

## **INDONESIA'S CORAL REEF REHABILITATION AND MANAGEMENT PROGRAM: LESSONS LEARNED FROM PHASE I AND FUTURE DIRECTIONS**

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### **ABSTRACT**

The Indonesian Coral Reef Rehabilitation and Management Program (COREMAP) is a 3 Phase, 18 year (1998 – 2016), USD 250 million national program aimed at protecting, rehabilitating and better managing Indonesia's coral reefs and their associated ecosystems and improving the livelihoods and incomes in target coastal communities where currently 60% of the mostly fisheries-dependent households are poor. The first Phase, which piloted CBM approaches, operated in 4 pilot sites and ran from 1998 - 2004. The second Phase runs from 2005 - 2010. There are substantial shifts in the design of Phase II driven by the lessons learned in Phase I and, more importantly, from recent lessons learnt in fisheries management, most notably the value of Marine Protected Areas (MPAs) and no-take zones. The paper summarizes the key lessons learned in COREMAP Phase I and outlines how these and others have been incorporated into the design of Phase II, dubbed "the acceleration Phase" which will expand the program to a significant portion (>25%) of the country's richest coral reef areas. There are significant risks in the approach adopted, the most important being the willingness of coastal communities to take on the responsibility for managing their coastal marine resources and the government supporting them to achieve this goal. This is the second paper on this topic in this Conference Proceedings. The first paper [1] gives an overview of the performance of the project, particularly of CBM and MCS at four pilot sites, while this paper looks more closely at the lessons learned from the whole Phase I Program.

**Keywords:** COREMAP Phases I & II, lessons learned; CBM; poverty alleviation; MPAs; no-take zones

### **RATIONAL FOR COREMAP**

Coral reefs form the key ecosystem on which the majority of the coastal inhabitants of Indonesia rely for food, income, construction materials and coastal protection, and which are of critical significance also for science, education, tourism, pharmaceuticals, global biodiversity and conservation heritage. Indonesia's shallow marine areas contain a significant proportion of the world's coral reefs (16.5%) [2]. However, these resources have been poorly managed and over recent decades increasingly degraded by (i) destructive fishing practices; (ii) over-exploitation of many species of fish and invertebrates; (iii) pollution and siltation from land based activities such as aquaculture, forestry and mining; and (iv) coastal developments including urbanisation, industrial expansion and tourism. These activities have all contributed to a dramatic decline in reef health nationally. Since the economic crisis of 1997 – 2002, many poor rural unemployed have turned to fishing as a last resort for their own consumption. Faced with such pressures, destructive and illegal fishing methods (blast fishing and cyanide) are often used to increase fish catches. The result is that almost two-thirds (65%) of Indonesia's coral reefs are now considered threatened from over-fishing and almost half are threatened from destructive fishing practices [3]. In the past 50 years, the proportion of degraded coral reefs in Indonesia has increased from 10% to 50% today. And since the 1950s, there have been few reports of improvements other than at sites with some form of intervention such as COREMAP. Presently there are few examples or models of long-term sustainable use and conservation of coral reefs in Indonesia (e.g. Bunaken)

As a result, many of the small-scale coral reef fisheries in Indonesia have reached a level and mode of exploitation where the only way to increase future production and local incomes is to protect critical coral reef habitats and reduce fishing effort. However, poor coastal fishing communities need help to make these behavioural changes. This requires substantial long term investment to tackle this problem. Most interventions are supported by donor agencies with financing that is not sustainable. There is a clear need for COREMAP to continue to encourage, enable and assist local poor fishing communities to develop appropriate ways of protecting and managing their marine resources as well as to strengthen capacities of government and NGOs to deal with issues external to the communities at regional and national levels.

The Regional Autonomy Law of 1999 [4] and the Spatial Use Law of 1992 [5] provide the legal basis to plan and manage coral reefs at the local scale. The capacities of local government and community institutions need to be strengthened before effective planning and management can occur, particularly in recognition of local community resource rights, clarification on legal issues, spatial and resource planning, transparent resource allocation and effective control, surveillance, and enforcement.

Decentralization, initiated by the Regional Autonomy Law and the Revenue Sharing Law of 1999 [6], gives local governments responsibility for managing resources including most coral reefs, and a strong vested interest in ensuring that coral reefs provide for subsistence harvests, sustainable livelihoods, and future economic growth. While the new laws provide for participatory planning and resource allocation, the capacity of local governments to support this new way of operating is limited. Significant support is needed now to strengthen community and local government planning and management in order to secure the long-term health of coral reef resources and the survival of coastal communities.

