

The Coral Reef Rehabilitation and Management Program



Phase I Evaluation Report

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IUCN – The World Conservation Union

For

The Government of Indonesia

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Ringkasan Eksekutif

Program Manajemen dan Rehabilitasi Terumbu Karang (COREMAP) adalah program 15-tahun yang bertujuan memantapkan “suatu kerangka kerja praktis bagi sistem manajemen terumbu karang nasional di Indonesia” yang didasarkan pada manajemen masyarakat. Program ini dibiayai oleh Pemerintah Indonesia, Bank Dunia, Bank Pembangunan Asia (ADB), dan AusAID.

Tahap I bertujuan untuk membangun selama tiga tahun (1998-2001) suatu sistem manajemen terumbu karang nasional yang akan diikuti oleh dua Tahap berikutnya, masing-masing selama enam tahun, yang dimaksudkan untuk pertama, memperluas program ke daerah-daerah lain dan selanjutnya untuk mengkonsolidasi program tersebut secara nasional dan berkelanjutan. Tahap I diperpanjang selama satu tahun hingga 2002 untuk memberikan lebih banyak waktu menyelesaikan program-programnya.

Ada tiga perubahan penting di Indonesia setelah rancangan proyek ini dibuat yang telah berpengaruh terhadap pelaksanaan COREMAP Tahap I atau yang akan menjadi faktor penting dalam rancangan Tahap II. Pertama adalah situasi politik selama beberapa tahun terakhir yang mengharuskan beberapa perubahan terhadap daerah-

- 3) Kapabilitas manajemen merupakan suatu masalah pada Tahap I dengan langkanya staff penuh





Sebagai tambahan, CRITIC telah menyediakan suatu **web site**, pelayanan GIS dan manajemen **data base**. Tetapi program ini masih tetap harus ditingkatkan untuk melengkapi berbagai macam petunjuk, yang semestinya diselesaikan sebelum Juli 2002, dan kelangkaan staff yang terlatih menjadi hambatan.

17) CRITC seyogy



sebagai komponen-komponen integral program tersebut. Faktor-faktor sosial dan ekonomi akan senantiasa merupakan determinan-determinan penting untuk pengelolaan lingkungan yang baik. Pendekatan yang lebih komprehensif ini semestinya diterapkan sebagai tujuan standar program pada Tahap II.

- 25) Beberapa pendekatan yang berbeda terhadap daerah-daerah percontohan dilakukan pada Tahap I. Pengalaman ini menegaskan bahwa Tahap II semestinya memberikan ruang untuk fleksibilitas dalam pelaksanaan program dalam kondisi budaya, sosioekonomi dan hayati yang amat beragam di wilayah-wilayah berbeda-beda di Indonesia. Rancangan Tahap II seyogyanya menfokuskan pada **outcome** yang telah ditentukan daripada menetapkan kriteria **output** yang ketat yang menghambat fleksibilitas. Pendekatan ini berarti bahwa perhatian lebih besar perlu ditujukan dalam rancangan proyek untuk isu tentang pengelolaan dan penyeliaan yang adaptif untuk memastikan akuntabilitas dan pemanfaatan sumber-sumber secara efektif.

Executive Summary

The Coral Reef Rehabilitation and Management Program (COREMAP) is a 15-year program aimed at establishing “a viable framework for a national coral reef management system in Indonesia” based on community management. It is funded by the Government of Indonesia, the World Bank, the Asian Development Bank, and AusAID.

Phase I aimed to establish over the three years (1998-2001) a national system for coral reef management to be followed by two phases of six years each intended to first expand the program to other sites and then



part time staff and the difficulties of coordinating a program with other levels of government and distant sites.

- 29) Part of the reason for limited integration of the various components in the first phase was the funding by donors of separate components and employment of technical assistance teams working primarily on one component. The creation of DKP led to a decision to transfer responsibility for two components, MCS and CBM, to DKP. The training program supported by AusAID, which supported regional training, illustrates the benefits that can be derived by more integration. The Phase II design should increase the authority of the PMO for all components and technical assistance teams. This will require changes in donor agency approach as well as changes in the reporting relationship and accountability among the different program components.
- 30) The practice in Phase I of appointing government staff on a part time basis to COREMAP is a serious constraint to the development of a knowledgeable staff cadre. Remuneration levels are unattractive and staff lose promotion opportunities if they are posted to a program outside their home department. In addition there are frequent staff transfers. More COREMAP personnel might be recruited on contract where they can be provided with a remuneration level that will retain them for long periods and more readily replaced for unsatisfactory performance.
- 31) A major issue for the second phase is the choice of implementing agency. If DKP is given responsibility for implementing COREMAP in Phase II, it should ensure that existing COREMAP staff are employed in the program through the creation of joint teams with DKP, perhaps in the existing COREMAP facilities. Ideally, responsibilities for program components should not be divided between institutions.
- 32) The provinces and districts where the four pilot sites are located have created Pokjas, management committees composed of part time staff from different departments and interested agencies to implement COREMAP at the village sites. Their capabilities vary but there is evidence that each Pokja has some committed staff and that they have a good understanding of the program's objectives. Local LSMs or universities have been contracted to provide assistance in developing the village programs.
- 33) The decision to transfer more authority for coral reef management to the provincial and district levels is a positive change as evidence shows that coral reef management should be moved as close as possible to the local level. The capability of the district level governments to take on more management responsibilities is one of the most important issues to be addressed in the Phase II design. District governments will need to create a stronger management team or PMO with authority to implement COREMAP. The Pokjas representing different stakeholders with coral reef or community development interests can perform an important coordination and information mechanism.
- 34) There are four COREMAP field sites, of which one is only a year old, due to security concerns that forced a relocation. These sites demonstrate a variety of conditions and COREMAP approaches. One site has a primary focus on CBM and a low cost community based MCS system; one is in a national marine park and another has a capital intensive MCS component with a minimal CBM element.
- 35) The CBM component involved the appointment of NGO facilitators who are based in the villages. The communities select village motivators and create committees to prepare Coral Reef Management Plans that create sanctuaries and no- TD /Fin ecommun Tfeatelemors whld 1p -0.0962 and econ



independent survey. The national program can be continued at much lower cost in the second phase while more resources are devoted to reaching particular target groups and supporting village level activities as an integral part of the CBM program at each village.

- 45) The performance of external funding agencies has been uneven. Delays and a lack of coordination between them have increased the difficulties in managing this complex project. They have, however, drawn the appropriate lessons and both the World Bank and the ADB have committed to work with the GOI on a common vision and log frame.
- 46) A Mid Term Review should be conducted early in Phase II to allow for adjustments by year three in light of the expected transition to a new implementing agency and program decentralization.
- 47) Phase I provides evidence that this program could be sustainable as it is expanded to a national level. The modifications recommended in this review would significantly reduce the cost per village of introducing COREMAP in the next phase and offer the opportunity to reduce these costs even further in subsequent phases as responsibility is increasingly moved to the district and village level.

