat juga berbeda di antara desa-desa. Hampir semua responden menilai bahwa program pelaksanaan awal bermanfaat dan berhasil.

Penilaian dan persepsi staf terhadap pelaksanaan awal berbeda dengan masyarakat dimana penilaian dari staf sedikit lebih mendalam dan kritis dengan mempertimbangkan faktor lingkungan dan masyarakat dan tingkat keberhasilan dari program dilihat dari

tujuan pelaksanaan awal tersebut dilakukan. Dari dua puluh lima (25) program pelaksanaan awal yang dilakukan, 44 % (sebelas program) dinilai cukup berhasil (moderately successful), 24 % (enam program) dinilai sangat berhasil (very successful), 20 % (5 program) terlalu awal untuk dinilai, dan sisanya 12 % (tiga program) dinilai tidak berhasil.

Penilaian dari tim penilai, dari 24 pelaksanaan awal merangkum bahwa lima program (21 %) dinilai terlalu awal untuk dinilai, tiga program (12,5 %) dinilai kurang berhasil (unsuccessful), empat (17 %) cukup berhasil (somewhat successful) sembilan program (38 %) dinilai berhasil, dan satu program (4 %) dinilai sangat berhasil.

Secara keseluruhan berdasarkan persepsi dan penilaian dari masyarakat, staf proyek dan tim penilai menyimpulkan bahwa program pelaksanaan awal sampai laporan ini di ambil datanya dinilai berhasil (successful) atau minimal cukup berhasil (moderately successful). Hal ini menunjukkan bahwa masyarakat didesa bila dilatih, ditingkatkan kapasitas dan pengetahuan mereka serta didampingi dengan baik dapat merencanakan dan melakukan program di desa mereka secara mandiri.

Dari berbagai program pelaksanaan awal tim penilai membagi tipe/kategori program kedalam tiga tipe yakni: program pengembangan masyarakat (community development project) yang meliputi program fisik infrastuktur; program pengelolaan lingkungan dan sumberdaya (environmental/resource management) seperti penanaman mangrove, Daerah Perlindungan Laut, pembersihan sasanay, dst; dan program pengembangan mata pencaharian (livelihood) dimana tujuan program adalah meningkatkan pendapatan masyarakat secara langsung seperti pengadaan perahu katinting, dana bergulir rumput laut dan sejenisnya.

Program pengembangan masyarakat dan pengelolaan lingkungan/sumberdaya cenderung memiliki tingkat keberhasilan yang lebih tinggi dimana masing-masing program ini rata-rata memiliki tingkat keberhasilan sebesar 60 % dibandingkan dengan program pengembangan mata pencaharian dengan tingkat keberhasilan yang hanya 20 %. Dari total program pelaksanaan awal hanya 25 % program difokuskan pada pengelolaan lingkungan/sumberdaya dan sisanya adalah 46 % pada program pengembangan masyarakat (program infrastruktur fisik dan sertifikasi tanah) dan 29 % pada program pengembangan mata pencaharian (dana bergulir dan sejenisnya). Hal ini menunjukkan bahwa program pengembangan sumberdaya wilayah pesisir berbasis masyarakat yang dikembangkan di Sulawesi Utara tidak hanya memberi penekanan kepada pengelolaan lingkungan/sumberdaya semata tetapi juga memberi perhatian kepada program pengembangan masyarakat dan kualitas hidup masyarakat.

Program pengembangan mata pencaharian ini juga cenderung sulit untuk dilaksanakan dan karena semua staf dan konsultan proyek ini tidak memelikiki keahlian dalam pengembangan usaha kecil dalam masyarakat maupun memiliki latar belakang ekonomi sehingga hal ini barangkali merupakan faktor penyebab sehingga tingkat keberhasilannya terbatas. Di lain pihak masyarakat sendiri cenderung memberikan tingkat persentasi kegunaan yang rendah terhadap program pengembangan mata pencaharian ini. Hal ini disebabkan karena masyarakat menilai bahwa program seperti ini hanya memberikan keuntungan bagi sebagian kecil penduduk dari pada keuntungan bagi semua penduduk. Namun demikian pengalaman di Filipina menunjukkan bahwa keberhasilan program pengelolaan sumberdaya wilayah pesisir – berbasis masyarakat diawali dengan

keberhasilan program pengembangan mata pencaharian. Dalam satu seri pertemuan focus group di Filipina, kebanyakan peserta menyatakan bahwa program pengembangan mata pencaharaian walaupun secara konseptual penting namun sulit untuk dilaksanakan secara baik dan berhasil. Dengan demikian maka program pengembangan mata pencaharain di desa-desa di Sulawesi Utara perlu diberi perhatian yang lebih besar untuk dua tahun mendatang agar supaya dapat dijamin tingkat keberhasilannya. Tambahan program pengembangan mata pencaharian masih perlu dikembangkan.

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1.0 Introduction

This report provides an assessment of implementation actions carried out by the local communities and funded through community grants for the period between November 1997 and June 2000 at the three project field sites of *Proyek Pesisir* in North Sulawesi. A variety of methods were used for this assessment. The report provides summary information concerning community and staff perceptions of the early implementation actions. It also contains brief individual project descriptions, evaluations and specific recommendations for each action made by the assessment team. After the fieldwork was completed in June, written and verbal recommendations were provided to project field staff concerning the early action projects in each community. Feedback was given prior to this report being completed so that they could immediately institute corrective measures where needed as part of an adaptive management process. The field staff in turn, met with community representatives in each site to discuss the recommendations and issues raised. This report therefore, serves as a written benchmark of progress as of June 2000. A final project impact assessment, including a review of early implementation actions, will take place in 2002, the final year of project field activities.

2.0 Project Background and the Role of Early Implementation Actions

The USAID-BAPPENAS NRM II coastal resources management project, locally known as *Proyek Pesisir*, established a field office in North Sulawesi Province in 1997. This is one of three provincial-level field programs contributing to the program objective to strengthen and decentralize coastal resources management in Indonesia. Three village-level field sites in the Minahasa Regency of North Sulawesi (see Figure 1) were selected in 1997 for development of models of community-based coastal resources management

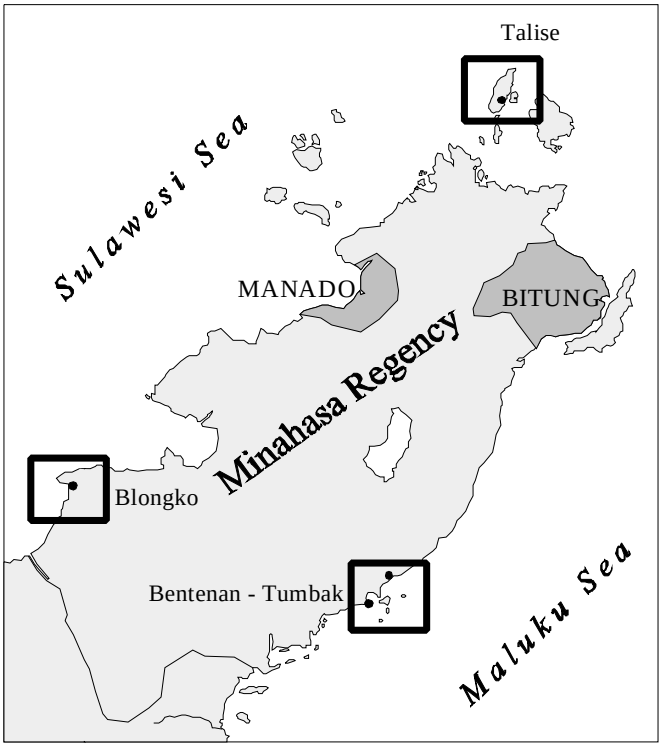

Figure 1: *Proyek Pesisir* field sites in North Sulawesi, Indonesia

(Tim Kerja Proyek Pesisir, 1997). Socio-economic and environmental baseline surveys and technical studies were carried out at each site (Pollnac et. al. 1997a, 1997b; Kusen et. al. 1997; 1999a; 1999b; Manjoro, 1997a, 1997b; Kasmidi, 1998; Kussoy, 1999; Crawford et. al. 1999; Lee, 1999,). Baseline surveys were also conducted in villages adjacent to project sites to be used as control sites (Pollnac et. al. 1998, Facultas Perikanan, 1999, 2000).

Field extension workers were assigned to live and work at each site in October of 1997. The project initiated a participatory process in each village to develop profiles of coastal resources management issues of concern to the community, and subsequently, to prepare coastal resources development and management plans (Dimpudus et. al., 1999; Kasmidi et. al., 1999a, 1999b; Tankilisan et. al., 1999a, 1999b; Tulungen et. al. 2000). In each site, a participatory process for establishing community-based marine sanctuaries was also initiated. Management plans were approved by the communities and village government in November 1999, and subsequently endorsed by an interagency task force at the Regency level.

As part of the project strategy, early implementation actions ("*pelaksanaan awal"* in Indonesian) were initiated while the longer-term planning processes were on-going. This strategy was adapted from lessons learned from the USAID-funded Coastal Resources Management Project I, carried out in Ecuador, Thailand and Sri Lanka during the 1986-1995 period. These "early actions" were meant to be simple solutions to readily identified problems within the community.

The purpose of the early implementation actions were to:

- Build community support for the longer-term planning initiative
- Experiment with mechanisms for community implementation
- Build community capacity for implementation through a learning-by-doing process

A number of early implementation actions have been conducted at each of the four villages within the three field sites. These actions differ from planning and capacity building activities such as training, workshops, public education, village meetings and participatory monitoring as they are specific activities to address a particular management problem. The project established a grant-like system whereby communities could submit proposals for funding activities that met certain criteria. These action grants, or practical exercises in implementation, had to address a specific coastal resources management issue in the village, have widespread support within the community, and be approved by the head of village. Funds were then provided to the community - an action group - that was responsible for implementation. A final report on the activity and an itemized accounting of funds was required from the community before additional funds were dispersed for new proposals they submitted.

Early implementation actions were started in 1998, while village issue-profiling and planning was on-going. The community received funds from two sources: either USAID or BAPPEDA project funds. A list of implementation proposals, the amount funded in Rupiah (RP 8,500 = US$ 1 in June 2000), source of funds and date reports were submitted, is provided in Table 1. These proposals ranged from less than one hundred to slightly more than one thousand US dollars. While this may seem small, this level of project funding is similar to village projects funded through other government programs.

However, the community themselves, not a government agency, were responsible for planning, implementation, funds management and reporting. In addition, the process of decision making concerning proposals was as democratic and transparent as possible. In many cases, these grants were one of only a few government-supported programs being implemented in the village. In other cases, they supplemented or catalyzed funding provided by other government projects.

While the grant program started simultaneously for each village, the number and speed at which they were able to prepare and implement projects varied significantly. This may in part reflect their initial capacity to develop proposals using a participatory process and to administer funds in a transparent manner as required under the grant criteria. For instance, Bentenan took almost a year before they were able to obtain approval for their first proposal to build an information center as they could not initially agree on the location of the center. Blongko has done exceptionally well at obtaining and implementing grants exhibiting the largest total of all funds awarded to date. The small size, cultural homogeneity, leadership, and political unity of the community may have been factors that played a role in this performance. It is also possible that the skills of the extension worker in organizing the community may have been a contributing factor.

