BOBP

REP/85

Learnings of the Third Phase of the Bay of Bengal Programme for Coastal Fisheries Management, 1994-1999

INTEGRATED COASTAL FISHERIES MANAGEMENT

BOBP For Fisheries Management
BAY OF BENGAL PROGRAMME

BAY OF BENGAL PROGRAMME BOBP/REP/85

GCP/RAS/150/DEN, GCP/RAS/151/JPN, GCP/RAS/117/MUL

LEARNINGS OF THE THIRD PHASE OF THE BAY OF BENGAL PROGRAMME FOR COASTAL FISHERIES MANAGEMENT, 1994-1999

by G. L. Preston
Fisheries Consultant
Gillett, Preston and Associates Inc.

and Y. S. Yadava
Fisheries Development Commissioner
Government of India

BAY OF BENGAL PROGRAMME
Chennai, India
2000

<<

Preface

This report describes and documents the lessons and learnings from the Third Phase of the Bay of Bengal Programme for Coastal Fisheries Management (BOBP) (1994-1999). It was prepared by two consultants, Dr Garry Preston and Dr. Y.S. Yadava, who over a period of three months reviewed BOBP literature (including the work of national consultants who documented the learnings for each country), visited member countries and project sites, held discussions with national project coordinators and BOBP staff. The two consultants divided the member countries among themselves for project visits.

The report discusses the issues concerning coastal management in the light of the Programme's objectives and the lessons that emerged. The issues are discussed from the Programme's standpoint as well as the standpoint of member-countries. The consultants have outlined their conclusions and recommendations.

Appendices to the main report include summaries of the lessons from each country prepared by seven national consultants.

The BOBP is a multi-agency regional fisheries programme which covers seven countries around the Bay of Bengal Bangladesh, India, Indonesia, Malaysia, Maldives, SriLanka, Thailand . The Programme plays a catalytic and consultative role in developing coastal fisheries management in the Bay of Bengal to improve the conditions of small-scale fisherfolk in member-countries.

The BOBP is sponsored by the governments of Denmark and Japan . Member-governments of BOBP provide cash contributions. The executing agency is the Food and Agriculture Organization of the United Nations (FAO).

Abbreviations and acronyms

AFI	Aquaculture Foundation of India
ASFDC	Andaman Sea Fisheries Development Centre (Phuket. Thai land)
BFDA	Brackish Water Fish Farmers Development Agency (India)
BOB	Bay of Bengal
BOBP	Bay of Bengal Programme
BOBP2	The second phase (1988-1994) of the Bay of Bengal Programme
BOBP3	The third phase (1994-1999) of the Bay of Bengal Programme
C BFM	Community-based fisheries management
CCRF	Code of Conduct for Responsible Fisheries
CIBA	Central Institute of Brackishwater Aquaculture (Chennai, India)
CMFRI	Central Marine Fisheries Research Institute (Kochi, India)
CODEC	Community Development Centre (Ch ittagong, Bangladesh)
CPDC	Coastal Peace and Development Committee (Kanniyakumari District, Tamil Nadu)
CPUE	Catch per unit of effort
DFID	Department for International Development (United Kingdom)
DOF	Department of Fisheries
DOFM	Department of Fisheries Malaysia
DFAR	Department of Fisheries and Aquatic Resources (Sri Lanka)
ESBN	Estuarine set bag-net
FAO	Food and Agriculture Organization of the United Nations
FRI	Fisheries Research Institute (Bangladesh)
GEF	Global Environment Facility
GIS	Geographic Information System
MFARD	Ministry of Fisheries and Aquatic Resources Development (Sri Lanka)
MOFAMR	Ministry of Fisheries, Agriculture and Marine Resources (Maldives)
MOFL	Ministry of Fisheries and Livestock (Bangladesh)
MRC	Marine Research Centre (Maldives)
NARA	National Aquatic Resources Agency (Sri Lanka)
NGO	Non-government organisation
PA2FM	Precautionary approach to fisheries management
PNB	Phang Nga Bay (Thailand)
RAP	FAO Regional Office for Asia and the Pacific
RAKVK	Ramakrishna Ashram Krishi Vigyan Kendra (West Bengal, India)
TOR	Terms of reference

Foreword

The third phase of the BOBP (Bay of Bengal Programme for Coastal Fisheries Management) represented the FAO's first attempt to promote participatory management of coastal resources through a regional prograllime.

This document on the learnings of the BOBP's Third Phase is therefore important – for history, for coastal fisheries management, for the seven member-countries of BOBP, for other countries concerned with their coastal resources, for the FAO and other international agencies, for donors. The document compresses in 60-odd pages the work of five years of intense participatory effort initiated by the BOE3P and executed by member-countries with regular assistance and monitoring from the Programme.

Member-country cost-sharing was willingly shouldered by those countries that were able to do so. These "smart partnerships" brought immense satisfaction and pride to colleagues in the field.

While fisheries officials and decision-makers in the region are familiar with production-oriented effort (with projects to raise the catches and incomes of fisherfolk), management effort in small-scale fisheries has few precedeiits to go by. In particular, the stakeholder approach is quite new. It is based on identifying the stakeholders, getting them to analyse their problems, and holding joint discussions with groups of stakeholders to discuss possible management actions, initiatives and solutions. As the discussions went on, differences in the perceptions of problems narrowed, while agreements concerning aspirations and solution options increased.

Patience and persistence were needed for the process, as well as a spirit of conviction, and confidence in the spirit and the substance of the stakeholder approach to management.

I think substantial progress was achieved in raising awareness in every member-country about participatory management processes – which may be slower than traditional management processes but are safer, sounder and surer. Participatory management mechanisms were also put into place in every country. But as this report on the BOBP's learnings points out, more work is needed to actually implement management solutions. The closure of the Programme before it has a chance to carry forward its good work fails to do justice to the goals of fisheries management. It also severely impairs the morale of stakeholders and their confidence in participatory processes. The consultants have pointed this out very well.

I congratulate the two main authors ofthis report, as well as the seven national consultants, for the excellent job they did in studying the work done under the Programme arid extracting the lessons that emerged. I thank the member-countries for their co-operation and their commitment to coastal fisheries management. Together we came a long way. Hopefully, we will get further.