Lessons

- 48) The experience gained in the first phase confirms the wisdom of placing the community at the center of coral reef management. The original project objective “to develop a viable coral reef management system in Indonesia.” might be modified to “develop a viable community-based

48)



Acronyms

ADB	Asian Development Bank
AIG	Alternative Income Generation
AMC	Australian Managing Contractor
AusAID	Australian Agency for International Development
BAPPEDA	Provincial Planning Agency
BAPPENAS	National Development Planning Agency
BME	Benefit Monitoring and Evaluation
Bupatti	Kabupaten Head
CBM	Community Based Management
COREMAP	Coral Reef Rehabilitation and Management Project
CRITC	Coral Reef Information and Training Center
CRMP	Coral Reef Management Plan
DKP	Dinas Kelautan dan Perikanan (Department of Maritime and Fisheries)
DPRP	Dewan Perwakilan Rakyat Daerah (Local Parliament/Legislative Assembly)
GEF	Global Environmental Facility
GIS	Geographic Information System
GOI	Government of Indonesia
IUCN	International Union for the Conservation of Nature
JHUCCP	Johns Hopkins University Centre for Communication Programs
Kabupaten	District
MPA	Marine Park Authority
KEHATI	Biodiversity Conservation Foundation
LIPI	National Institute of Science
LSM	Local Non-government Development Organisation
MCS	Monitoring, Control & Surveillance
MTR	Mid Term Review
NTC	National Training Coordinator
PIMPRO	COREMAP Financial Management Office
Pokja	Provincial or district COREMAP management committee
PMO	Project Management Office:
Rumsram	NGO based in Biak
TA	Technical Assistance
TBR	Taka Bone Rate
TC	Training Committee
TCU	Training Coordination Unit
TNA	Training Needs Assessment

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1. Introduction

1. The Coral Reef Rehabilitation and Management Program (COREMAP) is a 15-year program of the Government of Indonesia (GOI) with the following goal:

“To protect, rehabilitate and achieve sustainable use of coral reefs and associated ecosystems in Indonesia which will, in turn, enhance the welfare of coastal communities.”

2. COREMAP is funded by the GOI, the World Bank, ADB and AusAID.

3. The Program is divided into three phases: (i) a 3-year “Initiation” Phase designed to test and develop viable community-based management systems in pilot areas of Indonesia; (ii) a 6-year “Acceleration” Phase to build upon and expand community-based management systems to other sites in Indonesia; and (iii) a 6-year “Institutionalization” Phase for ensuring institutional (administrative, economic and financial) sustainability of program activities.

4. The development objective of COREMAP I is:

“To develop a viable coral reef management system in Indonesia.”

5. This phase contains several core activity areas. These include:

- Program Management
- Legal Review
- Research and Monitoring
- Capability Building and Training
- Program Policy and Strategy
- Monitoring Control and Surveillance
- Public Awareness
- Community Based Management

6. The Program operates nationally from the Program Management Office in Jakarta, and in Phase I is being implemented locally at four sites: Taka Bonerate in Sulawesi Selatan; Padaido Islands in Biak; Senayang Islands in Riau; and Maumere in Flores.

7. Phase I was launched in September, 1998 and its completion was originally scheduled for April 2001. However, the project was extended by one year following the MTR due to changes in pilot sites because of political turmoil and delays in project implementation. As of this writing (May 2002), most Phase I activities are being concluded.

2. Method

8. Under a contract from the PMO, IUCN fielded an independent team of evaluators¹ to assess the progress made in the major Program components during COREMAP Phase I. The evaluation team reviewed a wide range of Program documents provided by the PMO in Jakarta. It was involved in a series of meetings with representatives of the PMO and various representatives of relevant GOI agencies in Jakarta. In addition, the team traveled to all field sites (Maumere, Riau, Biak, and South Sulawesi, see Exhibit 2.1). Group meetings were arranged with training personnel from all locations in Makassar and with senior government officials and COREMAP personnel in Makassar and the four district capitals. During the field visits, the evaluation panel was able to make general observations of the biophysical characteristics of the sites, and hold discussions with various stakeholders in the communities that have been participating in the COREMAP program. Due to the relatively short time available, these observations and discussions were limited in their scope and detail. However there was strong evidence and good documentation in most cases to support the main conclusions and recommendations in this report.

2.1 Acknowledgements

9. The team would like to thank COREMAP staff in general for arranging the program and mission travel at short notice and the COREMAP communities for their hospitality. Out of the many individuals who assisted the team, particular thanks are due to Anugerah Nontji, Kasim Moosa, Tom Walton, Linda Christanty, Del Afriadi Bustani, Mulyanto, SE, Drs Wanda, Suharsono and Hidayati, Rahmat Kom, Ir Endah Murtiningtyas, and Titi Marpaung. Ir Wiranti Sarasati, Andi Nurjaya, Herman Warwer, Kamaruddin, Jeffery Marein and Dina Saragih provided considerable information and assistance during the site visits as did Dr Baharuddin in Makasar. Phil Domanschenz, Program Management Specialist provided substantial and very proficient support in coordinating the overall mission program.

Exhibit 2.1 COREMAP Phase 1 Sites



¹ The evaluation team was on site during the period from 6 May to 30 May, 2002. Team members were Doug Daniels, Team Leader; Tommi Legowo, Training and Policy Specialist; Graeme Kelleher, MCS Specialist; Torben Berner, Policy/Strategy and Program Management Specialist; James Berdach, Community-Based Management Specialist; and. Johannes Widodo, Research and Monitoring specialist.

3. Project Management

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3.3 Provincial, District and Community Capacity

22. Institutional capacity at the provincial and district level differs significantly at various sites and strengthening of weaker institutions should be an objective in the subsequent phase. This is particularly important in light of the impacts of the decentralization process underway in Indonesia

23. While the Pokjas in Phase I have been functioning as counterparts to the PMO in Jakarta, they have mainly functioned as *ad hoc* committees. A strong commitment and enthusiasm to take on more

3.6 Recommendations

- 1) If DKP is given responsibility for implementing COREMAP in Phase II, it should ensure that existing COREMAP staff are employed in the program through the creation of joint teams with DKP. Consideration should be given to continuing to house the COOREMAP program in existing facilities. Ideally, responsibilities for program components should not be divided between these two institutions.
- 2) Full



4. Research and Monitoring

29. Awareness and understanding of Indonesia's coral reefs, especially their conservation and management, need to be further developed among the stakeholders. Data and information on reef biology, fisheries, and community socio-economics play an important role in creating better awareness and understanding of the reef ecosystem, its contribution to human welfare, and in developing alternative management strategies.