Now that management plans have been approved, the early action grant program is being transformed into a slightly more complex block grant program for plan implementation. Under this concept, communities propose an annual workplan that is reviewed and approved by the Regency Task Force. The community will be given up to US$ 5,000 in project funds to implement a number of actions that are consistent with the village management plan. BAPPEDA has also requested approximately RP 20,000,000 for each field site in the 2000 budget to support implementation of the management plans. Through the annual workplan review and approval process, it is expected that sectoral agencies will also allocate funds to supplement project funds. If this community-based block grant experiment is successful, we hope local government will adopt the concept, replacing project funds with GOI (Government of Indonesia) funds as the project phases out. Communities are now in the process of drafting their first annual implementation workplan (as of June 2000). Hence, an evaluation of the relative success of the early implementation actions carried out to date will provide an important benchmark for gauging whether the annual block grant program can work.

Table 1: Early implementation actions by Village

Name of Proposal	Description	Date of Proposal	Date Approved	Amount (RP) Approved by CRMP	Amount (RP) Approved by BAPPEDA	Date Report Submitted
Blongko Village						
Public Toilet (I)	1 unit public toilet + 1 well	22-Jan-98	29-Apr-98	1,239,500		1-Jul-98
Public Toilet (II)	Additional budget with Public revised prices	1-Jul-98	13-Jul-98	2,529,000		28-Aug-98
Information Center (I)	Moveable building with size 600 x 400 m	20-Aug-98	1-Sep-98	2,330,000		15-Oct-98
Public Toilet (III)	5 units public toilet	28-Aug-98	1-Sep-98	11,145,000		24-Mar-99
Water Supply	4% community contribution for World Bank project	9-Oct-98	22-Oct-98	2,400,000		-
Information Center (II)	Additional budget for finishing building	12-Nov-98	18-Nov-98	231,000		Mar-99
Marine Sanctuary (I)	Marine sanctuary marker buoys	22-Sep-98	13-Nov-98	5,220,000		4-Dec-98
Marine Sanctuary (II)	Additional budget for buoy connector, chain, pipe	4-Dec-98	7-Dec-98	5,845,000		15-Feb-99
Public Toilet (IV)	4 units public toilet	24-Mar-99	25-Mar-99	8,916,000		Sep-99
Marine Sanctuary (III)	Additional budget for finishing	16-Feb-99	16-Feb-99	704,300		Mar-99
Boat Engines	Revolving fund starting w/ 6 boat engines (5 HP)	23-Sep-99	Mar-00		9,582,000	28-Mar-00
Dike Construction	80 M length (to prevent beach erosion)	10-Oct-99	30-Mar-00	9,850,000		-
Dike Construction	Additional budget for finishing	1-Mar-00	31-Mar-00		5,000,000	-
TOTAL EARLY IMPLEMENTATION ACTIONS AT BLONGKO				**50,409,800**	**14,582,000**	
Tumbak Village						
Mangrove Planting (I)	Bamboo fence to protect replanted mangrove area	25-Nov-97	25-Mar-98	2,856,250		27-Apr-98
Mangrove Planting (II)	Additional budget for finishing	28-May-98	23-Jul-98	300,000		Sep-98
Water Supply	Additional funds for govt. project to buy boulders	15-May-98	23-Jul-98	1,000,000		16-Aug-99
Dike Construction	600 M length (to prevent road flooding from high tide)	Not available	Mar-99		6,225,000	3-Feb-00
Marine Sanctuary (I)	Marine sanctuary marker buoys 700 M x 300 M	27-Jan-00	15-Feb-00	9,215,000		-
Marine Sanctuary (II)	Additional budget to purchase buoy connector	3-Mar-00	9-Mar-00	3,150,000		-
Boat Engines	Revolving fund for 5 units boat engine (5 HP)	20-Feb-00	23-Mar-00	11,000,000		-
Boat Engine	Revolving fund additional 1 unit	1-Mar-00	31-Mar-00		5,000,000	-
TOTAL IMPLEMENTATION ACTIONS AT TUMBAK				**27,521,250**	**11,225,000**	

Table 1: (continued)

Name of Proposal	Description	Date of Proposal	Date Approved	Amount (RP) Approved by CRMP	Amount (RP) Approved by BAPPEDA	Date Report Submitted
Bentenan Village						
Water Supply	4 units public toilet & water supply pipe-length 375 M	18-Jan-99	19-Feb-99	1,410,000		Mar-99
Information Center (I)	Permanent building with size 12 x 6 x 72 .meters	12-Nov-98	20-Feb-99		10,000,000	1-Aug-99
Information Center (II)	Additional funds for building	17-May-99	18-May-99	4,234,000		1-Aug-99
Information Center (III)	Additional budget for finishing	15-Sep-99	1-Nov-99	3,625,000		19-Feb-00
Mangrove Planting	Planting 7,500 seedling	21-Mar-00	30-Mar-00	597,500		-
Seaweed Farming	Revolving funds for small seaweed farms (10 persons)	21-Mar-00	31-Mar-00		5,000,000	-
TOTAL EARLY IMPLEMENTATION ACTIONS AT BENTENAN				**9,866,500**	**15,000,000**	
Talise Village						
Information Center (I)	Permanent building with size 16 x 8 x 3 meters	22-Jan-98	24-Apr-98	4,433,000		22-Jan-98
Information Center (II)	Additional budget for 30% increasing cost of materials	22-Jan-99	29-Jan-99	7,535,500		27-Mar-00
Dike Construction	250 M length (to prevent flood erosion)	Not available	10-Apr-99		4,693,000	21-Feb-00
Boat Engines	5 Units Boat Engine (5 Horse Power)	10-Aug-99	29-Feb-00	12,250,000		-
Mangrove Planting	Cultivation of 650 seedlings for replanting 2-3 ha	1-Feb-00	29-Feb-00	565,000		-
Information Center (III)	Additional budget for finishing	27-Mar-00	30-Mar-00	530,000		19-Apr-00
Information Center (IV)	Installation of electricity	27-Mar-00	30-Mar-00	1,985,000		19-Apr-00
Marine Sanctuary	Marine sanctuary marker buoys	1-Mar-00	31-Mar-00		5,000,000	-
TOTAL EARLY IMPLEMENTATION ACTIONS AT TALISE				**27,298,500**	**9,693,000**	

		CRMP	BAPPEDA
GRAND TOTAL FOR ALL SITES	**RP**	**115,096,050**	**50,500,000**

Source: Compiled from Proyek Pesisir Reports, Community Proposals and Financial Accounts by Lissa Inkiriwang, Office Manager, Proyek Pesisir, North Sulawesi

3.0 Methods

Early implementation actions carried out to date were assessed in several ways:

- Review of project documents, community proposals and reports
- Administration of a questionnaire of a random sample of village residents
- Individual discussions with local project staff and in small focus group meetings
- Interviews of key informants in each village conducted by the assessment team
- Direct observation at the field sites

Secondary Data Review: A copy of the early action project proposals and reports submitted by the community were compiled and reviewed. Monthly reports of the field extension workers were also reviewed for information concerning early actions.

Community Survey: A random sample of residents of each project village were asked several questions concerning project activities in a survey (A copy of the survey instrument can be found in the interim assessment of the Blongko field site.) Several questions in the survey instrument, but not all, pertained to early implementation actions. Respondents were asked what activities they participated in, regardless of whether it was a planning or implementation activity; what activities they were aware of, and to rate the usefulness of each of these activities (very useful, useful, somewhat useful, not useful, or don't know). A summary of these responses is provided in Table 2. Additional information from the survey is provided in the individual project summaries.

Project Staff Assessment: Early action projects were discussed with project staff members, including the Field Program Manager, supervising and technical extension officers, field extension officers, and field assistants. The office manager responsible for funds disbursement and auditing of community expenditures was also interviewed and she compiled the data provided in Table 1. During a monthly staff meeting, project staff were asked to discuss and rank each village implementation action on a scale of 1 – 5 (1 = not successful, 5 = very successful, N/A = implementation not long enough yet to evaluate). The scores given in Table 3 below were based on a consensus decision among the project staff including the extension officers. Individuals were asked for their opinion or score and why. Others were then asked if they had a different view or score and why. Each implementation action was discussed until a general consensus was reached on a score. In some instances similar projects (e.g. engines, marine sanctuaries) were compared across sites and scores adjusted by comparison.

Key Informant Interviews: Key informants were identified by field and technical extension workers, project field assistants (resident of the community), local village officials, or names identified in implementation action project proposals and reports. Typically, these were individuals involved with the planning and/or implementation of the activity, or were a beneficiary of the project. As many key informants as possible were interviewed for each project to get an overall sense of its effectiveness or to gauge any difficulties in execution.

Direct Observation: Each project was physically inspected in the field to determine whether it existed and was functioning properly as well as to determine to what extent its status reflected information in proposals and reports, as well as information provided by key informants.

4.0 Results

4.1 Community Perceptions

The results of the survey of household respondents are provided in Table 2. Respondents were asked to identify project activities that they had participated in and rank the usefulness of each. Hence, not all of the activities listed below are "early implementation actions" or were early implementation actions where a grant was provided to the community. As this was an open-ended question, respondents did not mention all of the early implementation actions undertaken. Many of the activities listed below were related to public education, training, and village planning. Hence the list of activities is what was most memorable or salient in the minds of the respondents, for whatever reason.

Early implementation actions in Tumbak ranked as very useful by the highest percentage of respondents were mangrove reforestation and the marine sanctuary. The crab fattening project had the lowest percentage of persons ranking it as very useful and the highest percentage ranking it as not useful. Approximately one-third of respondents ranked the boat engine revolving fund as either somewhat useful, not useful, or don't know.

In Bentenan, beach profiling, water supply, information center and beach clean up were ranked as very useful or useful by all respondents. Mangrove planting was the only project where some respondents rated it as not useful.

In Blongko, the marine sanctuary and erosion control dike had the highest percentages ranking them as very useful, followed by water supply. The boat engine revolving fund and MCK (bathing, washing and latrine facility) projects had the highest percentage ranked as not useful, followed by water supply. However, 62 percent of respondents ranked water supply as very useful with 24 percent ranking it as useful.

In Talise, no activities were ranked as not useful. Land tenure had the highest percentage ranked as most useful followed by the flood control dike, information center and marine sanctuary.

In Blongko and Talise, more than half of the respondents ranked all the activities mentioned as very useful. Bentenan had the lowest percentage of respondents (26 percent) ranking all activities mentioned as very useful. In Tumbak, only 37 percent of respondents provided a ranking of very useful to all activities mentioned.