## **MATERIALS AND METHODS**

COREMAP is entering the second Phase of a three-Phase initiative. Therefore it is particularly relevant to draw lessons from Phase I to be applied to the design and implementation of the Phase II Program. This paper draws lessons learned from the three independent evaluations undertaken between 2000 and 2002, namely the Mid-Term Independent Evaluation of Phase I conducted in October 2000 [7], the ADB Phase II Project Design Report team which undertook its own review in 2002 [8], and the World Bank, which required that a full evaluation of COREMAP Phase I be carried out before proceeding to Phase II, was undertaken by an IUCN Team also in 2002 [9]. The Project Design Report included reviews by design team members on Phase I progress and effectiveness, based on their knowledge of the sector, on discussions with staff of the COREMAP Project Management Office and other COREMAP project offices. The preparation team included consultants who had been or were engaged, variously, in Phase I design, implementation and mid-term evaluation.

The ADB and World Bank Phase II projects take into account lessons that emerged from the prior reviews [7, 8, 9] and, after discussions and suggestions by GoI and the respective Banks own staff, resulted in the project designs as detailed in the ADB RRP of November 2002 [10] and WB PAD of May 2004 [3]. The respective loan agreements were both signed in 2004.

## **LESSONS LEARNED FROM COREMAP PHASE I**

The original COREMAP design intended Phase I to be a testing Phase for the project. The aim was to establish over a three year period a viable national system for coral reef management in Indonesia, comprising a national policy on coral reef management; institutional, legal and program management arrangements; and a strategy for the future program, based essentially on pilots of different approaches to (i) community-based management (NGO, no NGO) and (ii) surveillance and enforcement (low tech, high tech). The COREMAP vision was centred on local coastal communities having a greater say in the allocation, use and conservation of local coral reefs and associated local ecosystems, and on government

at all levels playing a supportive role by using government policy, the law, enforcement agencies, science and other resources to create an enabling environment. The challenge was to test how to achieve this vision at a small number of pilot sites, and to reflect the underlying concepts in a new paradigm for coral reef management that could be adopted nationally.

### **Lesson 1 – Overall Program and Schedule**

Phase I achieved establishment of project management and administration structures and facilities in a dedicated COREMAP Program Management Office, PMO, by the executing agency, the Indonesian Institute of Sciences (LIPI). Major areas of activity were organised under 7 project design components (i) Program Coordination and Management, (ii) National Policy, Strategy and Legal Framework, (iii) Capability Building and Training, (iv) Community-based Management (CBM), (v) Monitoring, Control and Surveillance (MCS), (vi) Research and Monitoring (CRITC & BME program), and (vii) Public Communication. The purpose of Phase I was to establish four pilot sites as workable models for CBM and MCS and to provide valuable lessons for design of Phase II. Sites established were (i) Senayang-Lingga in Riau (ADB); (ii) Take Bonerate (TBR) in South Sulawesi (WB/GEF); (iii) Padaido Islands in Papua (WB/GEF; substituted for the Lease Islands, Maluku, for security reasons); and (iv) Maumere in East Nusa Tenggara (NTT) (AusAID; substituted for Kupang Bay in West Timor, which was abandoned in September 2000, after an initial six months of on-site activity, also for security reasons). By July 2004, CBM programs had been underway for three years plus at Riau, TBR and 3 years at Maumere. MCS had been in operation for at least two years at Riau, TBR, Padaido Islands, and Maumere.

The major constraint faced by COREMAP I was lack of time. The design specified a three-year initiation Phase, but this was never likely to be sufficient duration to achieve the set benchmarks. Phases of 6 + 6 + 3 years would have been more realistic than 3 + 6 + 6, particularly, as frequently happens with major projects, it took most of the first year to set up and mobilize the various components and technical advisory contracts. Following the MTE [7], Phase I was extended initially by one year, to October 2002 for Riau, TBR and Padaido, with two subsequent extensions at the two WB sites, eventually to July 2004. Throughout Phase I there was pressure on the project to perform and produce results at a pace that was inappropriate and counter-productive for a complex project, particularly one that needs to be (i) centred on local village communities, and (ii) process-oriented rather than trying to work to a prescribed blueprint. On top of this, Phase I was undertaken during a period of incapacitating political, social and economic turmoil nationally and regionally. Indeed, the program's initial delays were a direct result of the Asian financial crisis of 1997 – 1998, and the considerable instability and unrest that followed which were not resolved in Indonesia until mid 2002.