4.1 Program and Activities

30. The major components of CRITC include:

Reef Health Monitoring: This includes studies on reef health, fish abundance and biomass indicators. This component is designed to international standards and monitoring indicators are consistent with most of those of Reef check and international data programs. This data has been used to provide for direct comparison between reefs and fish communities in Indonesia, Australia and other parts of Asia. Reports have been produced for all sites except Maumere.

Community Based Fisheries Monitoring: The community based monitoring (CREEL) is conducted at COREMAP sites through close linkage with CBM. Surveys conducted by local communities provide data on fish landings, fishing grounds, gear usage and local fish prices.

Socio Economic Monitoring: Socio economic data collected includes incomes, debt, assets and alternative income generation activities as indicators of welfare. This data is collected through household surveys every three years.

Research Agenda: Research projects are funded to increase knowledge of the overall environment and to support CBM in particular. Field CRITICs submit proposals which are then considered by the PMO for funding. They provide for studies in areas such as threatened species, wider environmental aspects and possibilities for AIG.

Support Functions: The CRITC also provides a web site, GIS services and data base management.

31. COREMAP Phase I established a national system of Coral Research, Information and Training Centers (CRITCs) in order to develop awareness and understanding of Indonesian coral reefs and their management and conservation requirements. The Central CRITC was established in Jakarta in April, 2000 following the creation of Provincial and District CRITCs in 1999. A manual and guidelines were created in 2001 covering the organization structure, research and monitoring, data management, and information systems. Moreover, CRITC's central office has created a documentation unit as well as a bilingual website although this will need further refining.

32. CRITC carried out a number of studies including reef base maps and GIS assisted mapping of COREMAP sites. These studies led to some notable achievements, including the development of a complete map of coral reef size and distribution for all of Indonesia carried out by satellite imagery and GIS. Baseline studies on ecology and socio-economic conditions were performed on the COREMAP sites and several other possible sites for a Phase II. Several specific studies, such as sand mining exploitation and trawling activities, were contracted out to other organizations with mixed results. The reef health monitoring system is built on standardized methodology, permanent transects and monitoring stations.

33. The benefit monitoring and evaluation (BME) component monitors project impact and performance. It provides data on reef health, community-based fisheries (fishing effort, data on catch, and catch per unit effort) and the socio-economics of the COREMAP sites.

34. Four of the five BME field manuals on coral reef monitoring, fisheries monitoring and socioeconomic monitoring are expected to be issued in July, 2002. Earlier drafts were used as working documents to assist the technical teams in the field. The manuals, together with the site specific survey

reports, should provide a strong baseline against which to monitor future progress on the key performance indicators for this program.

35. BME plays an important role in providing annual reports to all levels of the program (i.e., site, district, provincial and national levels) on the impact of the project and on the performance objectives relevant to reef health, reef fisheries and community socio-economics. The BME socio-economic monitoring system consists of three main approaches: (i) monitoring of a sample of monthly household income and expenditure once every 3 years, targeting mostly artisanal fishermen and fishing vessel crew; (ii) monitoring of individual AIG and revolving credit schemes is conducted by the village facilitator with information on a case-by-case and individual basis; and (iii) fisheries monitoring surveys which measure changes in productivity and net income from different fishing gears. The results are produced locally and publicized in places such as the CREEL surveys in Tanjung Pinang (Riua) Pokja offices.

The project design team created an excessive number of monitoring indicators on a CD-ROM that was far in excess of what was feasible or necessary. Different methods and measures were tested to determine the most cost efficient approach to monitoring changes in these indicators. As an example, live coral index transects of 3 x 10 m were adopted instead of the 100 m originally planned. These efforts should be continued to streamline data collection., all data and information collected through BME should directly serve monitoring purposes. By concentrating on pertinent and applicable data, assigned staff will likely derive a greater sense of accomplishment and motivation.

36. Field-testing of the BME system has been performed at all COREMAP sites, with varying degrees of completeness. While COREMAP staff have already made progress in keeping the level of skill of the surveyors to a minimum, involving field facilitators and local people as much as possible, efforts need to be continued to simplify the BME socio-economic monitoring approach so that local communities and fishers are able to participate and use the results as inputs for generating their own resource management plans.

37.

37.





competencies, affirmative action and practical training objectives) to guide the whole training process. It produces annual work plans based on TNAs and trainee feedback. Participant comments are assessed and used to modify the training program in the following year. As a result, other COREMAP components, which have their own training activities, have increasingly drawn on TCU support.

43. The program has succeeded in training large numbers with 1115 participating in 74 courses held in 6 locations in 2001. Some COREMAP personnel such as the reef watchers in Biak have participated in up to six courses. More than 60% of the participants rated the courses as useful. Most stakeholder groups were represented in these courses.

44. Field observation and discussions with community groups at the COREMAP sites indicated that the capability building and training program has contributed to significant changes in attitudes, both in relation to the level of society participation and to commitment to sustainable management of coral reefs. This attitude change should be recognized as an important indicator of success of the training efforts in view of the short period of time the program has been operational at these locations.

45. In summary, this project has been successful in creating a training strategy and process, establishing a training infrastructure and developing capacity. It has created a re-orientation in the training components approach from a top down to a more participatory and outcome-based approach. The regionally derived program approach provides a good model to be followed in a Phase II as more responsibility is transferred to the district level. Participant evaluations and consistent feedback in interviews indicated that the training program has improved motivation and capability.

46. There are some issues in Phase I that need to be addressed. Training carried out independently by different components in Phase I was not as efficient as it could have been had TCU developed and managed a more comprehensive strategy and program. TCU's more integrated approach of providing training across all regions should be pursued in a second phase.

47. The management infrastructure (which includes a Training Committee, the TCU and the NTC at the national level plus the training teams at the provincial level), has created a functioning training program. This, however, was not sufficiently integrated into the overall program and lacked coordination by the PMO. While the PMO created the TC and appointed a National Training Coordinator to promote greater integration, it would be better in a second phase to have one training unit headed by a chief who is part of the PMO management team..

48. The original Phase I design anticipated that CRITC would take on the role of training over time and there are logical reasons for this. However, both the significant demands on CRITC of creating a viable research and monitoring system and the separate specific expertise and demands of a training program in a Phase II suggest that it might be appropriate to maintain a separate training unit in the second phase, or at least for a significant part of the second phase.