Table 2. Percent ranking by respondents in each village regarding the usefulness of project activities they participated in or were aware of

Village/Activity**	Very Useful	Useful	Somewhat Useful	Not Useful	Don't Know	N
Blongko						
Marine Sanctuary*	71.4	23.8	-	-	4.8	21
Water Supply*	61.9	23.8	9.5	4.8	-	42
Information Center*	35.7	50.0	7.1	-	7.2	14
MCK (bathing, washing units)*	39.1	42.2	10.9	6.2	1.6	64
Erosion Control Dike Construction*	68.4	26.3	-	-	5.3	19
Boat Engine Revolving Fund (katingting)*	43.8	31.2	6.3	6.2	12.5	16
Total (all activities mentioned)	***53.0***	***32.8***	***7.1***	***3.8***	***3.3***	***183***
Tumbak						
Crown of Thorns (COTs) Clean up	34.9	53.5	-	-	11.7	43
Marine sanctuary*	40.0	46.7	3.3	3.3	6.7	30
Mangrove reforestation*	41.4	50.0	1.4	1.4	5.7	70
Boat Engine Revolving Fund (katingting)*	33.3	23.8	19.1	4.8	19.0	21
Crab Fattening	12.5	62.5	-	6.2	18.8	16
Meeting	16.7	83.3	-	-	-	6
Total (all activities mentioned)	***37.3***	***48.2***	***3.1***	***2.1***	***9.3***	***193***
Bentenan						
Water Supply*	20.00	80.0	-	-	-	5
Information Center*	46.7	53.3	-	-	-	15
Mangrove* Planting	34.3	48.6	-	11.4	5.7	35
Beach Profiling	-	100.0	-	-	-	8
COTs Cleanup	20.8	70.8	4.2	-	4.2	24
Beach Cleanup	16.7	83.3	-	-	-	6
Meeting	33.3	55.6	11.1	-	-	9
Total (all activities mentioned)	***25.9***	***64.9***	***2.3***	***3.1***	***3.8***	***131***
Talise						
Flood Control Dike*	77.1	20.8	2.1	-	-	48
Mangrove Planting*	67.5	27.3	1.3	-	3.9	77
Land Tenure*	91.7	8.3	-	-	-	24
Boat Engine Revolving Fund (katingting)*	58.3	8.3	8.3	-	25.0	12
Agroforestry*	64.7	17.6	11.8	-	5.9	17
Information Center*	75.8	24.2	-	-	-	33
Marine Sanctuary*	69.6	30.4	-	-	-	23
Meeting	46.2	50.0	-	1.9	1.9	52
Total (all activities mentioned)	***67.8***	***27.5***	***1.7***	***0.3***	***2.7***	***298***
Grand Total for All Activities	**50.3**	**39.7**	**3.4**	**2.0**	**4.6**	**805**

** No specific data reported for activities mentioned by less than 5 respondents

* Implementation actions where a grant was provided to the community

4.2 Staff Perceptions

A summary of the project staff's ranking of each early action is provided in Table 3. The staff rated twenty-five early implementation actions. Five (20 percent) were ranked as too early in the implementation process to judge properly. Only one (4 percent) was ranked as not successful. Three (12 percent) were rated a two or less and therefore considered not very successful, eleven (44 percent) were rated moderately successful (score of 3 to 4.5), and six (24 percent) were ranked as very successful (score of 5). This indicates a fairly high success rate of early implementation actions to date and is a very encouraging sign that community implementation of resource management and development initiatives can be effective in coastal communities of North Sulawesi. An

evaluation of a community grants program used in the Ecuador Coastal Resources Management Program reported that 70 percent of the projects fully or partially met expected results (Robadue, 1995). This is quite similar to the success rate to date in North Sulawesi. However, we must keep in mind that project staff made these project assessments and therefore they have the potential for bias.

A number of issues concerning some projects (typically those given a score on the lower end of the ranking scale as well as for those rated as too new to be able to evaluate yet) were raised during the field work and culled from discussions with project staff. Specific recommendations for each project are contained in the summaries provided in the following section (Section 4.3). The individual project assessments also include a rating by the field assessment team that may differ from the ratings made by the project staff (a scale scoring system was not used by the assessment team). While some members of the assessment team have been involved with the North Sulawesi project from the beginning, they are not as closely involved with the village activities on a day to day basis. These rankings tend to be a bit more critical, but also come with potential biases from members of the assessment team.

Table 3: Rating of implementation actions by project staff

Village and Action	Staff Score*
Blongko	
Marine sanctuary	5
Water supply system	5
Information center	4
MCK (bathing/washing/latrine units)	3.5
Erosion control dike	3
Boat engine revolving fund	2
Agroforestry extension	N/A
Tumbak	
CoTs clean up (Bentenan & Tumbak)	5
Road flood control dike	5
Marine sanctuary	4
Mangrove reforestation	4
Water supply system river dike	1
Boat engines revolving fund	N/A
Crab fattening	N/A
Bentenan	
Water system	3.5
Information Center	3
Mangrove planting	2
Seaweed revolving fund	N/A
Talise	
Flood control dike	5
Mangrove planting	5
Land tenure	4.5
Boat engine revolving fund	4
Agroforestry system	3.5
Information center	3.5
Marine sanctuary	N/A

* Ranked on a scale of 1-5, 1 = not successful, 5 = very successful, N/A = too soon to evaluate

4.3 Individual Project Evaluations by the Assessment Team

A summary of the assessment team's evaluations of the early implementation actions is provided in Table 4. There were 24 projects evaluated. Five projects (21 percent) were considered too early in the implementation phase to reasonably evaluate, three (12.5 percent) were considered unsuccessful, four (17 percent) were somewhat successful, nine (38 percent) were considered successful and one (4 percent) was considered very successful. Summaries of each implementation project are provided below. They include a brief description of the project and its purpose, an explanation of how the project was

implemented, an individual evaluation of the project, a rating by the assessment team, and specific recommendations by the assessment team for the project staff and community.

4.3.1 Blongko

Marine Sanctuary

Rationale: The purpose of the marine sanctuary project in Blongko is to preserve and permit undisturbed growth in an area of coral reef and mangrove adjacent to the village. It is expected that the undisturbed coral reef and mangrove will serve to both reduce erosion on the adjacent shoreline and provide improved habitat for the reef fish so important to the livelihood of village residents. It is assumed that some fish from the improved habitat will move to adjacent areas where they can be captured for subsistence or sold in the market as food or ornamental fish.

Table 4: Summary assessment of implementation actions by the assessment team

Village and Action	Ranking
Blongko	
Marine sanctuary	Successful
Water supply system	Somewhat successful
Information center	Successful
MCK (bathing/washing/latrine units)	Successful
Erosion control dike	Too soon to evaluate
Boat engine revolving fund	Unsuccessful
Agroforestry extension	Somewhat successful
Tumbak	
CoTs clean up (Bentenan & Tumbak)	Not evaluated
Road flood control dike	Successful
Marine sanctuary	Successful
Mangrove reforestation	Very successful
Water supply system river dike	Inconclusive
Boat engines revolving fund	Too soon to evaluate
Crab fattening	Not successful
Bentenan	
Water system	Somewhat successful
Information Center	Somewhat successful
Mangrove planting	Unsuccessful
Seaweed revolving fund	Too soon to evaluate
Talise	
Flood control dike	Successful
Mangrove planting	Somewhat successful
Land tenure	Successful
Boat engine revolving fund	Successful
Agroforestry system	Too soon to evaluate
Information center	Successful
Marine sanctuary	Too soon to evaluate

Process: The marine sanctuary was developed through a series of both informal and formal meetings with community members that resulted in selection of size and location for the sanctuary. The site was formally designated by village ordinance in 1998. *Proyek Pesisir* conducted training in marine sanctuary concept, and sanctuary monitoring, surveillance, and enforcement.

Evaluation: Early implementation actions thus far include: 1) formation of a management committee, 2) establishment of a marine sanctuary ordinance, 3) installation of buoys and flags marking the boundary, and 4) posting of four information signs along the village road, two signs at entry and exit of village along the Trans-Sulawesi Highway, and several informational posters and signs in the information center.

According to the head of the marine sanctuary committee (Arnold Rattu), he has held formal meetings (formal announcements with invitations) quarterly over the past two years, and the committee meets informally between these meetings.

Surveillance is informal at the present time, with all community members expected to watch and report illegal activities. The Surveillance and Monitoring Group (SMG) has not yet formalized surveillance activities. They received one of the *katintings* from the Boat Engine Project, and the head of the SMG complained that they had no boat. He was questioned as to how he used the engine without a boat, and he noted the *katinting* was broken!

Nevertheless, some surveillance takes place. An examination of the logbook kept by the SMG indicated 14 violations in 1999 (one of which was a natural occurrence and another blast fishing by non-Blongko fishers outside the sanctuary) and 5 in 2000. Violations included infractions ranging from unauthorized transit through the sanctuary to cutting of marker buoy lines and fishing activities within the boundary. Assessment team members observed several fishers fishing along the boundary to the sanctuary but not within. In addition, they also observed a *pajeko* boat from the village go out and relocate one of the marker buoys that had drift from currents and wind.

According to the head of the SMG two Line-Intercept-Transect surveys (pre-sanctuary and post sanctuary establishment) have been undertaken. He said that there was only one joint manta tow survey conducted with a member of the sanctuary committee.

The marine sanctuary committee members sometimes request funds or accept donations from visitors. Reportedly, these funds are used for maintenance of marker buoys and the information center. The field assistant reportedly handles these funds and accounts for their use in a logbook.

The head of the management committee reports that the community both understands the rules of the sanctuary and supports its establishment. The survey results from Blongko tend to confirm the high level of understanding among residents concerning the marine sanctuary. Out of 80 survey respondents 69 percent were able to state one or more of the purposes of the marine sanctuary and 31 percent stated they did not know the purpose. Forty-four percent mentioned the purpose as increasing fish production, a fish breeding or fish growing area as the their first response. Additionally, 96 percent were able to state one or more of the rules concerning the MPA and only 4 percent could not mention any of the rules. Thirty-four percent of all respondents mentioned no fishing as their first response. This is one of the most important rules concerning the marine sanctuary for it to function effectively.

Rating: Successful.

Recommendations:

1. While informal surveillance appears to result in apprehensions, it is advisable to develop a formal method.
2. Determine what happened to the *katinting* supposedly used by the SMG for surveillance. Was it broken by some sort of misuse (e.g., lack of maintenance, improper fuel, etc.)? If so, some sort of remedial action (training) should be taken before the group is given another engine.
3. Purchase of a small patrol boat, such as a locally made *pelang*, should be considered.
4. The community should be more actively involved in monitoring with the use of the manta toward recording of catch-effort statistics among fishers fishing in waters nearby the sanctuary.

Water Supply System

Rationale: The purpose of the water supply project was to install a system to distribute water from a spring in the hills east of the Trans-Sulawesi Highway to the residential area of Blongko. *Proyek Pesisir* contributed only 4 percent (2.4 million Rupiah) of the funding for the project. The remainder of the funds was provided through a World Bank loan program.

Process: A water tank was partially constructed and a system of pipes delivering the water to 12 stand-pipe locations distributed throughout the village of Blongko was completed. Consultants from Manado selected the standpipe locations.

Evaluation: According to the head of the Water Supply Committee, the contractor has only completed 30 percent of the main supply tank. Water, however, flows to all 12 standpipes, supplying all village households with access to water. At the present time, water flows continuously out of the standpipes that have no working control valves (spigots). The continuous flow substantially reduces water pressure towards the end of the system (Dusuns 2 and 3). Another storage tank, which will help maintain water pressure, has been delivered for Dusun 3, but has not been installed yet. The continuous running of the water does not waste water since water from the spring would eventually flow to the sea anyway. Around some standpipes, however, standing fresh water could provide breeding areas for mosquitoes and could increase the prevalence of malaria or dengue fever.

Spigots have not been replaced due to the fact that community members have not paid the agreed-upon 1000Rp/month for maintenance. The head of the Water Supply Committee reports that they have not paid because the contractor has not completely finished the holding tank in the hills.

Rating: Somewhat successful.