The lesson to apply to the design of Phase II is that the pace of development required of each management task should be less ambitious and more time should be available. This is particularly relevant because further pilot work is still needed. There was insufficient testing and proving of COREMAP models and alternatives for community based management, local income generation, local enforcement strategies and co-management with government agencies. There are risks attached to proceeding to the more substantial main Phase II of the program when pilot work still needs completing. Indeed the first one to three years of Phase II will be devoted to testing and evaluating approaches which were initiated – but not concluded – in Phase I. Of equal significance is the changed regime of governance and management of inshore marine resources that was introduced with the Regional Autonomy Act of 1999 at the start of Phase I. As with all other national and regional government agencies, the offices implementing COREMAP have only just started to work through the full implications of all these changes.

The strategy recommended for Phase II is to support work in a larger number of locations, but to be less ambitious and pressured to produce results rapidly in each. Indeed, given the limited resources available within the program, the pace of development will, by necessity, be set by the communities themselves.

## **Lesson 2 – Financing Arrangements**

COREMAP Phase I was financed primarily by loans to the Government of Indonesia from the Asian Development Bank (ADB) and World Bank (WB), and to a smaller extent by grants from Australian Aid (AusAID) and the Global Environment Facility (GEF). There was criticism during Phase I of the wisdom of using loan funds to finance an environmental management and poverty alleviation program of this sort which will not generate significant revenue to government, with its expenditure going on capacity building, environmental protection and natural resource conservation measures rather than on economic production, at a time of national economic crisis. There is valid concern also about the cost of some of the measures introduced and how they are unlikely to be sustained beyond the life of the project (see below).

Lessons taken forward to Phase II include increasing the grant portion of the budget, reducing the amount of loan funds - and where loans are used seeking soft loans, and designing a more appropriate, low-cost and eventually largely self-sustaining system for coral reef management. Clarification was also needed of the full implications of the Revenue Sharing Act [6] and Kepmen 35/2003 [11] for project co-financing arrangements between central and regional governments. Project funds loaned to the national government would be disbursed as grants to participating local governments as the investments proposed are non-revenue generating. However, each regional government is means tested. Under KMK 35, the proportion of counterpart funding ranged from 10% (low), 30% (medium) to 40% (high). In eastern Indonesia, all counterpart funds were fixed at 10%, with GEF financing the balance in 3 medium rated districts.

## **Lesson 3 – Policy, Strategy and Legal Framework**

The objective for Phase I was to establish a viable framework for the management of coral reefs and associated ecosystems in Indonesia. This included development of government policy towards coral reefs and the development of a national, regional and local strategy – backed up later by draft regulations – to introduce effective reef management to the country. Progress was made in these areas through an extensive consultative process involving regional and national government agencies, academic institutions and non-government organisations. National policy and strategy papers [12] were published in 2001 by the COREMAP PMO, and subsequently handed over in full to the new line Ministry for Marine Affairs and Fisheries (MMAF).

There is an urgent need to continue the development of the policy, strategy and legal framework for coral reef management in Indonesia. In particular, these instruments need to reflect and specify in detail the enhanced responsibilities of District and Provincial governments under the Regional Autonomy Act [3], for marine waters out to 4 and 12 nautical miles respectively, and incorporate changes to the relationships between regional governments and the main national Ministries, including in this case MMAF, Environment and Forestry. To this end, provision is made in the Project design for continued review and development of policy, strategy and regulations affecting coral reef management and economic and social development of coastal village communities.

A key lesson for Phase II was that careful attention is required to planning and confirming institutional arrangements and organisational strategies to support coral reef management and coastal community development. Adequate time and resources must be allowed to do this at each tier of the program - (i) by each participating village community; (ii) by each target District government and in each Province; and (iii) nationally. The Project Design Report [8] recommended a Strategic planning exercise as the first stage of program implementation at each tier. In particular, District-wide Marine Conservation & Development Strategies will be essential for local governments and other stakeholders to (i) review issues affecting local resources, their use and conservation, and to (ii) determine the most suitable institutional arrangements, regulations, capacity needs, and support facilities for community based management at COREMAP community sites and for larger co-management schemes such as MMAs or MPAs.

#### **Lesson 4 – Institutional Arrangements**

The management of coastal marine resources in Indonesia is the co-responsibility of government institutions at national, provincial and district levels. However, arrangements are in a state of flux following the Regional Autonomy Law. The Indonesian Institute of Sciences (LIPI) was the home agency for COREMAP PMO but only for the Initiation Phase I. Since the launch of Phase I in 1998, a new national maritime ministry, MMAF, was formed and is the logical home for COREMAP II from 2005 onwards, once the pilot Phase is successfully concluded.