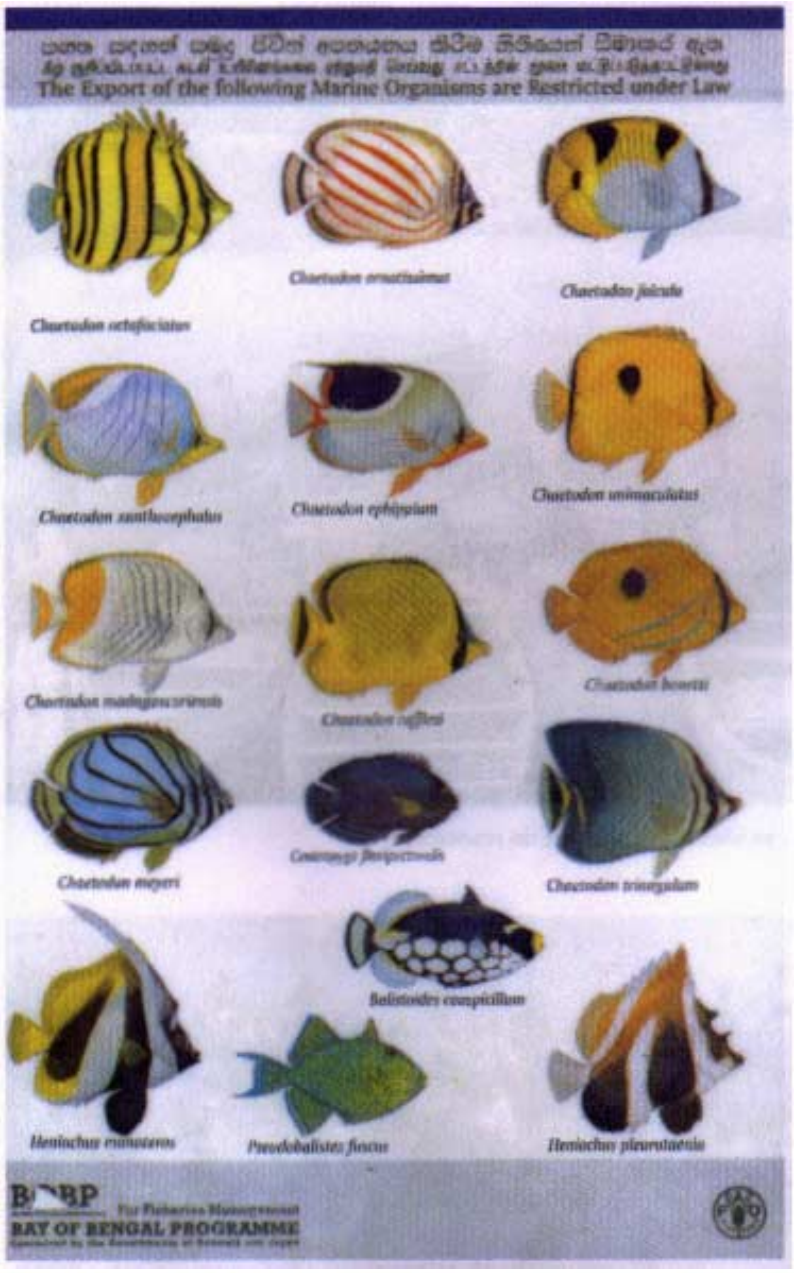
I would urge everyone cdncerned with coastal fisheries management in the BOBP member-countries and outside to pay attention to this report. I believe that reflecting on the report's conclusions and recommendations, and acting on them, is important if the process of participatory coastal resources management is to be carried forward.

Kee-Chai CHONG
Programme Co-ordinator / Senior Fisheries Management Adviser, BOBP

Contents

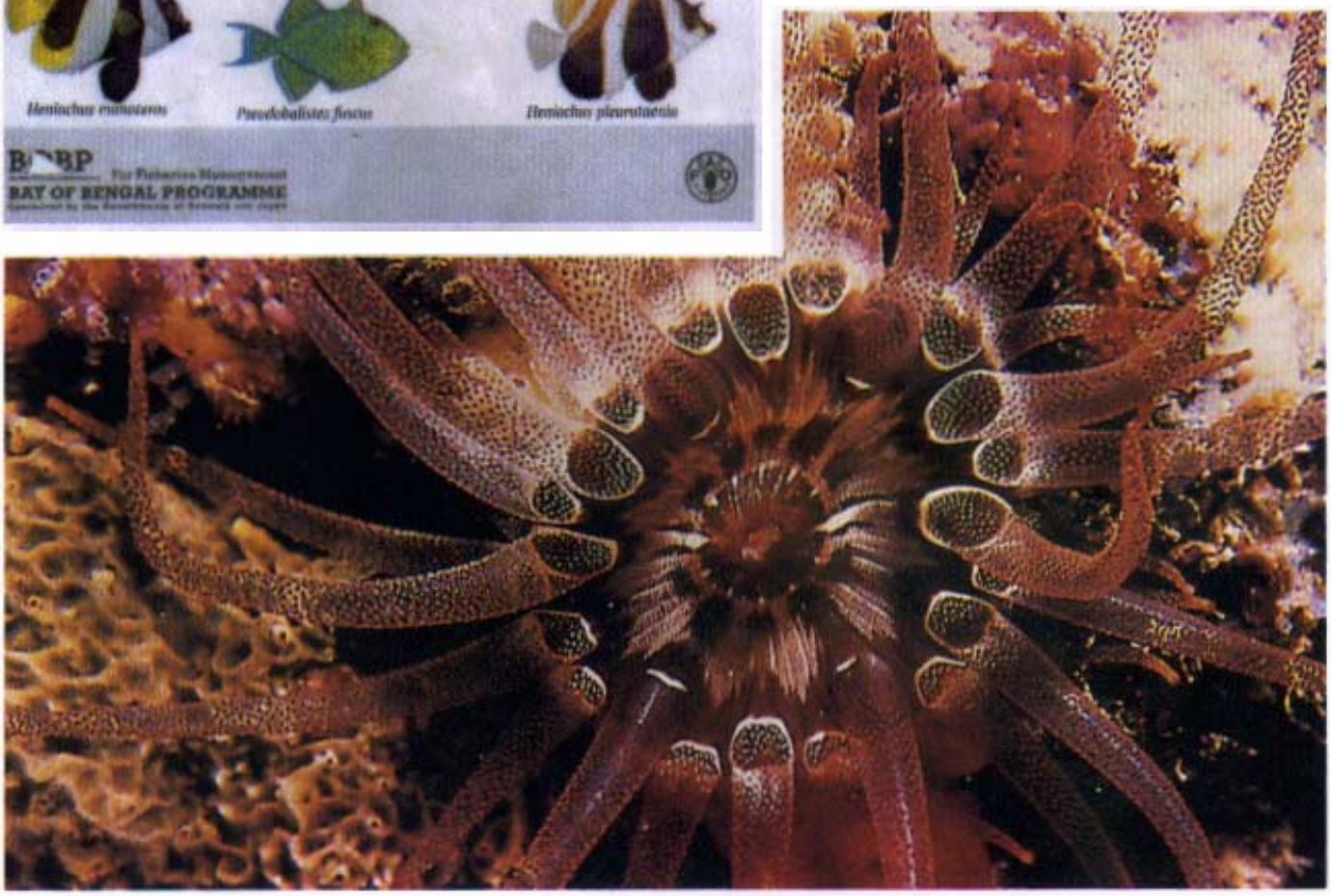
India: Fishing fleet at Chinnamuttom, Tamil Nadu, gives an idea of the pressure on resources.