Recommendations:

1. According to the head of the Water Supply Committee, the contractor has the funds to finish the storage tank; hence, the community and local government must compel the company to complete the project.
2. Once the contractor completes the storage tank, residents must begin paying access fees for water to effect required maintenance such as replacement of spigots and fixing leaks. A community meeting must be held to inform residents of the importance of payment of fees. This may be difficult due to the extended period of free access and lack of concern about continuously running faucets.

Information Center

Rationale: The purpose of the information center is to function as a place for the Marine Sanctuary Management Committee to hold meetings. It also serves as a place where visitors as well as residents of Blongko can receive information through posters and other literature concerning coastal resource management and the activities of Proyek Pesisir.

Process: A formal community meeting was held to select the location for the information center. No problems were encountered during construction, which took 30 days. The center was moved once due to shoreline erosion at its previous location.

Evaluation: The center has a number of coastal resources related posters on the wall of the main room. Four deal generally with coastal and marine resources, four specifically concern Blongko, with two of these displaying bar graphs illustrating marine resource conditions in the Marine Sanctuary before and after implementation, demonstrating the positive impacts that occurred. There are also two illustrated, information folders attached to the storeroom door. The storeroom contains two portable bulletin boards, covered on both sides with photographs illustrating the activities of *Proyek Pesisir* in Blongko. It also contains a display case containing a collection of *Proyek Pesisir* publications as well as other relevant documents.

The information center has been used to hold Marine Sanctuary Management Committee meetings, as well as one concerning the information center, itself. It was announced as available for other meetings, but none have taken advantage of the opportunity as of yet.

Rating: Successful.

Recommendations:
1. The center could serve as a place for short training programs such as those suggested for the boat engine (*katinting*) project described below.
2. The center could prepare more informative exhibits and invite the local schools to send small groups of children on "field-trips" to learn about coastal and marine resource management.

MCK (public bathing/washing/latrine unit)

Rationale: Sanitary disposal of human waste and adequate washing facilities are always a problem in rural areas. Inadequate procedures result in potential contamination of the drinking water supply as well as pollution of adjacent coastal waters.

Process: Funds were obtained for construction of 11 MCK. Three formal community meetings were held to select locations. Five MCK are located in Dusun 1, and Dusuns 2 and 3 have three each.

Evaluation: The Kepala Desa, who is on the MCK Committee, reports that all have been constructed. Finishing touches (e.g., extending top of wall to roof, final painting, etc.) have not been completed on all 11, but all are in use. Each MCK is shared by approximately 10 families. Those observed appear adequate for their purpose, and the *Kepala Desa* reports no problems with respect to construction, use, maintenance, or sharing (one is behind his house). Another family sharing an MCK reported no problems yet involving use, sharing or maintenance.

Rating: Successful.

Recommendations: Put finishing touches on all the MCK.

Erosion Control Dike

Rationale: The purpose of the dike is to prevent the river emptying into the sea just north of the village from further eroding the beach and village road. Erosion has completely eroded the road at one point, one house had to be relocated, and the erosion now threatens adjacent houses.

Process: The village decided they needed help and the project office in Manado brought in two engineering consultants from UNSRAT who developed a plan for dike construction.

Evaluation: A 32 by 3-meter dike was constructed to divert the river from its present course through an alternate channel to the sea. The alternate channel was dug with a backhoe. The river seems to be diverted, but it is too soon to tell whether it will succeed in preventing further erosion in the long-term since the project is not fully completed nor has the structured been tested through a full rainy season of river flow.

Rating: It is too soon to be able to evaluate fully util after the rainy season.

Recommendations: Complete the project and monitor shoreline erosion in the area in addition to the ability of the dike design to hold up to heavy rainfall events.

Boat Engine Revolving Fund

Rationale: There are varying stories concerning this engine program. The head of the *katinting* (boat engine) group reported that a group of fishers went to the *Hukum Tua* (*Hukum Tua* is the term now used for *Kepala Desa*, or Head of Village in the Minahasa Regency) saying that they needed motors to fish. Several meetings were held and it was decided to seek funds to purchase motors for motorless fishers. BAPPEDA provided funds sufficient to purchase six 5 HP Honda utility engines along with a propeller and hardware for attaching the motor to the boat. This project was proposed as a revolving fund where the initial group of fishers provided engines pay back the cost through a periodic payment. Over time, as sufficient funds are built up, other fishers in the group would then receive an engine. This process continues until all members of the group receive an engine. The objective was to increase fisher catches and thereby increase their incomes.

Process: A group of 20 fishers needing motors was identified. At one of the meetings a decision was made to divide the 20 fishers into 5 groups of 4 fishers each, and provide an engine to each group. The head of the *Katinting* Committee claims that one engine went to each of the groups. One engine also went to the Marine Sanctuary Surveillance and Monitoring Group (MSSMG). The field assistant has one engine stored in her house because she reports that there was not a fifth fisher with the skills/equipment to use it. No training accompanied distribution of the engines.

Evaluation: The distribution system was very ambiguous, and no one could satisfactorily explain the procedure. Each engine went to a group of 4, but only one fisher in the group received and used the motor. The head of the *Katinting* Committee said that this was for appearances—they did not want the village to think that one man was receiving an

engine. A fisher who received a *katinting* said that he did not understand the role of the other three in his group.

The recipient of the engine was supposed to pay back 100,000 Rp/month from his catch. None have done so, and one fisher interviewed claimed that he cannot make payments because the engine quits after one-half hour. He said he had no training concerning the engine and blamed the problem on the fact that it has no fuel filter, which he said was in the fuel tank. His discussion of the problem suggests he knows nothing about the parts of the engine (the filter is in the fuel line). Another fisher complained of no pre-tank fuel filter. An experienced operator of small engines knows that dirty fuel can be pre-filtered with a piece of cloth.

The head of the MSSMG also reported that their engine was inoperative. That means that 3 of 6 usually reliable, relatively new (just a few months old) Honda utility engines are inoperative.

Rating: Unsuccessful.

Recommendations**:**

1. Selection criteria used for recipients should be more rigorous, targeting people whose present catches suggest skill as a fisher and who could obviously benefit from a motor. A motor will not help one lacking skill as a fisher.
2. Training should accompany the distribution of equipment, especially relatively expensive motors, which require continuous preventative maintenance. All recipients, especially those who have no skills in engine maintenance and repair should be given a several hour class, illustrated with diagrams of the engine and hands-on experience. Trainers should ensure that recipients can properly add and change oil, check and clean fuel filters, and perform other maintenance described in the owner's manual. They should be monitored on the first day of use to insure that they perform all pre- and post-trip engine checks and maintenance.
3. A knowledgeable mechanic should be designated as a trouble-shooter that all engine recipients can call upon to deal with problems beyond the users' skill level.
4. There is no excuse for the engine failures accompanying this project. The owner's manuals accompanying the engines are multi-lingual (including Bahasa Indonesia) and sufficiently clear to be used by anyone used to operating small engines. Either the recipients are illiterate or they have no hands-on experience operating engines, both of which should be important selection criteria if no training will accompany distribution. Since the cost of several hours of training would be minimal compared to engine cost, it should even accompany distribution to literate recipients who are accustomed to operating small engines.
5. Since the revolving fund system does not seem to be functioning, visits by fishers from Talise or Tumbak, where the system seems to be working may be useful. Efforts should be made by the field extension officer and community management committee to meet with the engine groups and discuss the problems of maintenance and pay back schemes.

Agroforestry

Rationale: Agricultural practices and accompanying deforestation have resulted in erosion and runoff that threatens the health of the coastal ecosystem in Blongko. The

purpose of the agroforestry project is to develop agroforestry systems directed at increasing agricultural production while protecting the forest and watershed and reducing the erosion that contributes to near-shore sedimentation and potential harm to coral reefs.

Process: A rapid assessment of existing hillside agricultural systems and soil analysis was used to identify appropriate agroforestry systems and training necessary to effect changes in agricultural practices.

Evaluation: Some training has been conducted, but there has been little progress in the form of demonstration plots or changes in practices. This lack of progress was attributed to the fact that a "company" owns the target lands, and they will not allow planting. There is even a question concerning who, exactly, owns the land. The previous owner (reported to be a "company" who previously agreed to allow the demonstration plots) has sold out, and it reportedly is not known who owns the land at the present time. Some replanting of trees has been done along the river, but not elsewhere.

Rating: Somewhat successful.

Recommendations:
1. Obtain permission to develop demonstration plots somewhere in Blongko or funds and efforts thus far spent will be wasted. It is not clear why land presently owned by hill farmers (if any) cannot be used for demonstration purposes. Perhaps if *Proyek Pesisir* guarantees a harvest, farmers will permit experimental use of their land.
2. Increase efforts to find present owners of most favorable locations for demonstration plots even if it is not in the immediate watershed or adjacent to the marine sanctuary.

4.3.2 Bentenan and Tumbak

Road Flood Control Dike (Tumbak)

Rationale: The purpose of the project was to construct a curb along the main road through Tumbak to act as a dike to prevent flooding and erosion of the road during the highest tides of the year.

Process: Funds were provided for material and 6 construction workers who were aided by household members for areas fronting their and several adjacent neighbors' houses. There are 3 dusuns in Tumbak, and the project started with Dusun 1. One month after the grant was received (July 1999) construction of curbs was completed along 300 meters of the road in Dusun 1 (total of 600 meters of cement curb extending to 10 to 15 Cm above present road level).

Evaluation: The curb exists along the road in Dusun 1 with some minor chipping caused by heavy vehicles driving over the surface. The completed dike reportedly prevented flooding during the highest tides that occurred since construction. The leader of the dike group says that they would like to build similar dikes for the other two dusuns.

Rating: Successful.

Recommendation: Given the apparent success of this action, subsequent funding of extending the dike should be considered and funded if proposed in the community annual work plan proposal for the block grant.

Marine Sanctuary (Tumbak)

Rationale: The purpose of the marine sanctuary project in Tumbak is to preserve and permit undisturbed growth of an area of coral reef just offshore the village. It is expected that the coral reef will serve to both prevent erosion on the adjacent shoreline and provide improved habitat for the reef fish so important to the livelihood of village residents. It is assumed that some fish from the improved habitat will move to adjacent reef areas where they can be captured for subsistence or sold in the market as food or ornamental fish.

Process: The marine sanctuary was developed through a series of both informal and formal meetings with community members that resulted in selection of size and location for the sanctuary. The site was formally designated by village ordinance in 1998. *Proyek Pesisir* conducted training in marine sanctuary concept, and sanctuary monitoring, surveillance, and enforcement.

Evaluation: Early implementation actions thus far include:

- Formation of a management committee (January 2000)
- Drafting of a marine sanctuary ordinance (May 2000) outlining boundaries, rules governing permitted activities in the sanctuary, and enforcement
- Installation of buoys marking the boundary (May 2000)

Information signs to be posted in the community are undergoing preparation and will be installed soon. The Head of Village has not yet signed the sanctuary ordinance. Reportedly, it will be signed at a formal ceremony establishing the sanctuary currently being planned.

Fourteen members of the marine sanctuary management committee, which was formed in early 2000, attended the two formal meetings held. Committee members report that they also meet informally to discuss the sanctuary.

Surveillance is informal at the present time. The leader of the management committee reported that group members watch the sanctuary when they have the time to do so. Thus far, they report that no community members have broken the rules of the sanctuary. Outsiders reportedly moored in the area but departed before apprehension. Monitoring by manta tow was last conducted in early 1999.