49. The capacity of COREMAP staff continues to be limited in most areas even though each component has some very capable individuals. The focus of the program on strengthening COREMAP staff capacity at the regional level has been appropriate but the strategy will need to be re-considered for a second phase if the districts are to take on a larger management role. Short term courses are useful in providing upgrading of skills but an overall strategy and a more intensive training program may be necessary to create sufficient capacity at the district level, particularly for new sites. The limited number of capable staff at the district level has to raise concerns about their ability to manage major new responsibilities in a second phase. Staff in Phase II will need to be strengthened in both quality and responsibility with the use also of short and long term consultants.

50. A second constituency that needs more attention is training at the community level. While there was evidence that community training has been a factor in increasing support for COREMAP objectives, there were still many evident weaknesses in such areas as financial management and business skills to manage AIG activities. The TCU has begun to direct more attention to training at the community level but some training will probably need either much higher levels of training for the senior field facilitators based at

the district level who are giving some of the training and more outside expertise brought in as the range of training courses expands.

51. One problem, which might be addressed through the training program, is the jealousy felt by surrounding villages who feel they should also have COREMAP support. The COREMAP program does not have the capacity or the resources to respond to such demands even though these will likely grow. The training program could however offer training opportunities to other villages at little extra cost. This might spread the influence of COREMAP ideas to surrounding villages creating a broader impact than COREMAP can achieve by intensive work in a limited number of villages.

52. The need for training is unlikely to decline at least in the first half of the next phase. It will be difficult to balance the need for more intensive training of COREMAP personnel at the district level with the need to also increase the level of training provided to communities.

53. The quality of trainers and the contents of training courses will need more attention in a second phase. A TNA workshop identified the need to improve the contents of courses and the development of more training material. This material should increasingly incorporate COREMAP experience so that it has greater relevance to participants and serves to bring lessons to the attention of COREMAP staff. The program has not yet been able to develop a certification process for trainers and the program will have to keep screening the trainers' capabilities in order to upgrade quality. The quality and commitment of LSM staff was noted and it may be useful to negotiate a more long-term agreement with some LSMs that will allow them to upgrade staff expertise and develop a stronger training cadre at the local level. There were limited opportunities to bring together COREMAP (and community) participants from different locations in Phase I as was done through networking for the provincial and district training coordination teams from all pilot locations. While the costs may be somewhat higher, there was evidence that COREMAP staff valued and were motivated by exchanging experiences from other locations.

5.2 Recommendations

- 18) All training activities in Phase II should be integrated and coordinated by a training unit. While the COREMAP program will be decentralized in a second phase, there will be a need for a small national component, not only to assist in planning training at the regional level but to organize specialized training that cuts across many locations. Strengthening and shifting more responsibility to regional trainer teams should be a primary objective.
- 19) The training strategy and participatory process pursued by the AusAID training program is a sound model appropriate to the objectives of COREMAP and should be continued in a Phase II. Continuing support for this program to the end of the overall AusAID project would allow for the development of skills needed to prepare for the decentralization expected in a second phase.
- 20) A major training needs assessment, particularly for new site locations, should be undertaken by all COREMAP components to assess what skill upgrading is needed to allow district governments to take on more responsibility for COREMAP
- 21) Community training should take an increasing share of training resources, targeting weaknesses such as financial and business management skills for AIG and community involvement in CRITC and MCS activities.
- 22) The training program should increasingly draw on COREMAP experience for training material and provide for more common training activities across different sites.
- 23) Consideration should be given to negotiating long-term training contracts with organizations such as LSMs to allow them to commit resources to upgrading their training capabilities.

6. Monitoring, Control and Surveillance

54. The World Bank COREMAP project design incorporated a major Monitoring, Control and Surveillance component to reduce destructive fishing activities, particularly the use of explosives and poisons and over fishing. Enforcement of fishery rules is necessary if COREMAP is to be successful. As in some other countries, there has not historically been in Indonesia a strong commitment to enforce fishery regulations and where they have existed, local communities have not been empowered to enforce them. The traditional approach to fisheries management globally has been for governments to attempt to enforce limits on fishing effort and/or on total catch. By themselves, these attempts have usually failed to achieve the objective of maximum sustainable catch for a variety of reasons, including continuous improvements in fishing technology and the difficulty of monitoring and enforcing these limits. Worldwide, there has been a growing realization that catch and effort management should be reinforced by no-take areas. COREMAP provides a framework for such combined management.

55. Similarly, in common with other countries, there has historically not been a strong awareness of the long-term destructive effects of various fishery methods, particularly blast fishing and the use of poisons.





6.2 Enforcement and Reef Watcher Training

66. Enforcement and appropriate training varies by site. In Riau, most infringements are by local villagers using relatively low-tech equipment, MCS training is comparatively straightforward and the materials and techniques are appropriate to the local levels of education. Villagers expressed appreciation for the training they have received and are confident in their ability to carry out effective monitoring, surveillance and enforcement with assistance from the Navy, and other enforcement agencies only in relation to violations by non-locals, which are less common than at other sites..

67. In Biak and Take Bonerate, the selection of high-tech equipment has made training and performance more difficult. Training in radar operation has been inadequate at both sites. Neither installation functions effectively and the manuals are in English only, even though local operators do not speak English. The problem has been exacerbated in Biak, where the MCS program has not been built on the foundation of a CBM program. For instance, at Bromsi, there was little evidence of general community awareness of COREMAP, and it was clear that the reduction in illegal fishing by members of the community was less than at sites where there was an integration of the MCS program into the CBM program.

68. While a high proportion of residents (70%-

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73. The manuals for the individual sites are explicit and provide detailed guidance covering all operational aspects of MCS. However, there is little reference in these manuals to the general policies set out in the National Manual that will in the long term determine the success or failure of COREMAP. Recognizing that, even with explicit guidance, field operations encounter situations that demand the application of judgment based on general policies, it is recommended that all field personnel receive training in the fundamental policies set out in the National Manual.

74. It should be noted that there is a need for translation of all manuals into Indonesian since it was noted



81. It is **recommended** that:

- 36) Only MCS data vital to attaining the COREMAP objectives be collected.

6.6 Compliance Levels

82. Compliance levels appear to be improving continuously at all sites visited. The highest levels of improvement were observed at locations where the MCS system is embedded in a Community Based Management program and where appropriate technology has been used, such as in Riau. Lower levels of improvement were reported by reef watchers at sites where CBM has been developed less, such as in Biak, and where emphasis is on sophisticated equipment, such as in Biak and Take Bonerate.