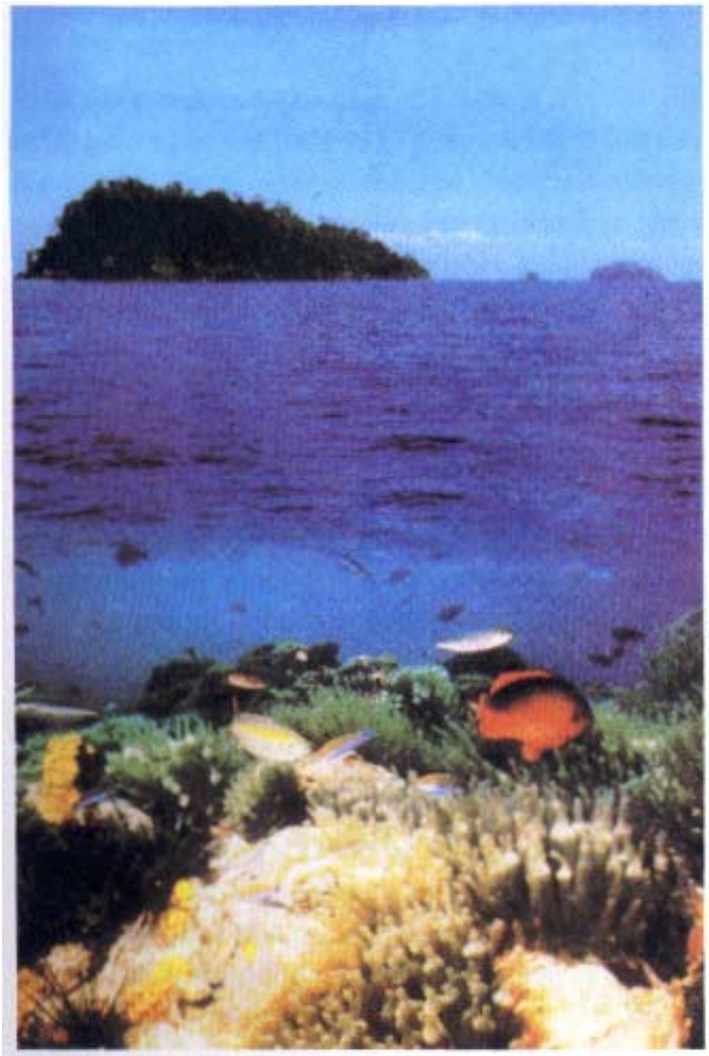
Bangladesh: Fisherfolk who depend on the resource-damaging setbagnet and push net fisheries need alternative livelihood options.



Sri Lanka : Laminated cards for identification of ornamental fish whose export is banned were printed. This was part of the BOBP-assisted pilot activity on conservation and management of the marine ornamental fishery.

Maldives: Integrated reef resources management was promoted through workshops, posters and publications.





Malaysia: The Pulau Payar Marine Park in Kcdah was developed as a model ***for*** a Special Area Management Plan (SAMP) that sought to integrate land and water management.

Thailand: Community-based fisheries management (CBFM) was successfully demonstrated in villages of Phang-Nga Bay.

Indonesia : The BOBP2 assisted pilot activity in Taipan Nauli Bay provided lessons in participatory fisheries management.

<<

1. EXECUTIVE SUMMARY

This report presents the findings ofa study of lessons learned during the implementation of the third phase of the Bay of Bengal Programme (BOBP3). For a period ofalmost five years the programme has focussed on raising awareness of the need for and benefits of fisheries management among coastal communities in the Bay of Bengal region, and helping to put in place the enabling processes and mechanisms needed to facilitate fisheries management. The purpose of the study was to assess what approaches and activities had been most (or least) successful, and distill the information gathered into a form that would be useful for those wishing to establish similar such programmes in the future.

In general the study found that BOBP3 had largely achieved its goals in terms of awareness-raising at various levels among resource users, coastal communities, fisheries managers, senior officials and even aid donors. However awareness has not always resulted in changes in behaviour. In some cases the introduction of participatory and consultative processes has led to the development and implementation of fishery management solutions. In others the solutions have been identified but for various reasons – usually lack of funds—have not been implemented, leading to feelings of frustration among those who have participated in the long and sometimes difficult management process. In yet other cases the process is still in its early stages and has not moved far enough along the track to enable management solutions to be identified. Part oftlie reason for this is that the establishment ofparticipatory management arrangements seems to be inherently time-consuming. However the process has been made slower still by the limited resources available to BOBP3. The programme could certainly have achieved considerably more with a greater complement of professional staff.

The operational approach taken by BOBP3 has been to establish pilot projects in each of its member-countries (four in India) and use these as opportunities to establish and try out the participatory process. Most BOBP3 member-countries place a high value on this approach, but most have also experienced difficulties in fully meeting their commitments to the projects. In general this is due to the novelty of BOBP3's work, which does not correspond closely to the activities traditionally undertaken by partner institutions in BOBP member-countries. However, the national projects have also suffered from cumbersome bureaucratic and administrative systems in member-countries, as well as from the failure of countries to follow up on commitments. Specific problems encountered have included: the inability of national project coordinators to dedicate sufficient time to BOBP3 activities due to conflicting duties and responsibilities; failure of governments to provide promised financial support; and the re-allocation of staff to other duties after they have been trained by BOBP3.

BOBP3 member-countries generally expressed satisfaction with the quality and high standard of the programme's work, and the progress made with the national projects, even where this was limited. They also placed a high value on the training activities carried out by the programme. However all of them commented on the programme's limited resources, which, in the view of most national officials, prevented sufficient contact and input at the country level. Some countries felt that BOBP3's activities should have extended beyond localised coastal management issues and into state- or national-level problems.

All of BOBP3's member-countries felt that, despite any shortcomings, the programme had been extremely valuable and should be renewed or continued, preferably with additional resources to enable a higher level of in-country activity. All agreed that the work of the programme has been innovative and valuable and is highly worthy of continuation due to the potential improvements the participatory approach can bring to management of the region's coastal fishery resources.

On the basis of these findings, the study concludes with a series of recommendations concerning the possibility of extending or renewing BOBP3. The recommendations draw attention to key issues that need to be addressed in formulating a replacement programme, so that the main shortcomings ofthe current programme are minimised in any future incarnation.

<<

The recommendations are summarised below.

FAO and member—countries of the BOBP should work together to identify funding mechanisms that will allow a continuation or renewal of the Programme.

Bridging funds, including unspent funds form the E3OBP3 budget, should be used to extend the present Programme, even if only at a skeletal level.

During this bridging period, the Programme should devote its resources to continued information sharing and dissemination (including the continuation of Bay of Bengal News), and to encouraging the setting up of refinement of coastal management regimes in those pilot projects where the most progress has been made.

During the preparation exercise for the proposed GEF-funded project (for Sustainable Management of the Bay of Bengal Large Marine Ecosystem), member-countries should explore the possibility of funding for a BOF3P follow-up Programme from the GEF project. Many countries are now committing national development resources to promoting participatory management of coastal resources. Incremental funding from the GEF project could be used to give a regional dimension to the various national-level activities being either planned or carried out.

Any new follow-up Programme should plan for more substantial resources than BOBP3 had available. The limited financial and human resources of BOBP3 were responsible for slowing progress and constraining achievement which otherwise would have been possible.

Any new follow-up Programme should not restrict itself to local-level interventions. Where possible, it should tap opportunities to encourage use of the participatory approach at higher national or policy levels in member-countries. This is because many BOBP member-countries believe that the Programme could have contributed usefully to national-scale and oceanic fishery management issues, besides operating pilot projects at specific locations.

Any future or follow-up Programme should move beyond the establishment of management processes (which was the focus of BOBP3). The delivery of management solutions should he formally embedded in the Programme's goals and objectives. This factor should be noted in terms of the funding requirements of the new Programme and the responsibilities of member-countries.

To overcome weakness in the execution of national projects experienced during BOBP3, any future Programme should establish a formal memorandum of agreement on each national project, laying down the responsibilities and inputs of every project partner.

Any future Programme should identify mechanisms whereby national project coordinators could be seconded to the Programme on a full-time basis. They would spend a substantial part of their time at the Programme headquarters, interact more extensively with Programme staff, and assume greater responsibility (including financial management) for Programme activities.

Any follow-up Programme should continue to work with both government and non-government agencies, and actively foster and encourage closer working relationships between both groups. In the implementation of BOBP3, a reluctance in working together was sometimes noticed among the two groups.

2. STUDY RATIONALE AND METHODOLOGY

2.1 Introduction

The present report was commissioned by the Food and Agriculture Organization of the United Nations (FAO) through its Bay of Bengal Programme (BOBP) in order to document the lessons learned during the process of implementing the BOBP third phase (BOBP3), which runs from April 1, 1994 to December 31, 1999.