The head of the management committee reports that the community both understands the rules of the sanctuary and supports its establishment. Survey results from Tumbak indicate that 86 percent of 80 respondents could state one or more of the rules concerning the marine sanctuary and 33 percent mentioned no fishing as their first response. Only 14 percent of the respondents stated that they did not know the rules concerning the marine sanctuary. The only problem reported by key informants is that some seaweed farming area was included in the sanctuary boundaries, and that the farmer has yet to remove his operation. He has promised to move his lines as soon as he harvests the present crop. The evaluation team observed fishers line fishing right on the boundary of the sanctuary but not within.

Rating: Successful.

Recommendations:
1. The public should be made more aware of the no fishing rule. Installation of a signboard posting the rules will help in this process.
2. Establish a monitoring scheme to monitor reef and fish abundance in the sanctuary, conducted by both the community monitoring group (Manta tow group) and through LIT surveys by the project team should be established, similar to that in Blongko. Results of these surveys should be posted annually, and results should be reported to the community through community meetings.
3. Following a procedure similar to that used in Blongko, conduct a participatory evaluation with the sanctuary committee every 6 months.
4. Consider experimenting with alternative marker buoy designs, which are less susceptible to movement during heavy seas and strong winds and currents.

Mangrove Reforestation (Tumbak)

Rationale: The purpose of the mangrove replanting project was to increase the area of mangrove behind Tumbak, improving habitat for local fauna as well as providing protection from eroding effects of the seasonal southwest winds.

Process: The project was facilitated by the Core Group with the assistance of the *Kepala Dusun* s (Dusun 2 and Dusun 3) and Proyek Pesisir. Several meetings were held to discuss reasons for the project, activities involved, and to select the appropriate area for planting. Each meeting was attended by nine to 48 villagers according to the Field Extension Officers monthly reports. The first three meetings included primarily women, and a subsequent meeting was about one-third female.

Two narrow areas of communal land, approximately two hectares each stretching along the mangrove area behind the village were selected for the replanting. In July of 1998 (check date) 175 individuals--male, female, young and old—were involved in collection of approximately 1000 seedlings from the forest behind the village. They were given no instructions about types to collect, but since they were from the same type of area as the replanting area, survival seemed certain. Approximately four species of mangrove were among the mix of seedlings planted.

Soon after replanting, goats were observed eating the new, fresh leaves on the growing seedlings at low tide. Funds were requested to build a fence, and villagers contributed labor. The fence kept the goats out of the planting.

Evaluation: In the two years since the planting, approximately 75 percent of the seedlings survived and have grown to between two to three meters in height. Foliage looks healthy, and new seedlings are growing naturally in the planted area. Villagers are also planting new seedlings in adjacent areas. The fence has broken down, but there is no report of goat damage to the grown mangrove trees. Overall, the replanting appears to be successful.

Rating: Very successful.

Recommendations:
1. Repair the fence if still needed to keep goats from eating the young trees.

Water Supply System River Dike (Tumbak)

Rationale: The purpose of the project was to fund the purchase of boulders to be used in the construction of a retaining wall to reduce erosion along the river adjacent to an already constructed water supply tank. Water from the river is to be pumped into the tank.

Evaluation: The community was unsatisfied with the quality and location (in terms of height for a gravity feed system) of the tank as well as the diameter of pipes provided. All construction was halted and the funds to purchase boulders for the retaining wall are being held until (or if) problems are resolved and construction resumes. A visit to the concrete water tank revealed minimal elevation and a garbage-strewn interior.

Rating: Inconclusive.

Recommendations:
1. Lack of drinking water is a continuing problem in Tumbak, which particularly affects women who have to paddle over a kilometer through the mangroves and then haul water from a fresh water source in the neighboring village. Survey respondents were asked an open ended question concerning problems their family face. Out of 80 respondents in Tumbak, 26 percent mentioned lack of drinking water supply as their first response to the question concerning problems faced. For those that gave a second response, 33 percent mentioned drinking water. Thirty-three percent of Tumbak survey respondents in 1997 mentioned drinking water supply as their first response (Pollnac et. al., 1997b). It is suggested that some portion of the block grant funds over the next several years be used to help built an adequate water supply system for the village if the community feels this is a priority use of these funds.

Boat Engine Revolving Fund (Tumbak)

Introduction: The purpose of the *katinting* component of the project is to provide known bomb fishers with gear that will facilitate their work; hence, reduce their reliance on destructive fishing methods. A commonly held belief is that they have no alternative to bombing that will maintain their current level of livelihood. While only 4 percent of survey respondents in Tumbak stated "no alternatives" as the reason that people bomb fish, 20 percent stated it is their habit and another 19 percent stated it is an easy and quick way to catch fish. The *katinting* component can thus be viewed as an experiment that tests the hypothesis that economically viable alternatives must be provided to get bomb fishers to stop bomb fishing.

Process: Fifteen known bomb fishers were formed into a group destined to receive *katinting* motors (ca. 5 HP, cost 2.2 million Rp). The motors are mounted on a hinged platform that is attached to the side rail of a pelang, bolotu, or londe. The propeller is mounted on a long drive shaft that is lowered into the water by flipping the hinged motor to a position outside the side rail. It is cheaper and easier to maintain than an outboard and very practical for navigating in shallow waters and working within and around the maze of cables and lines that characterize seaweed culture areas.

The first phase of the project provided the group with 5 *katinting* that were given to five fishers lucky enough to win them in a game of chance. Matches, five with the heads removed, were buried in a container of sand. Fishers who drew the headless matches received a *katinting* with the requirement that they pay 100,000Rp per month to be deposited in a fund to be used to purchase additional *katinting* to be distributed to group members following the same technique. The only other requirement was that they cease all bomb fishing. If they are caught bombing, the *katinting* will be taken from them and passed on to another fisher by lot.

Evaluation: The secretary of the *katinting* project and the five fishers who received the motors were interviewed two and one-half months after the motors were distributed. The secretary of the project reported that all fishers have been making their payments on time, and as far as can be ascertained, all have ceased bomb fishing, at least in the vicinity of Tumbak. It is impossible to monitor the fishers outside the local area.

The fishers receiving the motors report different emphasis on productive activities. All except one are involved in seaweed farming, and the one not currently involved has claim to an area but has suspended activities. All report some fishing activity, four use hook and line for food fish, two use nets for food fish and ornamental fish, and one fisher gleans shellfish when there is demand for the product. Fishing is the most important activity for two of the fishers, seaweed farming for two, and the two activities are reported of equal importance for one.

The fishers all report that the motors facilitate their work, saving them both time and energy. One fisher noted that before he had the motor, bad weather would force him to stop activity and he would catch nothing. He also found it difficult to move to productive areas after expending energy in an unproductive area. Several noted that the saving of time and energy allowed them to perform more activities, to conduct one type of fishing, then go to maintain a seaweed planting, then do another type of fishing at night. Seaweed farmers report savings of time and energy in day-to-day maintenance, as well as more rapid harvest. Three out of five fishers reported that they had no complaints about the project, while two preferred the payback to be 50,000 rather than 100,000Rp per month, but had no other complaints. Two and one-half months following distribution of the *katinting* is a bit premature for an evaluation, but hopefully the savings in time and energy and somewhat increased productivity will permanently lure participants from bomb fishing.

During survey work in a neighboring village, one respondent reported that an individual from Tumbak who received a *katingting* was bomb fishing off of Rumbia. The name of the individual was given and it was an individual who did receive one of the *katingting* in Tumbak. Extension officers later verified this event in a meeting with the *katingting* group where the individual admitted bomb fishing and under threat of having his engine taken away, promised not to do it again.

Rating: Too soon after implementation to determine if it is having desired effects.

Recommendations:

1. The recipients of engines need to monitored carefully to ensure they are not using the engines to bomb fish in locations beyond the village. If further violations of this

condition of participation should occur, violators should have their engines taken away and illegal activities reported to the head of village and the management committee.
2. This group needs to be monitored carefully to ensure that repayments are made and other members of the group eventually receive engines (see Talise engine revolving fund for more information on a successful process)

Crab Fattening (Tumbak)

Rationale: The purpose of the project was to build a tank and provide training for grow-out of small crabs as a livelihood project.

Procedure: Sam Ratulangi University (UNSRAT) was contracted to design and carry out an alternative income project for Tumbak. The cement portion of a grow-out tank was designed and built.

Evaluation: All that exists is a cement grow-out tank approximately 5m X 20m X 1.75m. It has no doors to close the tank, no internal habitat for the crabs, and no provision for covering (e.g., a roof). The head of the crab fattening group (reportedly only two members, including the leader) reported that they had no control over construction of the tank—all they will do is collect seed and grow-out the crabs. He said he has no knowledge of training being conducted concerning procedures for crab fattening.

The North Sulawesi Field Program Manager reported the concept was to have it start out with two people as a trial project and then others wanted to join, so the group increased in size with membership from all three dusuns. He suspects this is part of the reason it is not working.

Sixteen individual respondents to the survey conducted in Tumbak mentioned Crab Fattening as a project activity they participated in. Of these respondents, two ranked it as very useful, 10 as useful, three indicated they did not know and one ranked it as not useful.

Rating: Not successful.

Recommendations: The Field Extension Officer and Senior Extension Officer should meet with crab fattening group and facilitate a participatory evaluation by this group. Project staff need to meet with UNSRAT staff in charge of this project and also discuss issues concerning implementation. Determine whether the project should be re-designed, continued or dropped.

Water Supply Extension (Bentenan)

Rationale: The purpose of this project was to extend an existing water supply line to a number of households in Dusun 3 and 4 not yet serviced by piped water. Improved drinking water supply through a piped water system would decrease the amount of time needed to fetch drinking water or to travel to areas for washing clothes. Female members of the household typically carry out these functions. Improved drinking water supply could potentially lead to improved health for all household members as well.

Process: New pipe was connected to the existing line at the bridge crossing the small river that empties into the sea in Dusun 3. This pipe was ¾ inches in diameter and extended along the path between the first and second row of houses fringing the shoreline. It then extended over a small hill into Dusun 4. Approximately 30 new houses were able to receive water supply from this system. Water supply does not feed directly to each household. The water system has several standpipes that service a group of households. Households are formed into groups and are responsible for maintaining these standpipes. While the proposal called for the construction of several MCKs (bathing and washing wells) no MCKs were built with the funds provided.

Evaluation: Several residents on the new water line reported that water does not flow continuously and usually does not flow during the daytime. This was attributed to residents living upland that turn on the spigots on the standpipes and leave water running, thereby reducing water pressure as it flows towards the end of the line. Others reported that some of the standpipes at higher elevations do not have spigots where the water can be turned on and off, so water flows continuously, thereby contributing to a drop in water pressure. Several standpipes along the new line constructed did not have spigots. On women remarked that the children often remove them. Leaks were evident in several places along the newly constructed line.

The pipe diameter for the new extension and for the section immediately above it are ¾ inches in diameter. The head of the committee responsible for the new line construction said that it is too small to allow sufficient water supply to flow. He mentioned that the spring is also small and therefore has a limited supply for all the households serviced by it. He complained that the water system committee for the village does not conduct repair and maintenance regularly. When complaints concerning interrupted water supply have been made, no action has been taken. Additionally, no fees or collections are made to build up funds for maintenance and repair operations.