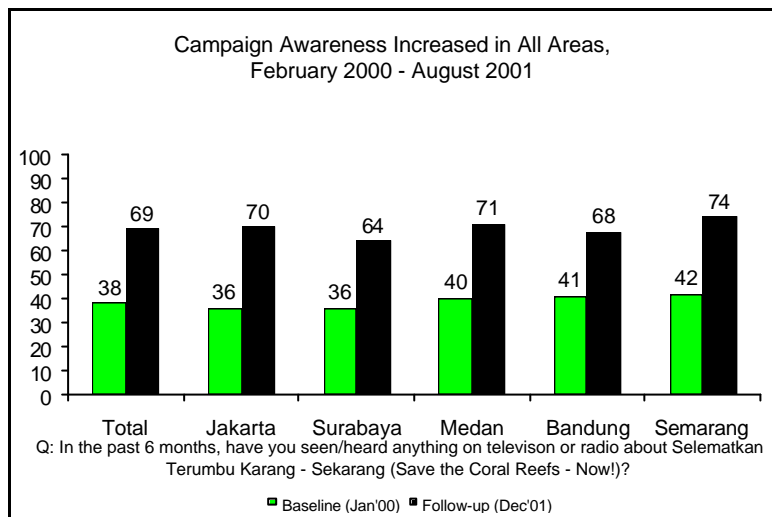
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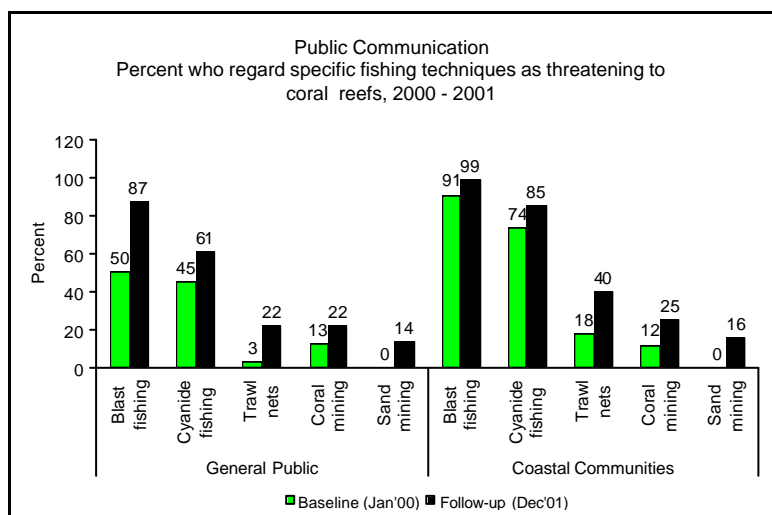
Only 38% of fishermen with no exposure to COREMAP communications reported having any discussions about coral reef, compared to 64% with high exposure.

Exhibit 7.1 Campaign Awareness



89. An increase in the reported use of relatively reef-friendly techniques appears to be related to COREMAP exposure. About 39% of fishermen with low to medium exposure to COREMAP communications reported using hook & line techniques, compared to 46% of fishermen with high exposure. Approximately 1% of those with low exposure reported using cast nets, compared to 6% with medium or high exposure, and roughly 2% with low exposure reported using rumpon, compared to 11% with high exposure.

Exhibit 7.2 Awareness of threatening fishing techniques



90. All COREMAP locations were positively affected by the campaign, but the overall impact was greatest in Riau and lowest in Biak, which correlates closely to the level of CBM activity in each location.

of this component at the village level.⁵ There was good educational material at the community level with signposts placed in all communities and teaching material for schools, although the quantity was very limited in some community libraries and local schools.

91. One interesting development has come about through the Coral Reef Ambassadors program that brings committed young people to Jakarta for an award ceremony and national publicity. Other coral reef programs supported by other agencies have begun to participate in this award program. This is a positive step toward cooperation among all coral reef programs in Indonesia, which should be extended to other areas.

92. The Public Communications program needs to be maintained if it is to continue reinforcing the messages developed in the first phase and add some new dimensions. There was limited effort in the first phase to identify specific stakeholder groups, determine their interests, produce materials and create appropriate dissemination methods. The role of enforcement agencies is crucial for effective MCS but representatives from these agencies said that their colleagues had little information available to them. The support of various political bodies will be necessary, targeting the



field facilitators, technical assistance, training, and small grants. The design stresses process, flexibility, and an intensive focus on a small number of sites to draw lessons for future phases.

96. Four pilot sites were selected for the initiation phase although two of the original sites selected were changed due to security concerns.

97. The CBM component was found to have contributed significantly to the success of Phase I in Riau and TBR. There was a high level of awareness and motivation of community groups in Riau, which developed modest AIG activities, supported the reef watchers and developed CRMPs. CRMPs were established in all 7 villages in Riau and no-take zones were created. There are few external violators in Riau and the community was able to exert pressure on village violators. The rate of success was also satisfactory in TBR where the same elements were in place. CRMPs have been created in all villages and received some level of formal endorsement at up to the district level. However the evidence of community support was not as strong and the MCS component was not as integrated into the CBM program. Enforcement problems also make the TBR experience somewhat less positive.

98. With no CBM component in Biak, COREMAP has made very limited progress in developing community participation. Virtually all concerned stakeholders (including members of the local government and the local COREMAP team) agreed that the success of the Program in Biak will depend on the full implementation of CBM. The inability of COREMAP to foster a strong CBM component in Padaido must be regarded as one of the major failings of the Program. See Exhibit 8.1. The experiment of trying a MCS Plus approach should probably not be pursued in a second phase and with good NGO capability in Biak, it should be possible to quickly develop CBM in Biak in future.

99. COREMAP activities at Maumere have only recently begun, and consequently, no major CBM milestones have yet been achieved

8.1 Recommendations

- 41) The community needs to be defined in broad and inclusive sense. All relevant stakeholders should participate in COREMAP training, and committees as legitimate actors..
- 42) CBM must be recognized as the main Program thrust if efforts to preserve reef ecosystems are to be sustainable. The integration of other components with CBM (including MCS, training, research, awareness-building) needs to be given a high priority.
- 43) The Riau model, which includes a flexible, adaptive approach to management appears to be the most appropriate for replication in the next phase of the Program. Such an approach allows for variations in management strategies that are needed to respond to site-specific differences.
- 44) A balance must be achieved between activities aimed purely at reef conservation and those targeting improvements in the quality of life within a community. In keeping with the overall conservation objectives of the Program, community improvement should emphasize sustainable socioeconomic activities that promote alternative livelihoods and social infrastructure projects that conserve resources, improve public health, or reduce pollution.⁶
- 45) A systematic plan should be drawn up in part of Phase II to gradually transfer responsibility for self-management to the communities. Community facilitators could begin to reduce their time in one village and start working in new villages.

⁶ Hunnam, Peter November 2000. *Mid-term Evaluation Report, 1998-2000. COREMAP Phase I*. p.21: "...it is essential to take into account all aspects of the lives of the local people who depend on coastal marine resources...CBM needs to be guided at least as much by social and economic considerations as by biological protection."