2.2 BOBP

The Bay of Bengal Programme is a regional fisheries development activity which has operated since 1979 in its seven member countries (Bangladesh. India, Indonesia. Malaysia, Maldives, Sri Lanka and Thailand). The programme has been carried out in three distinct phases which, broadly speaking, concentrated respectively on fishing technology, fisheries extension, and coastal fisheries management. The first two phases focussed mainly on helping to increase fishery production, but during BOBP3 the programme shifted its emphasis towards the management of coastal resources. This was done through participatory approaches that were intended to increase the involvement of resource users and other stakeholders in the management process. While retaining its focus on coastal fisheries, the approach adopted in BOBP3 has also led the programme into non-fisheries areas that impact on the fisheries sector. These include aquaculture, coral and sand mining, tourism and other non-extractive marine-resource uses, and coastal pollution.

BOBP3 was designed as a 'process' project. Its aims, as articulated in the Project Document and elsewhere, were to put in place the *mechanisms* whereby coastal resource management could take place, rather than to achieve specific management goals'. This aspect of project design arose from the fact that, at the time of project formulation, fishery management in the Bay of Bengal (BOB) region was generally lacking or unsuccessful, which in itself was attributed to the absence of workable management mechanisms. Most of the region's management arrangements, where they existed, relied on a centralised, top-down approach based on the enforcement of fishery regulations. In general, however, even where management legislation or regulations were sufficiently developed, enforcement capacity was inadequate.

Meanwhile, more and more observations were accumulating of fishery resources that were clearly under threat from exploitation, pollution, coastal development, or other factors. Broad management targets were not overly difficult to formulate – arrest the decline of a certain fishery, resolve conflicts between user groups, reduce the incidence of deleterious activities but the absence of mechanisms whereby these goals could be achieved was very pronounced, and was perceived as a major obstacle to successful fishery management in the BOB region.

FAO's response in fornmlating the third phase of BOBP was to ask its member countries to identify key fishery management problem areas where BOBP assistance could be applied to support the estabTishment of management arrangements. As part of this process, each country undertook a 'situation analysis' which presented more or less detailed information on selected problem fisheries. The situation analyses were used to identify opportunities for UOBP intervention, which were then developed in partnership with national fishery agencies and, where appropriate, local government or non-government organisations. In each case the approach taken was to identify the various fishery stakeholders and their perceptions of the problems being encountered. This process was then developed to lead into the identification of solutions and, subsequently, of specific actions that each stakeholder group would need to take in order to achieve theni. In all cases, however, BOBP's primary goal was to establish and test the *process,* irrespective of

---

Ihe immediate objective of BOBP3 is Increased awareness and knowledge of the need. benefits and practices of fisheries management among institutions and people concerned at all levels and in all sectors of major relevance to marine fisheries and Loastal fishing communities.

the details of the particular management problem being addressed. Because of this approach, a great deal of reliance and responsibility was placed on the national-level partners when it came to implementing the management solutions that the process generated.

In promoting its national-level projects. BOBP adopted the method of selecting one site in each country where the participatory approach could be tried out, and designating this site as a 'pilot' activity. These pilot projects were designed as learning exercises, where the participatory approach could be put on trial and the results used to help improve the design of subsequent projects. However the pilot projects were iiot intended as tests or demonstrations in regard to the technical or technological aspects of fisheries management, and there was never any intention that a pilot project in one part of a country should serve as a model for replication elsewhere.

In terms of its financing and staff complement, BOBP3 is somewhat smaller than previous phases. The first two BOBP phases were both funded to the tune of about $11 million over their 5-year lives, but BOBP3 funding was $ 3 million over five years – a substantial decline even before taking into account the effects of inflation. The reduction in fundiiig availability may be partly associated with 'donor fatigue'. whereby aid agencies periodically refresh their policies or directions and tend not to fund what they perceive as 'the same activity' for more than a few years. In addition, the programme was affected by a tendency of donors to move away from project implementation through FAO. Finally, the development of BOBP3 coincided with a general shift in donor thinking away from fisheries production and towards sustainable utilisation and environmental management. 'Ihis in itself was prompted at least in part by direct observation of fishery overexploitation and the declining quality of coastal habitats in the BOB region.

BOBP3 is thus quite different in character from the previous two phases, and represents FAO's first attempt to promote the participatory management of coastal resources through a regional programme.

2.3 The Study

By documenting the lessons learned prior to the conclusion of BOBP3, FAO hopes to provide an assessment of the major issues affecting or arising from the programme's implementation, as well as to identify those avenues and interventions that had proven most (or least) successful or productive.

The present report was compiled in response to this requirement. and will be presented for consideration by BOBP3's Advisory Committee meeting in October 1999 (the last one to he held under present funding arrangements). In addition, it is hoped that the report will provide information that will be useful in the establishment of similar such programmes in future, either in the Bay of Bengal or elsewhere.

The study was carried out by a team of two consultants whose terms of reference (TOR) are shown in Appendix 1. The purpose of the study was not to undertake a 'classical' project evaluation, whereby results and achievements are compared to project objectives and work plans. Instead the consultants were to venture more widely, examining the technical, social, economic and environmental framework within which BOBP3 has been operating, and to consider the programme in this broader context. In addition to the formal TOR, BOBP staff also emphasised that the study should consider the mechanisms and procedures used by BOBP3 to implement its activities at the national level in member-countries.

The team spent a few days in initial consultations at BOBP headquarters in Chennai, and then about a month travelling to all BOBP member countries to discuss implementation of the programme with individuals who had been involved in it. The consultants followed slightly different itineraries, so not all country visits involved both members of the team. However, consultations were held in all BOBP member-countries by at least one team member. In some cases it was possible to visit field sites and hold talks directly with project beneficiaries. In others this was not feasible due to time constraints, logistical difficulties or the unavailability of national project personnel. Discussions in these cases were restricted to Government officials. After completion of the country visits a draft of the study report was compiled

at BOBP headquarters in Chennai during a I-week period at the end of July 1999, and reviewed by BOBP staff. The report was finalised by the consultants working from their home bases between August and October 1999.

Before the commencement of the study proper, BOBP engaged a national consultant in each member country to document learnings at the country level. The national consultants, who are listed in Appendix 2, were all individuals who had been closely involved in BOBP3 activities in the country concerned (sometimes former BOBP national coordinators). The national consultants worked according to the standardised TORs shown in Appendix 2. In most cases the national consultants' reports were completed before the commencement of the country visits. In others the reports were made available to the team on arrival in-country, or afterwards. Copies of these country reports are available from the E3OBP Secretariat. The study team is extremely grateful to the national consultants for their efforts in compiling this information.

One of the first tasks undertaken by the team was the development of an 'information framework', shown in Appendix 3, to ensure that all major issues were covered during the various discussions to be held. The information framework was used as an aide-memoire during meetings in order to guide the line ofdiscussion when necessary, and ensure coverage of the full range of issues that needed to be discussed.

2.4 Observations at the national level

For each of the countries visited, the study team prepared notes on the interviews and discussion held. These have been compiled into short reports which summarise the observations and views of the study team about the BOBP's work in its various member countries2. One team member took responsibility for documenting the discussions from each country. The areas of responsibility were:

G. L. Preston: Bangladesh, India (General, Tamil Nadu, West Bengal, Summary), Maldives, Sri Lanka;

Y. S. Yadava: India (Andhra Pradesh, Orissa, review of other sections on India), Indonesia, Malaysia, Thailand.

For the sake of clear organisation of the main report, the team's country summaries have been included as appendices to the present report. They document country-specific learnings or issues, as well as providing the basis for the discussion ofthe broader issues contained in Section 3. In the country summaries, every attempt has been made to avoid repeating information from other documents (in particular the reports by the national consultants participating in the study) except where this is essential to the discussion.