The head of the water committee for the new line said that households along the coast would like to build their own water system using a well system with a pump and storage tank. They have requested funds through a water program administered by the sub-district (*Kecamatan*).

The water system has a number of limitations and problems. However, 30 households that previously had no access to water supply, now do, even though it is not a continuous 24 hours a day supply.

Rating: Somewhat successful.

Recommendations:
1. The standpipe groups need to be organized better to keep up with maintenance of the standpipes and to replace spigots lost or broken.
2. The local households along the system need to meet with the water supply committee and work with them to deal with problems concerning leaking pipes, and absence of spigots that contribute to loss of water pressure.
3. The water supply committee should receive additional training on water supply maintenance and repair, including ways and means to management a user fee system which can then be used for repairs and improvements to existing systems.

4. The construction of MCKs should be reconsidered as many households do not yet have adequate access to washing places or latrines.

Information Center (Bentenan)

Rationale: A physical building where residents can meet to discuss management issues can help facilitate problem solving and actions on issues of concern. In addition, residents of all ages and social status could visit the center to learn more about coastal resources in their community and the threats to them.

Process: Construction was started in 1999 after a long period of waiting as the community tried to agree on a location for the information center. Part of this problem is due to the spread out nature of the coastal settlements making a location convenient for all Dusuns difficult. Finding a site with land that was not privately owned was also a problem. The center was constructed on land owned by the village on the northern end of Dusun 5. The building has two lockable rooms for storage of materials such as chairs, and a large open space for meetings and displays. On the side facing the ocean, the wall is open on the upper portion so that breezes blow through and individuals outside the building can stand a view activities inside. The building is electrified and has several plastic chairs and a desk. A committee has been formed to manage the center. No fee is charged for anyone who wants to use the center.

Evaluation: The building is adequately constructed as planned in the proposal. The head of the dusun reported that the building is used frequently for community meetings on a weekly basis. The assessment team observed a woman's group use the building for one afternoon meeting. While the building serves successfully as a meeting center, there are no displays or information on the project or about coastal resources, even though the sign on the building says it is a coastal resources information center. A representative of the committee overseeing the building stated that they are not sure how they will pay for repairs in the future but they would like to develop a plan and are considering charging fees for it's use, especially at night when electricity is used.

During heavy rains, water collects around the building and makes it difficult to enter the building without walking through water or dragging mud into the building. It also creates a health hazard, as it becomes a breeding ground for mosquitoes. The head of the village said the flooding occurs due to the damage caused to the adjacent road culvert draining the swamp behind the building. He believes Bentenan Beach Resort caused this problem due to excavation of the swamp on the opposite side of the culvert. Erosion is now undermining the proper functioning of the culvert.

Rating: Somewhat successful.

Recommendations:
1. The building committee should develop a repair and maintenance plan for the building.
2. The building needs to be outfitted with displays and information if it is to serve as an information center. Once it is outfitted, the field extension officer should organize and conduct public information activities geared around the displays and information in the building.

3. The culvert needs to be repaired so water drains properly from the swamp. In addition, the land around the building needs to be contoured or filled so it drains better during heavy rains.

Mangrove Replanting (Bentenan)

Rationale: The replanting of mangroves can help stabilize the shoreline and estuary in areas where erosion has become a problem. Mangrove planting can make the area more esthetically pleasing, help serve as a wind block and contribute to a health estuarine and nearshore ecosystems and enhance fish production.

Process: A mangrove planting committee was formed to collect seedlings and plant them in several areas within the village. Three areas were selected for planting. Two were on the sandy reef flat just off the beach and another was in the area just adjacent to the river mouth. The funding for planting on reef flat areas was not provided by the project but through a program of the environment department whereby the group was contracted to plant a certain number of seedlings. The area near the river mouth that was planted and fenced was funded by the project. A nursery area was constructed near the school area where seedlings of *Rhizophora* were planted. After about one month the seedlings were transplanted to the areas designated for planting. Approximately 34 persons participated in the planting.

Evaluation: In the areas planted on the reef flat, the head of the committee reported a 40 percent survival three months after planting. This area is erosion prone and was also planted with mangroves by the community in 1997 but all of the seedlings eventually died. The high wave energy and hard sand substrate make the area marginal for mangrove planting, especially of *Rhizophora*. Several thousand seedlings of *Rhizophora* were observed in the nursery and were doing quite well. Approximately 600 seedlings were planted in a small fenced area (next to the river mouth). This area was approximately 600 square meters, much smaller than the area designated for planting in the proposal. Many seedlings were planted on the sand dune, well above the intertidal zone needed for survival. A few seedlings were planted along the riverbank but none were planted in the estuary areas that have been denuded. Technical advice was provided to the group by the project regarding planting and the reef flat was not recommended as an appropriate planting area.

Rating: Unsuccessful. However, while the replanting has been unsuccessful, the nursery is well managed and seedlings planted are surviving and growing well.

Recommendation:
1. Build on the successful nursery established. Work with the mangrove group to select new replanting areas in suitable sites. Replanting should be done inside the estuary and in the abandoned *tambak* ponds built near the school.
2. Discourage any more planting on the reef flat and do not provide any additional funds for planting unless it is in suitable areas.

Seaweed Farming Revolving Fund (Bentenan)

Rationale: Due to the devaluation of the Rupiah associated with the economic crises, seaweed prices have increased dramatically. Seaweed farming technology in Bentenan is

well known and environmentally benign in most instances (most of the farms in Bentenan are offshore, not on top of the reefs, and sand and cement anchoring systems are used instead of mangrove poles). Seaweed farming can be a viable and lucrative income source for coastal resource dependant households. Some people believe that seaweed farming can be a viable alternative livelihood project for fishers, thereby reducing fishing pressure on reefs as they switch activities from fishing to seaweed farming.

Process: A group of nine persons were organized into a revolving fund group. All nine persons in the group were seaweed farmers and had existing farms (approximately 70 x 30 meters in size) as well as skills and knowledge on how to farm. Three persons were selected by lottery to receive funds to double the size of their current growing area. These farmers will be required to pay back the loan once they harvest their first crop as well as pay a fee to the village of 2.5 percent of the total loan amount. Three additional farmers would then be selected for the next round of use of the revolving fund. The fund would revolve until all farmers have received funds to expand their farm areas.

Evaluation: The first group of farmers has not yet harvested their first crop of seaweed and therefore have not paid back into the revolving fund. Seaweed farming space is becoming limited in Bentenan as the area farmed has increased substantially since 1997. Finding suitable plot areas in the future will become increasingly difficult and new farms will be in marginal growing areas (e.g. too exposed to the open ocean, too near the river mouth).

The group could not explain what would be done with the revolving funds once all the members of the group obtained new plots for farming.

Survey data helps shed light on the hypothesis that seaweed farming can be an alternative livelihood project that can reduce fishing pressure. Ninety-three percent of 40 households surveyed in Bentenan indicated they farm seaweed. Out of 64 individual survey respondents in Bentenan that engage in seaweed farming, 63 percent stated that they started seaweed farming in the last three years. Respondents who started farming in the last three years were then asked if they reduced other activities since taking up seaweed farming. Out of 40 respondents that started seaweed farming in the last three years, only three said they reduced other activities and none said they reduced fishing activities. Combining data from Bentenan and Tumbak villages, 93 percent of 80 households surveyed engaged in seaweed farming. Out of 118 individual respondents, 58 percent stated they started in the last three years and only 10 percent said they reduced other activities. Only 2 respondents (less than 2 percent) said they reduced fishing activities. Key informants engaged in seaweed farming indicated that while they may sometimes spend less time fishing, they catch just as much since the seaweed farms act like fish aggregating devices and artificial reefs. *Pajeko* owners reported no difficulty in finding crew in spite of the increase in seaweed farming. Fishing activities generally take place at night or in the early morning. Therefore it does not interfere with seaweed farming conducted during the day. Hence, while seaweed farming has increased in importance since 1997 (In 1997 only 35 percent of household respondents in coastal dusuns of Bentenan said they seaweed farm (Pollnac et. al., 1997b) compared to 93 percent in 2000.), it has marginal or no impact on fishing effort.

Rating: Too soon to evaluate properly until the first harvests of seaweed are made.

Recommendations:
1. The field extension officer should continue to check up on these farmers and monitor the repayment as well as the funds revolving as planned.
2. The field extension worker should encourage the group to meet and plan how they will use the revolving funds once all group members who wanted to expand their farms have expanded and paid back the loan. Either more participants can be selected (but there will be a limited number of people eventually interested in seaweed farming and/or additional growing areas will no longer be available) for seaweed farming, or the funds can be recycled to other livelihood activities.

4.3.3 Talise

Flood Control Dike (Kinabohutan Island)

Rationale: The purpose of the dike is to prevent erosion and flooding in an area behind Kinabohutan that was subject to periodic flooding during high tides.

Process: According to the head of the Dike Committee, a community meeting including Kepala Desa, *Kepala Dusun* s, and 80 to 100 community members agreed on an area that the dike should be constructed to prevent flooding and erosion. Six community volunteers assisted two construction experts with four helpers (Six volunteers and six paid workers, respectively). It took more than one month to complete the project.

Evaluation: It was reported that the length of the dike constructed with *Proyek Pesisir* funds is 160 meters, and 20 meters was constructed with additional Government funds. Height varies from 1 to 1.5 meters. The project proposal indicates that dike length was supposed to be 250 meters. It was impossible to accurately measure the area based on length of stride because the surface was uneven and composed of light sand and brush overhung the dike. A walk along the dike, however, suggested that it is longer than 180 meters.

The head of the Dike Committee reported no problems associated with construction. Community members are satisfied with the dike, which reportedly has controlled flooding along the dike during the highest tides. Observations indicate that sand is being deposited and filling along the side of the dike facing the water.

Rating: Successful.

Recommendations:
1. The Field extension worker should meet with the dike committee to ensure that a plan for how the dike will be maintained by the community is worked out. In addition, it should be monitored to ensure that maintenance is carried out as needed**.**

Mangrove Replanting

Rationale: The purpose of the mangrove replanting project was to increase the area of mangrove off the southwestern portion of the shoreline of Kinahobutan, improving habitat for local fauna as well as providing protection from eroding effects of the seasonal southwest winds.

Process: The consultant was unable to interview the head of the Mangrove Committee due to the fact that he had gone to Manado. The procedures followed are therefore derived from committee and community members who complained that they knew little about the process, and that whenever a meeting was requested with the committee head, he failed to attend. Group members said that they did not know how the area planted was selected or how it was planted. They stated that the committee head and some local young people did the planting.

Evaluation: An estimated 250 seedlings were visible at low tide along an area about 250 meters long by 50 meters wide. Only about 100 of the seedlings had a leaf or two. Most of the seedlings were planted in their plastic pots, reportedly with the bottom cut open. About 40 seedlings were still located in the nursery area, in plastic pots under a large mangrove tree.

Those interviewed appeared upset that the head of the committee worked without their knowledge and never appeared at requested meetings.

Not associated with *Proyek Pesisir*, but noteworthy, is the fact that the *Kepala Dusun* of Dusun 1 has been replanting mangrove areas since about 1997. He first replanted mangrove in front of an area he farmed north of Dusun1. The area replanted is growing quite well, and he continues to expand this area. He also replanted a small area just offshore the northern area of Dusun 2 and plans to make another replanting offshore Dusun 2 in the area of the junior high school. He says he does this because he likes mangrove trees. He is referred to by some as Tayeb of Talise. Tayeb is reportedly a man from South Sulawesi who received a reward from the government for the replanting of mangroves.