- 46) COREMAP should adopt a broader ecosystem-based approach in addressing coral reef and biodiversity conservation, and take steps to ensure that all assistance given is consistent with these broader objectives. The current conservation focus of COREMAP (the prevention of blast and poison fishing) is fairly narrowly focused on blast and poison fishing and there has been little recognition given to other negative factors especially from over fishing.
- 47) A uniform 'environmental code of conduct' should be defined and adopted by the Program and promoted within the communities. While complete compliance may be difficult to achieve, communities may ultimately accept at least a voluntary code of conduct
- 48) More technical assistance is needed to develop a portfolio of viable AIG possibilities and the risks involved to present to villagers along with more training and assistance in developing AIG activities.
- 49) A cooperating NGO partner must be identified as a priority issue for the Biak-Padaido site. COREMAP should build on the substantial outputs of Rumsram in the communities in this area.

Exhibit 8.1 The case of Padaido

The Case of Padaido

The World Bank indicated that it was asked by Rumsram not to engage in CBM activities at Padaido during the design of Phase I.⁷



8.2



Exhibit 8.3 Milestones and Description of COREMAP Seed Funds in Riau

MILESTONE ACHIEVED	FUNDING TO FOLLOW
Initial community preparation done	Rp. 2 million 'community trust fund'



Communities do need to have some inducement at the start and to see some benefit from the organizational and planning efforts that they put into conservation work, and thus these grants would appear to be an important stimulus for CBM. However, such incentives should be applied with caution so that it remains clear that coral reef protection is in the interest of the community and hence their responsibility.

112. The benefits of revolving fund scheme for the delivery of micro-credit have been well demonstrateo



lucrative yet sustainable activities are identified. There are clearly going to be cases when new AIGs will fail and community participants should be prepared during AIG training for this possibility.

117. These examples illustrate that the potential success of AIG activities depends on proper training and on being able to make informed decisions about which AIG options are the most feasible. The present bottom-up approach being used to define AIG options through a community needs assessment should be complemented by providing technical assistance for the conduct of comprehensive feasibility studies on different possibilities¹⁴. This is particularly important for sites like Biak and TBR which are distant from any major markets. COREMAP should finance studies to prepare a more diverse portfolio of AIG options that could then be provided to the communities, to be used for more informed decision-making.

8.5 Coral Reef Management Plans

118. The process of developing a CRMP or RPTK follows a logical sequence beginning with involvement of the community in resource identification and needs assessment activities. Community-based monitoring in cooperation with the global Reef-Check program has been conducted at some sites (Riau), and is planned for others (Maumere). Data gathered by trained technical specialists (coordinated through CRITC) and community stakeholders has contributed significantly to the database of targeted reef areas and the key issues that must be addressed for effective coral reef management (e.g., control of dynamite fishing, use of cyanide, illegal trawling, over fishing, impacts of sand mining and pollution, among others). The process of preparing CRMP by the community produces a tangible product that can be used not only for actual resource management, but also as a teaching tool to increase awareness.

119. Once the ecosystem is adequately described, and key problems identified, additional steps need to be undertaken for completion of the CRMP:

- Design of a management system for coral reef resources through the establishment of sanctuaries, adoption of zoning plans, enactment of local regulations;
- Monitoring systems such as the establishment of permanent monitoring stations or transects that allow comparative measurements over time to assess changes in reef health;
- Village organizations who will participate in the management and protection of coral reef and other coastal resources
- Drafting and formal adoption of the coral reef management plan which requires approval from the village head and the bupati and then adoption of the CRMP as a district regulation:

120. All villages in Riau have produced CRMPs, and have received approval by the bupati. They have been involved in mapping, developing history transects and identification of environmental problem areas (e.g., sand mining and erosion). Good participation of women and youth is reported. Twenty-two permanent monitoring sites in 7 villages have been set up with assistance from the CRITC. Similarly, in TBR, CRMPs have been finalized and endorsed by the *kepala desa* and village parliament in each community, and at least some have received endorsement from the kabupaten (district level), but still have not been adopted as PERDAs. A key feature of the CRMP process has been the establishment of coral reef and mangrove sanctuaries. All COREMAP villages in Riau and Take Bonerate have delineated such sanctuaries as ‘no-take’ zones. The MMA in Pasir Panjang is an example of establishing management zones over the total sea area surrounding an island, with one area “open access” and a

¹⁴ Hunnam’s report (1998) notes that: “the challenge for COREMAP is to make available information about a wider range of options – AIGs. COREMAP as a whole should invest in directed research and development analysis, to prepare a thicker portfolio of AIGs worth considering. An initial list of ideas includes tourism, ‘Earthwatch type researcher-tourists’, seaweed culture, fish processing and handling, live reef fishing (by non-destructive means), crafts, furniture making, local marketing, cooperative stores, schools and community services. COREMAP should make the analyses available to communities but not become a promoter (p.22).

second area subject to “restricted access” to a subset of fishing gears, which excludes trawlers and favors artisanal fishing methods. At Riau, sanctuaries were set up in areas with at least 15-25% live coral cover, and in close proximity to the villages so that they could be easily monitored. Similar criteria were used in TBR to identify proposed sanctuary areas, but with more emphasis on biological diversity as a selection criterion.

121. It was reported in both sites that coral reef sanctuary sites were selected on the basis that these areas were not heavily fished. While such a strategy is convenient and avoids conflict with fishers, they may be less rich than heavily fished areas. Therefore, some no-take zones should be set up in areas where there are high populations of commercially-important target species in order to ensure that protected breeding grounds are set aside for these species.

122. The ultimate measure of success would be demonstrable reduction of harmful practices (which can be detected over the short term) and measurable improvements in the quality and health of reefs (which typically take a longer time to observe¹⁵) as well as productivity and fish size. At Take Bonerate, an 85% reduction in the number of local fishers involved in illegal fishing activities has been recorded.¹⁶ Similar results have been achieved in Riau. However, these statistics may apply mostly to reductions in illegal activities from within the community.

9. Comparison of Field Trial Approaches

123. Different approaches to community-based management have been tried at Kepulauan Riau (ADB supported sites) with those implemented in Take Bonerate (TBR) and Biak (World Bank supported sites). Drawing lessons from the different experiences at these sites has to be done with caution since the number of sites is still very limited, the programs are still at an early stage of development and those communities exhibit very different social and economic conditions. However there do appear to be some lessons that can be drawn from this first phase.