The individuals met by the study team came from many walks of life: they included government officials, research and extension workers, fish traders and businessmen, church leaders, commercial and artisanal fishers, dive tour operators, representatives of non-government organisations (NGOs), staff of international development agencies, and others. A full list of the people consulted in each country is shown at the end of each country summary. The wide range of opinions received through these interviews enabled the consultants to gather broad (and sometimes contradictory) views on the work of BOBP.

Fhe states of Orissa and Andhra Pradesh were not visited as part of the study, but one team member(Y.S. Yadava) is intimately familiar with BOBP work in these areas by virtue of his position as India's Commissioner for Fisheries I)evehopmcnt.

3. LESSONS AND ISSUES

3.1 General

This section of the report attempts to draw together the common threads that emerged from the study team's in-country discussions and document reviews. Extracting these themes has proven to be quite difficult because the countries themselves, as well as the range of activities in which BOBP3 has been involved, are very diverse. In addition, the opinions received from the various individuals consulted were sometimes at odds with each other, as indeed were the views of the two members of the study team in some cases.

Nevertheless there were a number of dominant or persistent themes that emerged from the discussions, as well as common or cross-cutting issues that were observed directly by the consultants themselves. In some cases the issues concerned were unanimous or universal, but for the most part the consultants have had to base their conclusions on a subset of what is essentially 'noisy' data. These are presented below, organised somewhat subjectively into categories of more or less linked issues, which are themselves inter-linked.

3.2 The participatory approach to coastal fisheries management

3.2.1 Participatory vs. centralised systems of fisheries management

The 'traditional' approach to fisheries management by national governments worldwide has typically been to establish fishery laws and regulations, which then had to be enforced. In most BOB countries this system has proved inadequate for the management of coastal fisheries, for many reasons. Fishery laws may have been inconsistent with current practices or with localised variations, may not have been understood or accepted by participants in the fishery, or may have been based on unsound, unfair or illogical principles. Local patterns of resource utilisation or management may have been subsumed by a desire to achieve coherent or consistent national fishery policies. However surveillance and enforcement of fishery regulations on a centralised basis is typically costly. In the case of artisanal or small-scale fisheries, enforcement may be infeasible or impossible due to the many thousands of fishing vessels involved and their scattered distribution among coastal bays, estuaries and islands.

The failure of the 'traditional' fisheries management approach may be interpreted as meaning that fishery regulation and enforcement is a flawed concept that is always doomed to failure. Participatory management implies the willing or voluntary co-operation of all stakeholder groups, and some proponents of the concept seem to believe that it will somehow be able to succeed in the absence of regulation and enforcement. In reality, however, there will always be some individual stakeholders who can profit from a management situation at the expense of others (including members of their own group), and it will always be necessary to devise fishery management regulations, and then enforce them. The issue is at what level and via what mechanisms the regulations are developed and the enforcement takes place.

Documents referring to fisheries management in the BOBP region frequently suggest that the participatory approach is being attempted because centralised methods have not been successful. This in itself implies that the participatory approach is a second choice, and that a centralised system of regulation and enforcement would be preferable, if only it could be made to work. In fact, many countries outside the BOB region have improved their centralised fishery management arrangements by incorporating systems of public review and comment into the development of management plans, by making fishery management agencies more accountable and requiring them to defend their decisions in public, and by giving stakeholders the opportunity to make legal challenges to fishery management rules they disagree with. Fundamentally, therefore, there is no incompatibility

between centrally-managed fishery systems and the participatory approach, and in many situations merging of the two has led to successful fishery management arrangements.

3.2.2 Intimation and maintenance of participatory management

Where participatory management has been initiated, it has almost always been the result of some sort ofcatalytic input, such as the advice or enthusiasni of a government, NGO or BOBP officer. Frequently a community or stakeholder group feels a need for management hut is unable to articulate that need without the assistance and support ofa particular spokesperson or representative. Once participatory management arrangements are under way, the iieed for these catalytic inputs is unlikely to disappear. After problems have been identified and articulated, the process of defining and implementing solutions, as well as simply maintaining cohesion among thie stakeholder groups, requires continued ongoing effort by someone willing and able to make available his or her time and energy.

The BOBP experience so far indicates that those cases where project activities have made most progress are those where the active inputs from government (in terms of man-hours of field time, rather than dollars spent) have been most intense. There will almost certainly have to be substantial ongoing maintenance efforts in each location where participatory management arrangements are being fostered. The more widespread such arrangements become, the greater will be the maintenance effort required. and the higher the costs, which wijI need to be shared in differing proportions between government and the other stakeholders.

3.2. 3 Costs and cost—effectiveness ofparticipatory management

It is sometimes stated that the cost of the participatory approach will be lower than the cost of more 'traditional' management based on centralised regulation and enforcement. Because participatory management typically involves resource users, communities and other stakeholders acting out oftheir own volition, there is sometimes the impression that management arrangements can somehow be developed which will be self-sustaining, without any obvious cost implications. However, an increase in the degree ofstakeholder participation is more likely to lead to an increase in the cost of establishing and maintaining fishery management arrangements. Government must cover the costs of staff time, training in participatory techniques, building awareness, studies to fill information gaps, convening numerous meetings and workshops, etc. These costs may or may not be recovered at a later time through increased compliance and a consequent reduction in enforcement costs, or indirectly, through benefits to the economy. In addition there is a price to be paid by other (non-government) stakeholders, such as the cost of attending meetings and workshops, opportunity cost to stakeholders of lost fishing or working time when participating in management meetings, etc.

The main advantage of the participatory approach is that it allows a more holistic view of fishery management since it involves all stakeholders, including those whose activities may impact on the fishery even if they themselves are not directly involved in it. Conversely, the approach also allows stakeholders to address issues that may not be fishery problems in the strict sense of the term, although they may affect the fishery (such as land-use practices in coastal areas). Traditionally, centralised fishery management systems have treated fisheries as if they are isolated from other sectors of the economy or the environment. This is not the case in reality, and the participatory approach recognises and adapts to this.

Nevertheless the true cost ofparticipatory management at the grass-roots level, as promoted by BOBP, may be higher than it appears. In most cases BOBP has dealt with small numbers of fishing communities which make up a small fraction ofthe total fishing population of each member country, and who are being helped to address an essentially localised management issue. In each case, however, developing the participatory approach has

taken several man-years of time by government and/ or NGO staff, backed up by BOBP's own inputs into processes which, for the most part, are still incomplete.

In almost all the areas where BOBP is working, the activities undertaken have involved just a handful of coastal villages. In addition to BOBP-sponsored work, there are now several community-based coastal management projects, some ofwhich are quite new, being supported *in* countries ofthe BOB region by bilateral or multilateral aid agencies. This indicates that some progress is being made in expanding the participatory management approach to larger areas. However, in each of the five or six projects encountered during the present study, several millions of dollars have been allocated in order to initiate management activities in relatively small areas or among a limited number of communities. When considered on a per capita basis, the costs of this process could be higher than those incurred through a centrally based management system. In the eyes of the proponents of participatory management, this additional cost is justified because the resulting management arrangements are more successful, hence the approach itself is more cost-effective. Nevertheless, it should not be imagined that participatory management is free, or even cheaper than existing arrangements.