Rating: Somewhat successful—wind damage makes it too early to accurately evaluate.

Recommendations:
1. The replanted area off Kinabohutan should be monitored to determine if the mangroves are growing well. Less than half had visible leaves, but that was attributed to a strong south wind that blew-off the young leaves.
2. The head of the mangrove committee should probably be replaced. The *Kepala Dusun* of Dusun 1 apparently loves mangroves and would probably be a good replacement for a Desa-wide mangrove committee sometime in the future.

Land Tenure

Rationale: Land tenure has been a long-term problem for Talise residents. Reportedly a government-sponsored project in 1994 resulted in some villagers turning over funds for obtaining land certificates with no results, further exacerbating the issue.

Process: A total of 220 households (110 from each of Dusuns 1 and 2) were involved in the project. Twelve from Dusun 1 and 24 from Dusun 2 already had certificates for their house plots. Twenty-one from Dusun 1 and 12 from Dusun 2 chose not to participate, according to the *Proyek Pesisir* village assistant, and do not yet have title to their house plots. No residents of Kinabohutan participated in the program since their land is considered by the government to be too low (not above MSL***)*** for granting of certificates.

Evaluation: According to the *Proyek Pesisir* village assistant, all 220 participating households obtained certificates for their house plots, a giant step forward for the villagers. No attempt was made at this stage to obtain title to farm plots. Obtaining certificates for house plots was considered a first step, and the next will be to try to obtain a lease (or some other official permission) for farm plots. It was reported that the government already resisted granting certificates of title for farm plots. Obtaining a lease, granting farmers specific rights for an appropriate period of time will be used as the next step in gaining further land rights for the farmers of Talise.

Rating: Successful.

Recommendations:
1. Households in Talise Dusuns 1 and 2 that did not participate and have not received title to their household plots should be encouraged to apply.
2. Steps should be taken to obtain some sort of official rights for farm plots (lease, license, etc.) for farmers from all of Desa Talise (including those from Kinabohutan who have plots on the main island). The rights should extend for a length of time appropriate for permanent crops such as coconut and cashew trees. Farmers report receiving information that they are being requested to cut down their existing permanent crops illegally planted on government land (reportedly the letter containing this information has been forwarded to the *Proyek Pesisir* office in Manado). Hence, they hesitate to become involved in the Agroforestry Project if the cannot be guaranteed rights for harvesting the trees they plant.

Boat Engine Revolving Fund

Rationale: The goal of the *Katinting* project was to provide motorless fishers with a *katinting* to facilitate their fishing activities.

Process: The head of the *Katinting* Committee reported that he and his son asked a representative of *Proyek Pesisir* if they could get a *katinting* from the project. The village assistant told him that he has to have a group to obtain funds, so he formed a group of ten fishers and submitted a proposal. Funds were provided for 5 *katinting* that were distributed to five groups of two fishers. Each group of two fishers is expected to pay back 3500Rp per day, 1750 from each fisher (whether or not they fish) to go into a revolving fund, plus a 500Rp maintenance fee to go into a fund for maintenance.

Evaluation: *Katinting* were purchased and distributed to the five groups of two fishers. Thus far, the fishers have been making their payments and report no problems either paying the requested amount or with the engines. Most of the fishers primarily use spear guns, focusing on reef fish and invertebrates (e.g., octopus and squid). Use of hook and line is a secondary fishing method, still focusing on reef fish with some pelagic fishing practiced. All report that they can now go farther to fish and have increased their catches with a decrease in the physical effort required. All report increased incomes. All reported practicing both fishing and farming, with fishing providing most of the household income.

It is interesting to note that the head of the *katinting* group (as well as fishers interviewed) report that they are paired with kinsmen (brothers, father and son, in-laws, etc.). This pairing of kinsmen who share the motor facilitates cooperation between usually

independent fishers. It is also important to note that the pairing usually, but not always involves two boats. One of the boats (reportedly the boat belonging to the man who knows the most about engines) uses the engine and tows the other to the fishing area where they both fish.

A new group of fishers hoping to obtain *katinting* has been formed. Although it was reported that a fisher from Gangga is in the first *katinting* group, the head of the first group reported that he is in the second group. This second group was reported by some fishers to include 18 fishers, although the head of the first group said that it only has 10.

Rating: Successful.

Recommendations:

1. Future granting of funds for distribution of *katinting* (see marine sanctuary project report) would be wise to follow similar procedures. Use of groups of two fishers composed of kinsmen tends to insure continued cooperation between the members of the pair. Around the world, most fishers tend to use kinsmen in crews, and pairing non-kinsmen is more likely to result in disputes and breaking-up of the group, which creates problems in terms of reassignment of the *katinting*. Daily payments also make sense, since most small-scale fishers have daily incomes when they are fishing. The repayment thus coincides with the pattern of the fishers' income, making it easier for him or her to manage.

Agroforestry

Rationale: Agricultural and wood cutting practices have resulted in deforestation reducing habitat for threatened fauna as well as erosion and runoff that threatens the health of the coastal ecosystem in Talise. The purpose of the agroforestry project is to develop agroforestry systems directed at increasing agricultural production while protecting the forest and watershed and reducing the erosion that contributes to near-shore sedimentation and potential harm to coral reefs.

Process: A rapid assessment of existing hillside agricultural systems and soil analysis was used to identify appropriate agroforestry systems and training necessary to effect changes in agricultural practices.

Evaluation: Some training concerning agroforestry practices has been conducted, and a demonstration area of about one hectare was cleared and cashew and candle nut (*Aleurites moluccana* (Euph.)[3] seedlings were planted. Some difficulty was encountered in obtaining cooperation from community members, but about 40 individuals were involved with four or five people being sent by the *Kepala Dusun* daily to assist with the clearing and planting process. The process was completed in March 2000, and since then, one weeding of the planting has occurred.

Seedlings observed are in the center of a one square meter cleared (weeded) area. Since the planting some seedlings have died, but participants have replaced them with new seedlings. The *Kepala Dusun* tried to get a large group of villagers involved in future

[3] Candle nut has several uses: 1) the seeds pounded with cotton and copra result in a stiff wax which when moulded around a bamboo splint can be used as a candle; 2) used in the process of making palm sugar (Whitten, et al. 1987); and 3) as a source of a spice.

plans to interplant the seedlings with annual crops (e.g., peanuts, cassava, etc.) but he had some difficulty in obtaining cooperation since rights to permanent crops are not guaranteed (see Land Tenure section). This inter-planting at the early stage of the process will help keep people involved in clearing around the seedlings. He decided to form a smaller group of thirty volunteers and assigned two interested village residents to go from household to household to obtain a list of volunteers. Reportedly, this process has been completed, but the *Kepala Dusun* has not yet received the list of volunteers. Near the end of the impact assessment survey period in July, a forest fire swept through the replanted area and destroyed all seedlings. Villagers have reported that they will try replanting again at the beginning of the rainy season, and modify some of their methods as to hopefully avoid loss from forest fires again.

Rating: Somewhat successful but not yet completed, hence final evaluation is not yet possible.

Recommendations:
1. Clearly stated rights to and sharing of inter-planted annual crops may help in getting firm commitments from farmers to become involved in the demonstration project. Farm land use rights and clearly specified sharing procedures to be used for permanent tree crops will also facilitate farmer cooperation.
2. Forest fire control efforts also will be needed.

Information Center

Rationale: The original purpose of the information center was to function as a place for the Marine Sanctuary Management Committee to hold meetings, as well as a place where visitors as well as residents of Talise could receive information through posters and other literature concerning coastal resource management and the activities of Proyek Pesisir.

Process: Community meetings were held to determine the location of the information center. It was reported that Dusuns 1 and 3 were not sure about the project so the *Kepala Dusun* of all dusuns and the *Kepala Desa* decided to locate it in Dusun 2. The site in Dusun 2 was determined by the *Kepala Dusun.* Reportedly, residents trust and agree with decisions made by the *Kepala Dusun.*

At first, the center was to be relatively small and built of bamboo like the Blongko center, but once the detailed planning of the building commenced, the community decided to expand it to a multipurpose center wherein most community functions (meetings, etc.) would be held. Hence, it was constructed of more permanent material (concrete) and made much larger than originally planned.

Once the size expanded, the use of an all-volunteer building crew became impractical, and construction specialists were hired. They were to be assisted by volunteers from the community. Although a schedule of 10 volunteers per day was established, only 2 or 3 would show-up. This increased the length of time involved in construction.

Evaluation: The center is rather impressive, filled with chairs and a raised stage as would be expected of a multipurpose center. It contains some informative posters concerning *Proyek Pesisir* and marine resources, but access is limited because the *Kepala Dusun* holds the key and it is always locked.

Since it is relatively new, there have been no problems with maintenance. Because of its size, it is planned to hire a permanent maintenance person to hold the key and clean, paint, and do other repairs of the building. A sighting along the foundation indicated that it was a bit uneven, suggesting the potential for future problems as the cement work settles.

Reportedly, the building has already been used for numerous meetings, including those held by Proyek Pesisir. Other types of meetings held include official community meetings as well as the election of the new *Kepala Dusun* for Dusun 2.

Rating: Successful.

Recommendations:

1. Such a large building will require careful maintenance. It is suggested that a qualified maintenance man be hired, on a part-time basis, to take care of the building. Some sort of a scheme (e.g., charging for the use of the building for other than *Proyek Pesisir* uses) will have to be developed to help finance this position as well as pay for maintenance materials (e.g., paint, cleaning materials, etc.).
2. As suggested for Blongko, the center should serve as a place for short training courses associated with project activities. The center could also prepare informative exhibits and invite the local schools to send small groups of children on "field-trips" to learn about coastal marine resource management.
3. Better public access is needed with "open" hours/days posted and maintained

Marine Sanctuary (Dusun 1)

Rationale: The purpose of the marine sanctuary project in Talise is to preserve and permit undisturbed growth of area of coral reef just offshore the village. It is expected that the coral reef will serve to both reduce erosion on the adjacent shoreline and provide improved habitat for the reef fish so important to the livelihood of village residents. It is assumed that some fish from the improved habitat will move to adjacent reef areas where they can be captured for subsistence or sold in the market as food or ornamental fish.

Process: Location selected was based on a map resulting from the first manta tow survey. The *Proyek Pesisir* team told community members which was the best area, and the marine sanctuary was developed through a series of both informal and formal meetings with community members that resulted in selection of size and location for the sanctuary. *Proyek Pesisir* conducted training in marine sanctuary concept, and sanctuary monitoring, surveillance, and enforcement.

Evaluation: Early implementation actions thus far include:

- Formation of a management committee
- Establishment of a preliminary marine sanctuary ordinance, which was signed by the *Kepala Desa* outlining boundaries, rules governing permitted activities in the sanctuary, and enforcement
- Installation of most of the buoys marking the boundary (final buoys were being installed while the consultant was on site in early July 2000). Ropes are being strung

between corner buoys in the core sanctuary. White marker buoys are being placed along these ropes to further clarify the outline of the sanctuary.

Information signs are not yet prepared. According to the *Proyek Pesisir* village assistant, there have been seven meetings of the marine sanctuary committee beginning about September 1999. The head of the management committee reported three.