There is a need for further discussion of how best to “institutionalise” the envisaged, strengthened system for managing coral reefs and associated ecosystems across the country, given the formation of the new Ministry and the move to regional autonomy. A further lesson from Phase I was that the system of a task force (Pokja) to direct activities in each pilot region was generally weak, and should be superseded by a designated Lead Agency which houses a COREMAP management team. A proper program of induction and transfer will be required (i) nationally, given a new Executing Agency has been designated for Phase II (MMAF); and (ii) in each Phase II target district Lead Agency (i.e. DKP not Bappeda as in Phase I).

A national COREMAP Steering Committee is an important mechanism for national government agencies to engage in COREMAP, recognising the cross-cutting nature of activities under the program. It is chaired by the National Planning Agency (BAPPENAS) and includes representatives from relevant line Departments. The Steering Committee has a significant institutional coordination and development role to play in all Phases of the Program.

A key lesson for Phase II is to significantly strengthen the activities of District governments, non-government organisations and local private businesses in managing coastal and inshore marine resources and in supporting community resource management initiatives. The Phase II Program will support development of appropriate institutions and building of capacity in target District governments as models for other Districts and Provinces. Local NGO and University consortia will be engaged in local survey, research, and community support components, and provided with training in relation to participatory planning, institutional strengthening and natural resource management.

Another important lesson from Phase I was to pay great attention to institutions at village level. It is essential to provide a good foundation by working with key opinion formers and building on existing institutions and collective decision-making processes in participating villages, rather than instigating the formation of new ones especially for COREMAP. To be effective and sustainable, COREMAP activities must become an integral part of village life and business, not a separate Project driven by outside agents.

#### **Lesson 5 – Project Management**

Phase I project management involved a Program Management Office (PMO), four separate international and national Technical Assistance (TA) teams to oversee different components, Provincial and District Pokjas (task forces) of government officers and local NGOs, and separate regional University/NGO groups contracted to undertake community organization, monitoring and research activities at each pilot site. Four donor agencies and the Government of Indonesia financed particular parts of the program, each with their own individual accounting, monitoring and reporting systems.

The involvement of several financing agencies, with different time frames and separate contractual agreements with GoI, has contributed to poor coordination of linked activities. In Phase II, budgeting and administration should be combined and streamlined; financing agencies must be concerned with COREMAP as a whole, rather than just their own parts, and must avoid the tendency to “micro-manage” and so undermine the Project management team.

Phase I management was constrained by PMO technical and management staff being seconded from their home institutions and only able to work part-time for COREMAP. Full-time dedicated PMO staff, with adequate pay and opportunities for career development, are required.

There were four TA teams in Phase I working on distinct components supported by different donors. Lessons for Phase II are to ensure integration and collaboration between consultants and Project staff; consultants should be contracted to work directly with executing and implementing agencies, and should work with designated counterpart staff in a capacity building, facilitating role to the project, providing expert advice and direction, and not take on a line management role, except as a temporary stop-gap.

Excessively long lines of management and a strongly hierarchical system of authorities hindered coordination and integration in Phase I. It will be important in Phase II to authorize teams at (i) District and (ii) Site/Village levels to exercise their own initiative and to manage, administer and finance activities with a reasonable degree of autonomy - both financial and technical.

### **Lesson 6 – Integrated Project Design**

The overall performance of COREMAP Phase I was hindered by a focus on separate sub-components rather than on being an integrated program. The design of Phase I designated Program Management, Capacity Building, Community Based Management, Monitoring, Control and Surveillance, Research and Monitoring, and Public Communications as components, although they do not have substantial self contained major objectives per se, and may be considered more appropriately as a means of implementation. The attention on these components was exacerbated by the project implementation arrangements, with components financed by different donors and managed by separately contracted and directed technical teams. To too great an extent, these individual “components” were designed and carried out separately in Phase I and this prevented a coordinated, comprehensive *process* approach.

The lesson is to implement Phase II as an integrated, single program of activities which are moving towards a set of shared objectives. There must be a single vision for COREMAP, shared by all stakeholders, and a common planning and monitoring framework across all components, donors and locations. Activities need to be better coordinated and synchronised. Specifically, the CBM component in Phase II must be developed to form the “core” of the COREMAP program, to be supported by the other components. Capacity building and management and enforcement activities, research and monitoring, public communications at pilot sites must all be directed to the same end, of enabling the local community to develop capacity, address its priority issues, identify options, and make informed decisions about the use and conservation of local resources including coral reefs. These concepts are reflected throughout the proposed COREMAP Phase II Program design.