The learning here is thus that the participatory approach may lead to more effective fishery management arrangements and better compliance. hut that the cost may not be any less, and could be greater, than the cost of setting up fishery management arrangements through a 'top-down' procedure. In addition, the further the participatory approach is taken down the scale to the grass-roots level, the more costly it becomes. Although participatory management at the grass-roots level is needed to address many local problems, participatory arrangements at a higher level maybe more appropriate for addressing larger-scale issues such as the management of land-based impacts on coastal resources. Where possible, therefore, it may he more cost-effective to adapt existing centralised fishery management systems to make them more participatory than to try to replace thiem on a wholesale basis with large numbers of locally-based fishery management schemes.

3.2.4 Technical interventions

BOBP3 has essentially been process-oriented, rather than goal-oriented, focussing on establishing dialogue and mechanisms for arriving at consensus, with participation as its foundation. (In fact BOBP3 has in effect generated the process itself as a part of programme implementation). The process approach was necessary in order to move towards the identification of problems, but it has become evident that once the process is in place, there is a need to complement it with more 'classical' goal-oriented activities.

In most of the locations visited, the participatory approach encouraged by BOBP had proceeded far enough to allow definition of fishery or coastal management problems and, often, the identification of solutions which almost always required some sort of technical or technological intervention. The nature of these interventions varied widely, and included: trials to investigate the potential for offshore fisheries development: construction ofsmall fishery harbours, landing sites or market houses: value-adding and marketing trials for fishery products (this was a very common requirement): deployment of fish aggregation devices; establishment of alternative income-generating activities of various kinds: construction of schools and health centres; vessel and gear buyback or replacement schemes: and various others.

In each case these solutions had been identified as a result of the participatory process, but in very few oftheni was there any prospect of the required technical intervention actually taking place, mainly due to the absence of any obvious source of funding to finance it. In one or two cases the national or state fisheries agency has, with BOBP assistance, prepared funding proposals to government or to aid donors to try to implement some of the interventions identified, but even here there is no certainty that the requested funding will he approved. In some cases this situation has led to a feeling of frustration among the stakeholders, and even of resentment that they have been led through a long and sometimes difficult process in order to identify solutions which they now find

they have no means of' implementing. In fact this situation may be a result of BOBP's aims being different from those of its member-countries. As noted earlier, BOBP's main objective has been to develop and put in place the management *process,* rather than to achieve specific management targets, but achievement of targets may have been more in line with the expectations of the member-countries.

The learning here is that the participatory approach will not on its own solve coastal management problems or put management arrangements in place. It may identify the solutions to problems, but implementing those solutions may require significant additional financial commitments and, perhaps, specialised technical expertise. If there is a reasonable expectation that financial and technical inputs might become available at an appropriate stage in the participatory process, there is a much greater chance that the process will lead to the fishery management solutions it is intended to produce. However, if it is clear from the outset that there is no prospect of such financial and technical inputs being realised, then embarking on the participatory management process may only raise expectations and lead to disillusionment on the part of the stakeholders.

3.2.5 Expected results offishery management

The need for fisheries management is becoming recognised in many of the countries visited by the study team, but no one articulated a clear statement of what the fishery management objectives are at national, state or local levels. Fisheries management can take many forms and would normally be determined by the economic, social and biological management goals, which might include: maximising revenue from the fishery; maximising fishery production; maximising the economic efficiency of the fishery; maximising the earnings of each fishing unit; distributing the earnings from the fishery as widely as possible; providing cheap protein to consumers; generating foreign exchange; etc., etc. However, the only management aim mentioned during the study was a broadly stated wish to exploit the resources as fully as possible, but without causing over-exploitation.

In the minds of many of the people interviewed, over-exploitation is symbolised by declining catch per unit of effort (CPUE). From there the logical extension is that if management arrangements are put in place, CPUE will increase. At many of the sites visited by the study team there were strong expectations that CPUE would increase as a result of participatory management. However, there are several reasons why this may not happen:

Fishery resources may extend beyond the boundaries of the area covered by the participatory management arrangements in question. In such a case the activities of other fishermen would affect trends in CPUE;

Falling CPUE is the normal response of a fishery to increased fishing effort. When a fishery is being exploited at a level which maximises biological productivity, or turnover, the CPUE will be substantially lower than in a fishery which is being exploited at low levels of effort. Depending on the goals and mechanisms of fishery management, therefore, management may not result in increased CPUE (although there may be other benefits, such as improvements in the profitability of fishing operations);

Management may slow down the rate at which a fishery is degrading, but may not actually turn it around to create an improvement. Under such circumstances CPUE might stabilise, or might decline more slowly than it otherwise would have done in the absence of management, but no CPUE increase would be observed.

In such circumstances, the enthusiasm for participatory management might diminish if anticipated increases in CPUE failed to materialise after a certain period of time. It is therefore important during participatory management exercises to make sure that participants do not have unrealistic expectations of the benefits that fishery management might be able to deliver in terms of increased production or CPUE. Another area where unrealistic expectations need to be avoided is in regard to resource enhancement, specifically through the release ofjuveniles for restocking purposes, and through the deployment of artificial reefs, both of which have been carried out or are planned in the framework of BOBP-sponsored activities:

- Juvenile restocking programmes for marine resources have been demonstrated to have an impact on natural populations only in highly specialised circumstances, such as where certain stages of the organism's life cycle have special habitat or other requirements that are absent in the release area. In most cases, however, mortality of marine organisms is very high in the early life stages, so huge numbers ofjuveniIes need to be released to make a detectable impact on the fishery;

- Similarly, artificial reefs need to be extensive and to create large areas of new habitat if they are to generate a significant increase in the biomass of most marine organisms. They are, however, often effective in aggregating together the fish or other resources already present in the area, making them more catchable and giving the impression of greater productivity around the reef. The net result is that fishermen are able to exploit existing resources more efficiently, and drive down stock levels still further.

  Both of these techniques may result in resource enhancement in certain specific circumstances, but as a general rule no real enhancement will be observed.

  There are nevertheless other benefits that have nothing to do with resource enhancement, but which may justify their use. For example, the ceremonious public release of shrimp juveniles has been carried out in one BOBP project in an attempt to raise public awareness ofthe need for resource management, but without any real expectation that the released juveniles will contribute significantly to the wild population. In other areas FADs have been deployed with the main aim of preventing the operation of trawl nets, with the supposed resource enhancement effect being very much a secondary consideration. In these cases the expectations of the benefits that resource enhancement techniques can offer have been realistic.

3.3 BOBP

3.3.1 Programme goals

BOBP staff typically divides the process of developing and putting in place participatory management arrangements into six phases, although with some overlaps:

i) problem identification (determining the geographic and socio-economic boundaries of the problem in question);

ii) stakeholder identification (establishing the roles of the various players)

iii) stakeholder analysis (understanding the stakeholders, one by one);

iv) problem analysis (encouraging one player to see things from another's viewpoint);

v) stakeholder consultations and negotiations (identifying the benefits of management to each group, agreeing on actions and initiatives, and making commitments);

vi) adoption and implementation of a management plan.

Stage (vi), identified as the last phase, is in fact not really the end of the process, because management plans need to be maintained and periodically reviewed in response to changing circumstances. Because ofthe constant need for revision and renewal of management arrangements, as well as the grey area between 'adoption' and 'implementation' ofa management plan, it can be difficult to even identify whether stage (vi) has actually been reached or not.