Rigid Adherence to Targets vs. Flexible, Adaptive Approach

124. The World Bank supported component utilized intensive and detailed evaluation procedures, to ensure that targets for defined outputs have been met. However, this approach does not necessarily guarantee a desired outcome. By contrast, considerable flexibility and adaptability have been demonstrated in Riau. Specific problems that have occurred with the more programmed approach in TBR were:

- Stakeholder signatory statements were required acknowledging acceptance of the COREMAP program. It was found that this resulted in polarizing the community into two factions (of COREMAP adherents and non-adherents).¹⁷
- Community profiling was carried out in isolation from more technical, scientific profiling, and a ‘meshing’ exercise was conducted at the end of the separate profiling activities. Because each separate profiling methodology led to different conclusions and recommendations, it was difficult to ‘mesh’ the results later on.¹⁸

¹⁵ World Bank accepts 2% annual increase in live coral cover as an indication of improving reef health. This can only be reliably measured over a ten year timeframe or longer, and only in the absence of larger natural events.

¹⁶

125. These examples illustrate that “It is easy to become preoccupied with project deliverables and lose sight of the need for flexibility and innovation.”¹⁹

Lesson Learned:

126. In dealing with diverse and dynamic communities, it is important that flexibility is incorporated into the design of all activities. Allowing communities to determine program targets that are realistic is often more appropriate than setting artificial targets which, though measurable, do not yield meaningful benefits to the community.

Strict vs. Broad Interpretation of Coral Reef Protection Objective

127. Another issue that has been raised is whether the CBM program has paid adequate attention to the environmental objective in Riau. Organizers at Riau have been criticized for not placing more emphasis on interventions intended to have direct impacts on coral reef ecosystems. However, the experience in Riau indicates that it may be more important in the initial phase to gain the acceptance and support of the community, if coral reef management initiatives are to be ultimately successful. It is apparent from discussions with the communities at Riau, that the COREMAP program has the strong support and acceptance of the community and they are prepared to fund reef watcher programs and use community pressure to stop violations.

Lesson Learned:

128. Developing community support should be the first objective in new sites and a balance achieved between activities aimed purely at reef and related ecosystem conservation and those targeted on improvement of the quality of life within the community.²⁰

Integration in an overall CBM approach.

129. In Riau, there has been a mutual strengthening achieved among all Program components as a result of the recognition of CBM as the ‘core’ component. Thus, on the island of Penaah, COREMAP has assisted in the formation of three community working groups (production, gender and conservation). Economic activities are being carried out by the production group and gender group with a portion of their income going to pay for the coral reef watchers. The members of those groups said that they supported the MCS activity because it benefited the whole community. Such a high level of commitment would not have been achieved without the complementary input of a strong public awareness program. In contrast, a theoretically strong MCS program at Biak has not been embedded in a core CBM program. This has clearly led to a lack of overall community awareness and commitment to COREMAP and the separation of the MCS personnel from the rest of the community. All elements of the program, including MCS, have therefore been less effective than at sites where CBM is at the core.

Lesson Learned:

130. In order reef m95-24. Tf 02o6-3069 Tc 0 Tw (130.)m



High-Tech vs. Low-



10. Environmental and Social Issues

10.1 Coral Reef and Associate Ecosystem Issues in Indonesia.

132. As in other tropical coastal countries, the issues relevant to sustaining coral reefs and their associated ecosystems in Indonesia can be summarized as;

- Water quality-



138. Third, the expansion of the program into more regions is likely to lead to pressure to expand the program quickly into other regions





12. Key Lessons Learned

150. No marine protection can be successfully established without general community support; enforcement measures alone cannot work

151. This requires a top- -



13. Key Action Recommendations

158. If DKP is given responsibility for implementing COREMAP in Ph. II, it should ensure that existing COREMAP staff are employed in the program through the creation of joint teams with DKP.

Consideration should be given to continuing to house the COREMAP program in existing facilities.

Ideally, responsibilities for program components should not be divided between these institutions.

159. COREMAP will require full time committed senior management in the second phase.

160. With devolution of responsibility to the regions, district governments will need to create their own PMOs with dedicated staff and management responsibilities. The existing Pokjas can play an important coordination and facilitation role in assisting the PMOs.

161. The project design of Ph. II should build in responsibility for all component and technical assistance



172. More technical assistance is needed to develop a portfolio of viable AIG possibilities and the risks involved to present to villagers to complement the bottom up approach and more training and assistance provided in developing AIG activities.

173. COREMAP should develop a broader ecosystem approach in addressing coral reef and biodiversity conservation, paying particular attention to reducing fishing pressure in coral reef areas.

174. New program sites should be carefully assessed for social and economic as well as biophysical conditions that can contribute to successful implementation.

175. A Mid Term Review should be conducted early in Ph. II to allow for adjustments by year three in light of the major transition to a new implementing agency and program decentralization.

Appendix II Recommendations

Program Management

- 1) If DKP is given responsibility for implementing COREMAP in Phase II, it should ensure that existing COREMAP staff are employed in the program through the creation of joint teams with DKP. Consideration should be given to continuing to house the COOREMAP program in existing facilities. Ideally, responsibilities for program components should not be divided between these two institutions.
- 2) Full-time, experienced and committed senior management staff are a critical requirement for the more complex management system in Phase II. Consideration should be given to recruiting Indonesian professionals from outside government if suitable government staff are not available.
- 3) The PMO should assume more responsibility for integrating the different components of COREMAP and implementing measures to ensure prompt and adequate communication to all staff of the vision and activities of COREMAP. External TA firms should have contractual obligations to report through PMO and to develop counterpart capability.
- 4) There should be an early and clear delineation of responsibilities at each level of government with a common planning and monitoring framework agreed for the overall program. It will be essential to develop clear guidelines with the districts on their authority and responsibilities.
- 5) District level governments should create PMOs with responsibility for implementing COREMAP. Pokjas should continue to provide a coordination and information function. A review of district level capability and a plan to upgrade skills should be undertaken at an early stage, particularly for all proposed new sites.
- 6) The National Steering Committee should meet once a year to address major issues. The Technical Committee should include all major stakeholders, including regional governments and other interested government and non-government agencies, to allow for greater integration of COREMAP activities with other coral reef related programs and projects.
- 7) Financial approval procedures should be streamlined and mechanisms created for more effective collaboration between PIMPRO and the PMO.
- 8) Full time staff should be recruited whenever possible and procedures put in place to ensure fixed time allocations of part time staff to COREMAP activities. If problems for government employees of turnover, part time availability and inadequate remuneration levels cannot be solved, consideration should be given to employing local consultants.
- 9) It is recommended that the proposed coastal zone Act being planned for tabling later in 2002 be given high priority and that more resources be used to develop local laws and regulations to provide communities with a basis to enforce coral reef standards.
- 10) The National Coral Reef Management Strategy and Action Plan should be integrated into COREMAP programming so that all stakeholders are aware of common objectives and the community based management philosophy developed in Phase I. This community-based approach could be given more emphasis by changing the overall program objective to “develop a viable community-based coral reef management system in Indonesia”.
- 11) A Mid Term Review should be conducted after two and a half year as a mechanism to allow for early adjustments in light of the program decentralization, and the transition of responsibilities to DKP.