### **Lesson 7 – Capacity Building**

A separate AusAID-funded component to identify and meet the training needs of COREMAP stakeholders ran for 4 years from April 2000 to March 2004. It was successful in providing a useful, diverse capacity building program to participants nationally and regionally at each of the Phase I locations. Compared to the other separate components, the “AusAID training coordination program” worked hard to be an integral part of the overall COREMAP program at each level, and this increased its effectiveness and value. The important lesson for COREMAP Phase II design is that, with reasonable resources and technical guidance, a capacity building program can serve as the principal support and mentoring facility for a complex, novel management initiative. Recognising that COREMAP is a broad, long-term program designed to devise and test new approaches to coral reef management, it is recommended that the training program be extended for the life of COREMAP to share learning about effective approaches and methods.

## **Lesson 8 – Community Based Management**

Community based management (CBM) of local coral reefs, within a supportive government framework, is intended to be the core of COREMAP. The Project aims to enable communities to design, implement, monitor and secure legal backing for reef management actions. A key lesson for all COREMAP stakeholders and other coastal community resource management projects is that it will take considerable commitment and time to bring about a new system of resource management and conservation that is centred on local village communities. The role of government implementing agencies and the attitudes of individual officials are clearly crucial. In Phase II, it will be important to re-affirm this core philosophy at all levels of management and to systematically strengthen (empower) the CBM component. Important elements include greater commitment to community empowerment in managing its resources, better participatory planning and management processes, attention to village institutions and building local capacity, and providing more assistance to diversify income generation and village development projects.

In Phase II, COREMAP must tackle the central issues of i) uncontrolled access and ii) over-exploitation of marine resources, with the goal of securing priority (ownership) rights over local marine resources for local communities. This process was initiated in Phase I. This will be a significant challenge, but will mark an important step away from the current “open access regime” which is contributing to increasing competition and conflicts between marine resource users, especially fishermen, and to the rapid and extensive degradation of inshore habitats and stocks. Concerted actions by District and national government agencies will be required, together with a clear commitment by local and national government to local community management of coastal marine resources.

The CBM process at village level should be strengthened in Phase II. At an early stage of engagement with the Project, the community must determine its main objectives and priorities, and use these as the basis for agreeing on a program of activities to be supported by COREMAP and by contributions from community members. The purpose of the Project is to provide the opportunity for the community to analyse the problems it faces and work towards the most feasible and appropriate long-term solutions.

The Project must be prepared to help communities to address their priority economic and social development needs. Successful conservation outcomes for COREMAP may mean ensuring that all resource uses are ecologically sustainable, in terms of sites, species and methods. Greater attention must be given to income generation activities in Phase II. The Project should invest in pilot projects, and assistance with feasibility studies, to help prepare a thicker portfolio of potential AIGAs.

The notion of Project support for an AIGA or village development grant in return for the community backing a reef conservation measure, such as the “Reef Sanctuaries” in Phase I, should be dropped. It does not engender community ownership of the conservation measure that is essential for its continuity. However, this “carrot and stick” approach remains in the WB Phase II project.

## **Lesson 9 – Monitoring, Control and Surveillance**

The COREMAP project design specified strong Monitoring, Control and Surveillance aimed at reducing destructive fishing, especially the use of explosives and poisons, illegal fishing such as trawling, and over-fishing. In Phase I pilot sites, there was a dual focus on (i) equipping marine enforcement agencies with modern fast boats, radios and radar monitoring bases and (ii) establishing village Reef Watchers as a local patrol service using more traditional boats and equipment (two way radios, binoculars). Both services were backed up with solid training.

An important lesson from Phase I is that development of a patrol or MCS function should be carried out as an integral part of developing the regulatory management system. Without that system, there are no

clear objectives for the MCS activity; a patrol is carried out as a “surveillance” activity only, with no clear target. This applies at either level, District or Village: there must be a formally endorsed set of regulations or local rules derived from a management plan for the area or specific resource. Area specific resource management plans, with restrictions on access and use, are the reason for conducting an MCS system.

For the Phase II Program, “MCS” will be considered as one set of tools to support a community’s local resource management plan, and the approach will be to design all elements together – human resources, training, technology, information management, legislation, etc. This forms part of both the Strategic District Management Plan and Site-level Management Plan.