Surveillance is to be conducted from two guardhouses built on concrete pilings over the water at either end of the sanctuary. The guardhouses have not yet been built, but the community assistant reports that the pearl company has committed itself to funding the concrete pilings. Two versions have been provided concerning surveillance procedures. The *Proyek Pesisir* village assistant reports that the guardhouses would be manned only at night and management committee members would watch during the day. The head of the management committee maintains that there will be 24-hour surveillance from the guardhouses.[4] It was reported that villagers are not violating the sanctuary. The head of the management committee reported that some fishers glean near, but outside the sanctuary. Despite these reports, the consultant observed a man fishing with hook and line within the sanctuary.

Baseline monitoring was used to select the site, and follow-up monitoring (in the form of line intercept transects) was conducted in early July 2000. The head of the management committee reported that they plan twice yearly monitoring using four committee members who have had training using the manta tow technique.

The community reportedly supports the sanctuary. The *Proyek Pesisir* community assistant said that fully 60 percent of Dusun 1 support the project and that Dusun 2 and 3's support is indicated by their plans to also develop sanctuaries in their waters. Survey results are provided in Table 5 below. Respondents were asked two opened ended questions: to state the purpose and rules of the marine sanctuary. These results indicate that there is a high level of awareness in Dusun 1 regarding the marine sanctuary rules and purpose, but that awareness is much lower in Dusun 2, as well as in Dusuns 3 and 4 on Kinabohutan Island. Overall, the awareness levels in Talise village concerning the marine sanctuary are lower than Tumbak and Blongko. The newness of the Talise marine sanctuary may contribute to this factor.

Table 5: Awareness levels (percent) of survey respondents concerning the marine sanctuary purpose and rules

First Response	Talise Village	Dusun 1	Dusun 2	Dusun 3*	Dusun 4*
One or more purposes stated	36.4	55.0	30.0	27.8	30.0
Don't know the purpose	63.6	45.0	70.0	72.2	70.0
Fisheries stated as the purpose	19.9	27.5	27.5	8.3	20.0
One or more rules stated	46.4	82.5	37.5	25.0	30.0
Don't know the rules	53.6	17.5	62.5	75.0	70.0
No fishing stated as a rule	12.1	17.5	15.0	5.6	0.0
N	140	40	40	30	30

* Kinabohutan Island

for the sanctuary. He wants to obtain 7 *katinting* for 7 crews of two each. Each crew will be required to staff the guardhouses one day a week. They will also be subject to a catch distribution system that will involve splitting the harvest into 3 shares, one to the *katinting* and one each to each crew member. Money for motor maintenance will also be deducted from the harvest. The harvest will be sold to the management committee who will do the marketing. Every week or two the committee will pay the fisher according to the above system of distribution.

In terms of potential conflict of interest, Dusun 3 is complaining that part of the buffer zone is in an area where they plan to have a buffer zone for their sanctuary. Some fishers also complain that their fishing area will become smaller, but the head of the management committee said that he told them that they might be able to obtain *katinting* to go further, to other fishing areas.

Rating: Successful thus far, but incomplete, so evaluation cannot be made at this time.

Recommendations:

1) Specific techniques for surveillance need to be agreed upon and implemented. This includes building of guardhouses and obtaining *katinting*, if these form part of the final surveillance plan.
2) The ordinance that was reportedly agreed upon at the village level is still being prepared by the legal consultant in Manado. This process needs to be facilitated as soon as possible so that enforcement can take place.
3) Potential conflict between Dusuns 1 and 3 concerning overlap of buffer zones must be resolved. If transit were prohibited in buffer zones, this would cause a problem for navigating between the main island and Kinabohutan.
4) Comments like the one made by the head of the management committee to fishers who complained about reduced area should be based on reality not wishful thinking. What are the chances that "displaced" fishers can obtain *katinting*? Broken promises can result in disappointed fishers and violations of the sanctuary.
5) Information signs need to be prepared and installed.
6) More information campaigns are needed within the village, especially in Dusuns 2, 3 and 4, concerning the purpose and rules governing the marine sanctuary. The no fishing rule and fisheries enhancement purpose needs to be emphasized.
7) The pearl farm has expanded its area recently, thus reducing even more of the area open to local fishers. This reduction in area combined with the soon to be observed reality of the large area being claimed by the marine sanctuary may result in unanticipated resistance among local fishers. The marine sanctuary management committee needs to be aware that this may occur and be prepared to handle the problem with realistic solutions.

5.0 Summary and Conclusions

Overall, actions implemented to date have tended to be successful. However, it is useful to look at the type of activities implemented in order to get a better understanding of ways to improve implementation success. Table 6 provides a summary of implementation activities by type and their relative level of success. Environmental or resource management projects are categorized as mangrove replanting or marine sanctuaries. Community development projects are categorized as physical infrastructure projects or land tenure. It can be argued that the community development projects are also environmental projects as they can have indirect beneficial environmental impacts but they differ from mangrove replanting or marine sanctuaries that have more direct environmental benefits. Livelihood projects are classified as those where the purpose is to improve incomes of targeted beneficiaries such as engine and seaweed revolving funds, and agroforestry projects. Approximately one half of the early implementation actions are community development projects. Livelihood and environmental projects each make up about one-quarter. The community development and environmental projects tend to have higher levels of success than livelihood projects. However, three out of seven of the livelihood projects were too early in their implementation to judge properly, hence the small sample size may make this judgement premature. Livelihood projects tend to be difficult to implement and most of the project staff and consultants are not small business development specialists or economists. Hence, these may be contributing factors to their limited success.

Table 6: Assessment of implementation activities by type

Type	Number of Actions	Percent of Total	Percent Successful*
Community development	11	46	60
Environmental/resource management	6	25	60
Livelihood	7	29	20

* Percent of activity type (eliminating those that were unable to be evaluated) ranked as successful or very successful by the assessment team.

Table 7 provides a comparison between assessments by the community, project staff and the assessment team. The assessment team rankings are quite similar to project staff assessments but slightly more critical. Interestingly, the community tended to rate almost all of the activities as either very useful or useful. Very few respondents rated activities as not useful or somewhat useful. We suspect that for cultural reasons, respondents may have been reluctant to provide a "not useful" response. A portion of the "don't know" responses may reflect respondents who preferred not to be critical of the project and therefore may not have been willing to provide a "not useful" ranking. Community rankings tend to be similar to staff scores and the assessment team ranks except for a few notable differences. Some projects ranked by the community were judged too soon to evaluate by project staff or the assessment team. Since these are more recent activities the community mentioned them more often. The community tended to give livelihood projects a lower percentage ranking as useful, which is similar to the assessment team rankings as illustrated in Table 6. For example, in Talise, the community ranked the boat engine revolving fund as the lowest percentage in terms of usefulness where the project staff and assessment team ranked it as successful. This difference may be attributed to the boat engine revolving fund benefiting only a few members of the community rather than all. Hence, the community may see this type of project as being very selective and not as useful as projects that benefits all members of the community equally. This may also indicate the difficulty of implementing livelihood activities successfully.

Additionally, issues of how participants are selected, the fairness of the process, and how many participants can participate, may make these projects be perceived as less useful to the majority of the community, even if the small number of direct participants benefit.

Table 7: A comparison of assessments of implementation actions

Village and Action	Community Rank*	Staff Score**	Assessment Team Ranking
Blongko			
Marine sanctuary	95	5	Successful
Water supply system	86	5	Somewhat successful
Information center	86	4	Successful
MCK (bathing/washing/latrine units)	81	3.5	Successful
Erosion control dike	95	3	Too soon to evaluate
Boat engine revolving fund	75	2	Unsuccessful
Agroforestry extension	N/A	N/A	Somewhat successful
Tumbak			
CoTs clean up (Bentenan & Tumbak)	87	5	Not evaluated
Road flood control dike	N/A	5	Successful
Marine sanctuary	87	4	Successful
Mangrove reforestation	91	4	Very successful
Water supply system river dike	N/A	1	Inconclusive
Boat engines revolving fund	57	N/A	Too soon to evaluate
Crab fattening	75	N/A	Not successful
Bentenan			
Water system	100	3.5	Somewhat successful
Information Center	100	3	Somewhat successful
Mangrove planting	83	2	Unsuccessful
Seaweed revolving fund	N/A	N/A	Too soon to evaluate
Talise			
Flood control dike	98	5	Successful
Mangrove planting	95	5	Somewhat successful
Land tenure	100	4.5	Successful
Boat engine revolving fund	67	4	Successful
Agroforestry system	82	3.5	Too soon to evaluate
Information center	100	3.5	Successful
Marine sanctuary	100	N/A	Too soon to evaluate

* Percent of survey respondents ranking the activity as very useful or useful.

** Ranked on a scale of 1-5, 1 = not successful, 5 = very successful, N/A = too soon to evaluate

Experience from outside of Indonesia can to help us understand some of the issues faced in North Sulawesi. For instance, the Philippines has more than a decade of experience implementing community-based coastal resources management initiatives, many of which have included livelihood development components. A recent survey of 45 community-based coastal management projects in the Philippines indicated that successful livelihood projects are a key predictor of success (Pollnac and Crawford, 2000). In a series of focus group meetings of Philippine experts (Crawford et. al., 2000), many participants stated that livelihood projects while conceptually important are difficult to implement successfully. Therefore the livelihood projects in the villages of North Sulawesi need to be given greater attention over the next two years to ensure their success. Additional livelihood projects should be encouraged.

The Philippine experience also suggests that on-going training and capacity building as well as strong participation elements to the project strategy are important interventions that lead to greater community empowerment, another key indicator of successful community-based management projects.

Early implementation actions to date seem to be contributing to strengthening community capacity for community-based, local level CRM. The sum total of project activities implemented in the villages, high levels of community participation and the abundance of early implementation actions implemented to date are most likely contributing to community empowerment as well. The project can also claim some marginal successes on improving the overall well being and development of the community as many of the implementation projects have been successful. For instance, there are examples of improved water distribution from the building of water systems, improved sanitation and health from latrine construction, reduced flooding and erosion from the building of dikes as well as improved livelihoods for a few community groups.

Field extension workers and their supervisors need to ensure that monitoring of early implementation actions continues, especially for those actions considered as too early to evaluate in this report. As communities start to implement the block grants, each activity should be carefully monitored by project staff and by the community. It is suggested that a full review be conducted every 6 months. Additionally, as progress is made and as each activity is completed, field extension officers should include more information on the early implementation actions (problems, issues, and level of success) in their monthly reports.

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Appendix A

Photos of early implementation actions

TUMBAK VILLAGE

Road flood control dike

Mangrove reforestation area and fencing

Crab fattening tank

Marine sanctuary boundary marker

Crown-of-Thorns clean up

Mangrove reforestation area behind the village

BENTENAN VILLAGE

Mangrove nursery

Seaweed harvest being dried

Mangrove planting on reef flat

Information center

BLONGKO VILLAGE

Agroforestry area with new seedlings planted

Agroforestry nursery

A bathing/washing/latrine unit

Water supply system and standpipe

Displays inside the information center

Information center moved from the erosion prone area

Erosion control dike

Marine sanctuary marker buoys being installed

TALISE VILLAGE

Flood control dike on Kinabohutan Island

Mangrove nursery on Kinabohutan Island

Information center in Tambun sub-village

Agroforestry site being planted

Boat engines obtained through the revolving fund

Certificates of title for land being signed and distributed