In general, one may regard this stage has been reached in, at most, two of the BOBP3 project sites. In most cases, however, the process is still at or before stage (v), which is when talking should start translating into action, commitments and sacrifices are needed, and costs begin to be incurred. In some cases stakeholders have

begun to take specific, concrete management actions in response to the problems identified as a result of BOBP's interventions. For the most part, however, the process is still somewhere in the preparatory or 'talking' stage.

As noted earlier, BOBP is a process activity, which concerns itself primarily with putting in place procedures whereby management decisions can be made and implemented. BOBP's goals are defined in terms of awareness-raising and the establishment of participatory mechanisms, rather than in terms of delivering specified management outputs or solutions. These latter elements are considered to fall more in the area of responsibility of the national counterpart agencies or local bodies.

Technically speaking, it can be said that BOBP has achieved its primary objectives in most of the sites where it has worked. In all cases there is a clearly increased consciousness of the need for and benefits of management among fishery stakeholders. In many cases participatory management mechanisms have been established and are now operating with only limited BOBP intervention. Whether these arrangements will be sustainable in the absence of continued BOBP support is debatable: the study team's consultations indicated that country representatives were divided on this question.

Nevertheless it is unsatisfying to note that in most cases BOBP's interventions have not yet led to the achievement of actual management targets. or to significant changes in behaviour among fishery stakeholders. Although awareness may have been raised and consultative mechanisms established, BOBP3's impact has not been deep enough to carry the process far enough forward to arrive at the management solutions that the participatory process has identified. This in itself suggests that the goals of the programme may have been focussed too heavily on the establishment of processes, while the achievement of actual management targets was assumed as something which would follow naturally. Experience now indicates that the management process and the management output are equally important, and should perhaps be given a more balanced emphasis in project design.

3.3.2 Human and financial resources

BOBP3's budget has been US$ 3 million spread over 5 years, or $600,000/ year on average. This has covered the cost of the Programme's two (increased to three for a 2-year period) full-time international professional staff who undertake travel to member countries in support of national activities, as well as organising and running international activities (meetings, workshops and training courses). The programme is also supported by an Information Officer (full-time for the past year, part-time prior to that) who, among other things. prepares the BOBP Newsletter; by a part-time documentalist; and by 3-4 administrative staff. In addition, two FAO Associate Professional Officers (APOs) have been attached to the Programme between 1997 (Oct) and 1999 (Jan), and short-term consultants have sometimes been engaged to assist with specific activities.

BOBP's member-countries were unanimous in their praise of the calibre of advice, inputs and technical support provided by BOBP's core staff. Similar comments were made about the inputs of consultants, whose work was generally considered to be of a high professional standard. However, all the countries noted that the small size and limited financial resources of the programme restricted the amount of assistance that BOBP could provide them with. Visits by professional staff have tended to be shorter and less frequent than member-countries would have wished, and there was some suggestion that in-country project activities may sometimes have been delayed due to non-availability of Programme staff or funds. There was also some comment that consultant assignments were often too short, or did not involve enough repeat visits to reinforce training or follow up on technical developments.

In an early BOBP3 planning meeting it was explained to member countries that after deducting base costs (staff salaries, travel, etc.), the Programme's operational budget translated into the equivalent of about $30,000 per

country per year. This information was presented for illustrative purposes but unfortunately has been latched on to by many countries, who have interpreted it to mean that they are entitled to receive an annual budgetary allocation of $30,000 from BOBP to support national-level activities. There were various complaints during the mission that these funds had not been forthcoming, and that BOBP in general was not 'generous' enough arid attached too many strings and controls to the financial support it did provide. In general BOBP's national counterparts wished that BOBP funds could be accessed more freely and easily and that they could have more direct control over how the funds were spent.

In fact there has never been any firm commitment or policy by BOBP to allocate a fixed amount of financial support to each country. The operational budget is used to cover both international arid national activities on the basis of need, progress in project implementation, local cost considerations, etc. It is quite possible for one country to receive more than its 'fair share' of funding support from BOBP simply by carrying out numerous project-related activities -- or, less constructively, by restricting its own counterpart funding contributions. On the other hand, BOBP staff consider that achievement in national projects is unrelated to expenditure: the activity which BOBP staff consider to be the most successful is the one where the Programme has spent the least, while expenditure is the highest in another country where it is perceived that only limited progress has been made. In general, the success of national projects appears to depend much more on the motivation and drive of one or two key individuals than it does on the amount of money spent.

3.3.3 Time-frame

Part of the reason most BOBP projects may not have moved far enough along the path to delivery of management results is the large number of tiny steps needed to develop and put in place participatory management arrangements. In each case there is an extensive process of: training government and other staff in the procedures to be used: identifying who the stakeholders are, and bringing them together; working through the various problems and issues involved; carrying out studies to fill information gaps: and gradually moving from the point of understanding the solutions to the problems encountered, towards initiating concrete actions on the part of' the various players. By its nature, the process of instituting participatory management is inherently time-consuming.

In the case of BOBP3 the process may have been slowed further by the relatively limited human and financial resources available to the programme on the one hand, and to national counterpart agencies on the other. In general it seems that progress in BOBP3-sponsored activities is greatly boosted during periods of contact between BOBP and national staff, and tends to die back in between. Because of the small number of BOBP staff, contact periods in any given country have tended to be short and infrequent and this has had consequences for the rate of progress of project activities. If the programme had had more staff and been able to achieve more contact time with national counterparts, it may have been possible to carry the management process further in more countries. Conversely, at present staffing levels, it seems that the programme time-scale was too short for BOBP3 to deliver management results in most of the situations where it has been working.

Technically, BOBP3 has now been operating for four-and-a-half years. However, the first year or so was spent on situation analyses, defining the programme's role, and agreeing with national agencies on financial and operational issues. BOBP's member countries are unanimous in their view that BOBP3's real inputs should be dated from the time that in-country activity commenced. Depending on the country concerned, this was between 12 and 18 months after BOBP3's official commencement date. By this calculation (which may not be entirely justified, since situation analysis and the establishment of working practices are both essential precursors to the commencement of field work) BOBP has been actively supporting in-country activities for 3-3.5 years.

It is not clear whether the time—frame required for the establishment of participatory fishery management arrangements was fully appreciated at the time that BOBP3 was put in place. However, a major lesson from the programme is that, at least in the absence ofmore substantial human and financial resources, the 5-year programme time-scale is unlikely to allow completion of the process, arid a longer time horizon is needed.

3.3.4 *Awareness—raising*

BOBP has had a strong impact in raising avvareness about fisheries and coastal management issues, and the need for management. In many countries there has been a line of thinking that fisheries are an inexhaustible source of production which caii continue to be increased without restraint. While this thinking still persists at all levels, including among fishermen themselves, it is beginning to be replaced by a recognition that marine resources are not infinite arid that management is required if economic arid other benefits from fisheries are to be optimised.

Most of' the individuals interviewed during the study were coniiected to BOBP3 in one way or another, and were thus highly conscious both of the need for fisheries management arid of the value of the participatory approach. Many had been exposed through BOBP to the precautionary approach to fisheries management (PA2FM), and to FAO's Code of Conduct for Responsible Fisheries (CCRF), and were supportive of both.

It was difficult to judge to what extent the fisheries management message had diffused beyond this core group, which mostly comprised senior and middle level officials. In general. however, the interviewees indicated that there was a change in attitudes of at least a proportion of the individuals employed in government fisheries agencies at state and national levels. This attitudinal change is fundamental to instilling a culture of fisheries management, and is often undervalued by those who take environmentally responsible or informed attitudes for granted. One of BOBP's major achievements is that the Programme has been successful in creating a core group of fishery officers, especially at the senior and middle level in each member-country, who are informed about and committed to improving fisheries management

Although it seems that recognition of the need for management has begun to be embedded, the definition of what constitutes 'participatory' management varies widely among the countries visited. In some cases the concept of stakeholder consultation and their involvement in the identification of problems and solutions has been taken on board and implemented. In others, the understanding ofstakeholder participation seems to be that the stakeholders participate in a meeting where they will be told what to do by government. In one location the stakeholders were identified as various government departments and research centres, but not the actual users of the resource.