The additional lesson for Phase II is that community-based management of marine resources must be complemented by a strengthened local government management regime. The proposed Project will provide direct support to improved management of marine and coastal resources by target District governments – covering policy, planning, regulation, enforcement, assessment, and monitoring.

### **Lesson 10 – Research, Information and Monitoring**

Phase I included support for a substantial program of socio-economic fisheries and reef-related research and monitoring, and establishment of information and monitoring systems to support management activities. Coral Reef Information and Training Centres (CRITCs) have been set up at the PMO, in each of the four provincial and district pilot offices but not yet at village site level. The aim in Phase II must be to strengthen this system by ensuring that it meets the needs of its priority users, the program management, but that its results are also available to the communities. The communities will require research and monitoring results to be better applied towards strengthening the management and sustainable use of coral reefs, their fisheries and the livelihoods of the people who depend on them.

During Phase II, the national CRITC unit should be turned into a national reference point for coral reef scientific information. Its role must be to collate and store data from across the country, and prepare series of reports and presentations that package the information in ways that are readily useful to “clients”, including policy-makers, planners, researchers, educational programs, and communities. A biennial national Score Card is proposed in the Project as one major tool for the national unit to produce and disseminate. A need for research to be applicable to management also exists at local level, among District managers, fishermen, extension staff, industry groups, and community organisations. Scientific data must be accessible and useful for guiding planning and management at each level of the program organization.

Monitoring has tended to be a stand-alone or off-line activity carried out by specialists and consultants. The lesson for Phase II is to ensure that monitoring of the reef resources, their condition, the fisheries, fisherman incomes, together with the performance of the Project itself, is more closely integrated with the management activities undertaken by individual project staff, offices and community groups engaged in the Project. Particular emphasis must be given to streamlining the system for monitoring, evaluating and reporting – providing feed-back – of progress and impacts of the COREMAP project itself. Participatory techniques should be employed so that local staff, partner groups, villagers and users of marine resources are themselves engaged in surveys and collection and analysis of data about their resources, the uses made and the impacts of policies for them to have full ownership and management of their resources.

### **Lesson 11 – Public Communications**

A major effort was made in Phase I to increase public support for coral reef management efforts, using advocacy, education and marketing both at local sites and among the wider public. The separate “component” organised national and regional communications campaigns and helped raise awareness about COREMAP, and conservation and management issues. Levels of coverage and impact were high.

It will be valuable to maintain this type of campaign throughout Phase II and III. COREMAP provides a significant opportunity to influence attitudes towards marine conservation and sustainable development generally, with particular focus on coral reefs and on the real challenges facing Indonesia's many thousands of isolated coastal communities who are heavily reliant on the continued health and productivity of their local reefs. The scale and cost of the program in Phase II should be – and has been – pared down, and should be more narrowly targeted, to deliver a few key messages, in the target districts, in other coral reef areas, in Jakarta and major Provincial centres, and to some extent internationally.

For Phase II, other aspects of the Communications program should be incorporated within the main component of management activities at District and Village site levels. The lesson is to use the variety of tools developed and now available under the COREMAP program in an integrated way. This applies particularly to work with village communities. Awareness raising, engagement, advocacy, capacity-building and participation in a community resource planning and management process are continuous steps that are linked under the “CBM component”. Training, communications and research are powerful tools that need to be applied in appropriate ways to the central business of facilitating community-based planning and management which includes necessary information to manage their resources sustainably.

## **HOW THESE LESSONS HAVE BEEN APPLIED IN COREMAP PHASE II**

### **Objectives and Scope of the Phase II Program**

The Phase II program's overall goals remain healthy coral reef ecosystems and prosperous coastal village communities. By the end of Phase II, it is intended that *economical, effective and replicable approaches and systems for achieving these dual goals will have been demonstrated to governments, local communities and reef resource users through pilot activities in a wide range of high priority coral reef regions across the country*. COREMAP Phase III, over a further six years, will expand and consolidate the wide-scale implementation and maintenance of these approaches and systems, with particular attention paid to the responsibilities, authorities and capacities of local, regional and national institutions.

COREMAP II is supported by GoI and three donors, ADB, WB and GEF, financing similar components in different parts of the country. There had been general agreement that greater integration should be achievable in Phase II through a unified project, single concept and approach and integrated budgets and procedures between donors. This has not taken place to the extent envisioned.

The purpose of the Phase II Project is to improve the condition of high priority coral reef areas, through community-based programs supported by strengthened local government institutions. Additional national components will support coordination of coral reef research and monitoring, training support, and public advocacy for coral reef conservation and sustainable use throughout the Indonesian archipelago.