- 24) New regulations be enacted giving powers to each village to enforce rules prohibiting fishing by outsiders who have not traditionally fished in the area that has been traditionally fished by that village;
- 25) Regulations be established under Autonomy laws that control fishing at district and village level so as to discourage over-fishing;
- 26) Regulations be enacted as soon as practicable legally establishing coral reef management plans;
- 27) Under the CBM program, relevant Naval, Military and Security personnel be encouraged to attend management committee meetings at both district and village level and undertake to work with the community to enforce fishery rules; and
- 28) The Government of Indonesia considers ways of reducing the existing incentives for Naval, Military or Security personnel to encourage or ignore illegal fishing activities.
- 29) MCS be integrated into CBM at all COREMAP sites;
- 30) Equipment and methods used in MCS be at the lowest practicable level of sophistication and cost, commensurate with meeting MCS objectives;
- 31) The use of land-based radar be discontinued; and
- 32) Where high-speed enforcement vessels are necessary, a primary criterion for selection of equipment should be ease of maintenance and community familiarity.
- 33) Training of reef watchers and others in local communities in monitoring, surveillance and control occur within the context of general community training and education under a properly financed CBM program;
- 34) The need for continued training in all aspects of enforcement at all levels (central government to village) be recognized
- 35) All field personnel should receive training in the fundamental policies set out in the National Manual.
- 36) Only MCS data vital to attaining the COREMAP objectives be collected.

Public Communications

- 37) The program should be continued with a national program maintained at a lower cost by using the effective material and staff expertise developed in phase I. External technical assistance should not be necessary in a second phase.
- 38) More resources should be targeted to areas and groups most immediately involved with COREMAP activities. Additional material may be required to reach groups who have not been sufficiently targeted such as NGOs, enforcement agencies and the justice system, key decision makers at the political level and the seven universities with marine science departments.
- 39) It should be integrated with the other components at the district and local level as a component of the CBM program.
- 40) COREMAP staff at the district level, facilitators and others involved in CBM should be given more opportunity to identify strategies and material most effective in informing and enhancing community support. This may involve the production of local knowledge material at the village level and activities such as cross community exchanges and presentations.

Community Based Management

- 41) The community needs to be defined in broad and inclusive sense. All relevant stakeholders should participate in COREMAP training, and committees as legitimate actors..
- 42) CBM must be recognized as the main Program thrust if efforts to preserve reef ecosystems are to be sustainable. The integration of other components with CBM (including MCS, training, research, awareness-building) needs to be given a high priority.
- 43) The Riau model, which includes a flexible, adaptive approach to management appears to be the most appropriate for replication in the next phase of the Program. Such an approach allows for variations in management strategies that are needed to respond to site-specific differences.
- 44) A balance must be achieved between activities aimed purely at reef conservation and those targeting improvements in the quality of life within a community. In keeping with the overall conservation objectives of the Program, community improvement should emphasize sustainable socioeconomic activities that promote alternative livelihoods and social infrastructure projects that conserve resources, improve public health, or reduce pollution.²¹
- 45) A systematic plan should be drawn up in part of Phase II to gradually transfer responsibility for self-management to the communities. Community facilitators could begin to reduce their time in one village and start working in new villages.
- 46) COREMAP should adopt a broader ecosystem-based approach in addressing coral reef and biodiversity conservation, and take steps to ensure that all assistance given is consistent with these broader objectives. The current conservation focus of COREMAP (the prevention of blast and poison fishing) is fairly narrowly focused on blast and poison fishing and there has been little recognition given to other negative factors especially from over fishing.
- 47) A uniform 'environmental code of conduct' should be defined and adopted by the Program and promoted within the communities. While complete compliance may be difficult to achieve, communities may ultimately accept at least a voluntary code of conduct
- 48) More technical assistance is needed to develop a portfolio of viable AIG possibilities and the risks involved to present to villagers along with more training and assistance in developing AIG activities.
- 49) A cooperating NGO partner must be identified as a priority issue for the Biak-Padaido site. COREMAP should build on the substantial outputs of Rumsram in the communities in this area

Comparison of Field Trial Approaches

- 50) Phase II should allow for considerable flexibility in tailoring programs to the widely different cultural, socio-econom



- 51) The practicability of ecosystem health management, productivity as well as social and economic factors should form major criteria for selecting COREMAP expansion sites that can achieve early acceptance. Competitive advantages may include such factors as good access to commercial markets and absence of environmental factors that would be difficult to address (e.g., high levels of pollutant runoff). Expected outcomes will need to be adjusted if more challenging sites are selected for inclusion in the Program.

Performance of the Donors

- 52). Funding for the key activities of Phase I, particularly LSM activities, should be maintained until Phase II commences to maintain continuity.

Appendix III Financial Summaries

(Not Included)

Appendix IV Phase I Evaluation Terms of Reference

(Not Included)



Appendix V Maumere Site Visit

175. The Maumere site was only recently established because security considerations forced the project to move from another site. Discussions were held at the site with the Pokja, the AusAID team leader and other stakeholders. As it commenced only in April, 2001, it is too early to make any realistic or in-depth comments on the progress achieved. However the early indications are positive. Noteworthy was the support of the district government for the project as well as the commitment of the team leader, advisers and field staff.

176. An Office for Project Management has been established and will soon be moved to a new office building close to the BAPPEDA offices. The present office does not have email facilities so the working environment is not very efficient for the team.

177. A district Pokja has been created by Bupati Decree(SK) and the Pokja has created three committees dealing with CBM, MCSs and CRITC. Discussions with different individuals suggested that good working relations have been established with both provincial and district staff and the team has worked in collaboration with several selected local NGOs. Counterpart staff have been appointed to work with the Training Coordinator and are actively involved with the program..

178. The project is working in six villages and a facilitator have been appointed for each village. Three of the six facilitators are women. A CBM framework has been created to guide the program in the village work. A Participatory Rural Appraisal(PRA) has been undertaken in each village and there will be a PRA meeting as the district level shortly to assess the results and plan follow up.

178. The only comment made that may need to be addressed is the suggestion by several stakeholders that there could be more effort to improve communication and coordination through regular meetings.

179. Overall the progress made at this site is promising and the methodology being followed in terms of emphasis on CBM as the core component is consistent with the best practices found at the other sites.

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