The proposed Project components are (i) Institutional Strengthening and Project Management and (ii) Community based Resource Management and Development of local marine and coastal resources in high priority coral reef areas, particularly those with a high incidence of poverty among fishermen. The WB/GEF funds an additional component on (iii) Public Awareness, Education and Extension to promote behavioural change leading to the sustainable use of coral reefs.

### **Expansion Strategy – Geographic Scope of Phase II**

The two Projects will work in selected regions of western and eastern Indonesia. The central strategy for the Project is to **build capacity** for improved management of coral reefs in the target regions. This will involve activities in three distinct tiers – Province, District and Village – with a strong emphasis on a “bottom-up” approach. Thus the Project will work *intensively* with local coastal communities and

resource users at groups of villages in selected Core Sites within priority Districts, and *extensively* with government agencies and resource users to tackle broader issues across each target District. This will be more effective than in Phase I, which gave limited support to local governments and communities. The geographic scope of the two projects is profiled in Table I (WB) and Table II (ADB) below.

**Table I: Geographic Scope of WB COREMAP Phase II Project in Eastern Indonesia [3]**

| Province           | District   | Site        | Reef (km <sup>2</sup> ) | Reef Quality Index<br>1= poor, 4=pristine | Fishers |
|--------------------|------------|-------------|-------------------------|---|---------|
| S. Sulawesi        | Pangkep    | Spermonde   | 374                     | 1.8                                       | 35,000  |
| S. Sulawesi        | Selayar    | TBR         | 1,098                   | 2.0                                       | 18,100  |
| S.E. Sulawesi      | Buton      | Wakatobi    | 1,402                   | 1.6                                       | 60,700  |
| Papua              | Raja Ampat | Raja Ampat  | 1,300                   | 3.2                                       | 10,700  |
| East Nusa Tenggara | Sikka      | Maumere Bay | 128                     | 1.7                                       | 4,300   |

**Table II: Geographic Scope of ADB COREMAP Phase II Project in Western Indonesia [8]**

| Province      | Provisional District | Provisional Site            | Reef (km <sup>2</sup> ) | Coastal Villages | HH     | FDV   |
|---------------|----------------------|-----------------------------|-------------------------|------------------|--------|-------|
| Riau          | Kota Batam           | Galang Baru                 | 89                      | 7                | 2,160  | 6     |
|               |                      | North Lingga                | 31                      | 3                | 786    | 3     |
|               | Kepulauan Riau       | Senayang                    | 217                     | 5                | 3,280  | 5     |
|               |                      | Natuna                      | Bunguran Barat          | 210              | 4      | 2,370 |
| North Sumatra | Nias                 | Siantan                     | 49                      | 4                | 1,377  | 4     |
|               |                      | Lahewa or Kepulauan Sirombo | 30                      | 8                | 1,955  | 2     |
|               |                      | Pulau Pulau Batu            | 77                      | 10               | 1,093  | 8     |
| West Sumatra  | Tapanuli Tengah      | Kolang-Sibolga Lumut        | 30                      | 7                | 16,681 | 6     |
|               | Mentawai             | Siberut Selatan             | 38                      | 5                | 1,645  | 0     |
|               |                      | Sipora                      | 59                      | 3                | 611    | 0     |

HH = household, FDV = fishing dependent village

The ADB and WB Projects extend the COREMAP II program to 3 Provinces and 6 districts in western Indonesia and four provinces and 6 districts in eastern Indonesia. A three-stage procedure was used to determine (i) all broad Areas of Interest for coral reef management in the 7 Provinces, (ii) priority Districts the Project will target; and (iii) potential Core Sites for CBM work [8].

The CBM component of the Project will work at a manageable number of Core Sites, lying within the priority Districts. Each Core Site is a discrete geographic cluster of 5-10 villages containing a total of 1000-2000 households and adjacent to at least 1,000 hectares of reef habitats. 12 Sites were identified for Phase II as a manageable number and with regard to each Site's potential value as a pilot and demonstration site for COREMAP. Criteria used included coral reef area, condition, numbers of coastal villages and households, and feasibility of management, in terms of accessibility, likely community interest and potential demonstration value of the site. The selection process, criteria used and characteristics of the Districts and Core Sites identified are given in the Project Design Reports [3, 8].

### **Component 1: Institutional Strengthening and Project Management**

This component supports the strengthening of marine resource management and sustainable development nationally and in each region through development of government policy, guidelines, regulations and planning systems.

The Project will provide institutional strengthening support to target Districts with ecologically and economically significant coral reef resources. The strategy is to build capacity at District level to assess, plan and address priority issues affecting conservation and sustainable use of coral reefs and associated resources. Destructive fishing techniques, uncontrolled access to fishing areas, coral collecting, taking of endangered species, sand-mining, solid waste disposal, sewage, logging and clearing in adjacent watersheds are priority issues in parts of the selected target Districts. Poverty, lack of awareness and lack of alternative opportunities are important underlying factors which are addressed in Component 2.

*District Marine Strategy:* The Project will facilitate formulation of a Marine and Coastal Conservation & Development Strategy through participatory processes in each District, endorsed by stakeholders, and ratified by the District Council (DPRD) and District Mayor (Bupati). The Strategy will be used to confirm priority issues and stakeholders' needs, and to guide subsequent activity programs. It will be the basis for the development of a regulatory and policy framework for marine resource management in each target District as well as formulation of a marine resource use zoning scheme for each District.

*Pilot Development and Control Initiatives:* The Project strategy is to design and implement a set of pilot initiatives to address specific significant issues that are confronting coral reef management in Indonesia. The lessons from these pilots will provide models that can be transferred to other sites around the country. Technical assistance and funding for one or two pilot initiatives in each target District will be provided. Initiatives will be contracted to local partners or consortia. Each pilot initiative will have strong monitoring and evaluation components to ensure that lessons are shared with other Districts.

*Marine Management Areas & Marine Protected Areas:* Based on the District Marine Strategy, MMAs will be introduced as a broad marine and coastal resource management mechanism in each target District. In a series of progressive steps as the benefits of no-take zones become more widely accepted over time, they will build on the small area (5 – 40 ha) no-take zones set up in Phase I. The CBM program at Core Sites will extend into a co-management program with local government agencies, other stakeholders and adjacent communities. MMAs will provide groups of local communities with a means to deal with issues and users external to their communities. Management tools trialled will include an effective system for registering, licensing and monitoring users of resources within MMAs. Areas of MPAs and no-take zones will also be adopted. Marine reserves (MPAs) are most effective at increasing the long-term yields of over-fished species when they cover approximately 20 – 40% of the fishing area [13]. COREMAP has set an ambitious target of setting aside 10% of coral reefs in participating districts as marine reserves by 2010, 20% by 2020 and 30% by 2030 [3]. These reserves will be managed with the coastal communities.

A small, professional National Coordination Unit (NCU) will arrange block disbursements of funds against annual programs proposed by the regions. The NCU will guide, support and monitor implementation, provide consolidated reporting and evaluation, and ensure good liaison and exchange of experiences between Phase II Provinces. A national COREMAP Coral Reef Information and Training Centre (CRITC) will organise research, monitoring, information, communications and training programs, as the central hub of a program-wide network of regional CRITCs. A Project Implementation Unit and CRITC will be established in each target District. In conjunction with the Central CRITC, the regional CRITCs will provide technical direction and support to COREMAP programs at District and local Site levels. Regular guidance, and linkages to other national and regional programs, will be established.

## **Component 2: Community based Resource Management and Development**

Community resource management and development will form the core component of COREMAP Phase II. It will comprise four linked sub-components: (i) empowerment and institutional development; (ii) community resource management; (iii) village development; and (iv) sustainable livelihoods and income.

The CBM program will use training programs, workshops and technical advice to support a range of reef and inshore marine management initiatives by village groups, including (i) profiling marine resources, their uses and associated threats; (ii) cost effective measures to protect and rehabilitate local sites, specific habitats or species; (iii) actions to safeguard subsistence harvests and products so that livelihoods dependent on inshore marine areas and resources can be sustained.

Resource management plans will be developed and endorsed by the village governing body and District government. Management plans will ensure that priority local threats to reef health are controlled, local resources are allocated appropriately, and only approved uses are undertaken. Protective measures for special sites and species will be devised and introduced at each Core Site.

The Phase II Project will provide greater support for village and community development projects aimed at improving village facilities and living conditions in each of the participating villages. It will also aim to strengthen the sustainability of villagers' livelihoods by adapting existing income generating activities and initiating new sustainable AIGAs. The Project will work to improve access for participating villagers to affordable credit facilities. In addition, a series of pilot AIGAs will be funded and supported through the CBM program. For those who continue to fish, COREMAP Phase II aims to empower a sufficiently large number of fishermen communities to take effective control of the management of their resources to generate long term sustainable livelihoods.

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