It should also be emphasised that there is a big difference between being aware of the need for fisheries management, arid managing fisheries. Many smokers are aware that smoking is bad for them but this awareness may be insufficient to lead to a change in their behaviour. While BOBP's awareness-raising work is important, it is only a first step in the process of moving towards management ofthe region's coastal resources. As mentioned earlier, so far the time has been too short for anything other than limited actual management action.

3.3.5 *Information dissemination*

The team niade a particular effort to assess the value that BOBP member- countries attached to the Programme's information activities, because a mid-term review of BOBP3 had suggested that the Programme was placing too much emphasis **on** these aspects. Most of BOBP's member countries spoke highly ofthe information activities, in particular the Newsletter, *Bay of Bengal* News, which is the main channel for information-sharing about activities in member-countries. Where interviewees claimed ignorance of BOBP activities in other countries,

this was felt by the study team to reflect lack of individual interest, rather than lack of access to information. In some cases BOBP Newsletter articles had been translated into indigenous languages for local dissemination. BOBP posters were seen in many ofthe locations that the study team visited, from community halls to government offices, and the general consensus was that these too were useful in transmitting and maintaining fisheries management awareness.

National counterparts also attached great value to local-language materials whose production BOBP had supported. By necessity these were usually specific to the site or locality in question, although in certain cases (for instance, some of the leaflets and brochures produced about shrimp aquaculture nianagement) materials produced in one country or language could probably have been transferred fairly easily to another. Most countries stated that there would have been potential for BOBP3 to increase its support to the production of local-level information materials, if financial and human resources had permitted.

3.3.6 *Gender* issues

Unlike the first two phases ofBOBP, where a range of activities were developed specifically to benefit women, BOBP3 has not targeted women directly. Indeed the study team noted the almost total absence of women during its consultations with stakeholders in the various countries visited. Apart from a handful of government representatives, there was little direct input by women into the findings ofthe study. This appears to be reflective of BOBP as a whole: in general, women do not feature prominently in the participatory management process.

There are several reasons for this. Some ofBOBP's project sites are predominantly Muslim, and women appear to be largely excluded from the participatory process for cultural reasons. More significant, however, is the fact that most of the sites where BOBP is working are dominated by male fishers who assume the role of primary stakeholders in the participatory process. In most cases women, whose role tends to be in the processing and marketing of fish, are not viewed as stakeholders in their own right. If and when the participatory process reaches stage (vi), i.e. the identification and implementation of management solutions, it would be expected that women would beconie more directly involved in the process, since many ofthe fishery management solutions identified involve post-harvest activities. Similarly, if BOBP had been a needs-based Programme - i.e. one intended to respond directly to the social and economic needs of fisherfolk communities - then women would have been expected to figure far more prominently (as indeed was the case in the first and second phases). As a programme aimed at developing participatory processes, however, BOBP has rarely identified women as principal stakeholders in the development of fishery management arrangements.

3.3. 7 *Addressing large-scale issues*

rhe work in which BOBP has been involved has tended to take place on a relatively small-scale--that of one or several communities scattered along a coastline, around a bay or on an island. In such cases the communities, if acting in a consistent and coordinated manner, may be able to exercise a certain degree of control over local activities that impinge on marine resources.

On a larger scale, however, there are development activities that are beyond the control or even influence of coastal communities, but which will have a major impact on coastal resources. These are usually land-based (deforestation and watershed modification causing increased sediment loads in coastal waters, coastal eutrophication and toxicity resulting from the use of agro-chemicals, marine pollution from urban sewage and waste disposal, etc.) but may also be sea-based (oil spills, foreign fishing, pollution from ships, etc.). If such activities are allowed to proceed in an uncontrolled way, the resulting degradation of coastal waters and detrimental impacts on marine resources may outweigh any benefits gained from locally-based management initiatives, no matter how successful these may be.

In addition to operating at the community level, therefore, there is also a need to put in place environmental or coastal zone nianagement initiatives at a higher level. This is being done more effectively in some BOBP member-countries than in others, usually by state or national governments. The involvement of BOBP in this higher-level work so far has been limited. In several of the countries visited it was suggested that it would have been useful if BOBP had been mandated to assist national or state governments with the formulation of broad coastal management policies or plans. This is particularly the case in countries where state or provincial governments have responsibility for these issues, since they tend to be less well-endowed with technical expertise than the national governments. One country also suggested that it would have liked BOBP to provide assistance with EEZ management arrangements.

3.3.8 Regional approach

During the study, all countries were asked to consider the relative benefits of dealing with coastal management issues through a regional programme such as BOBP3, rather than through dedicated national programmes. The countries were unanimous in stating that, while most coastal management issues needed to be addressed on a local, state or national basis, the regional dimension added by BOBP has been extremely valuable. Specific benefits mentioned included: the relative ease with which specialised advice and expertise could be obtained; the attention given to information-sharing (both through BOBP's information dissemination activities, and through the opportunities for personal contact afforded by the various BOBP workshops and meetings); and the moral support and 'sense of pride' attached to working in partnership with an international programme. This last issue was raised at all levels, from senior government to fishing communities. All participants seemed to be conscious of the fact that, by working within BOBP-sponsored initiatives, they were 'on show' to other countries, and thus (in theory at least) motivated to better performance.

Despite the apparent satisfaction with the regional dimension of the programme, there was little specific comment on BOBP's regional-level activities other than in regard to the Programme's information dissemination work. The various meetings, workshops and similar activities that BOBP has carried out at a regional level are viewed as a necessary adjunct to the national-level projects that are the main preoccupation of most of the individuals consulted. All the comments received about BOBP's national level training courses, and about such activities as workshops on the Code of Conduct for Responsible Fisheries, were very positive, and were always made in the context of their application to national problems and issues.

3.3.9 Advocacy and leverage

The value of BOBP's advocacy role was emphasised in a number of countries. BOBP's endorsement of a fisheries management initiative or proposal lends it credibility in the eyes of both fishery stakeholders and government decision-makers, which it may not have if put forward by a national or state fisheries body alone, Examples were cited where funding proposals had been approved by central governments or international agencies. which it was said would have been rejected if they had not had BOBP's endorsement. In this sense the funds spent on BOBP3 might be said to have a multiplier effect by permitting the leverage of additional funds from other sources.

In terms of its national-level activities, BOBP has in some cases supplanted the national or local fisheries agency by taking the lead role in an initiative that is not really viewed by the stakeholders as having come from the agency concerned. In most cases, however, BOBP has legitimised activities which fisheries agencies have wanted to carry out but have been previously unable to address because their broad mandate has been focussed on fisheries development (generally meaning increasing production) rather than management.

At the other end of the spectrum, it was pointed out that the commitment of coastal communities and perhaps other stakeholders to participatory management activities was greatly enhanced when the stakeholders believed that, through BOBP, the success of their efforts was being observed and judged in other countries. This was particularly the case when the communities were exposed to visits by BOBP staffand consultants, or individuals froni other BOBP countries undertaking study tours. Essentially, BOBP provides a mechanism whereby national-level efforts can be put on display to the international fisheries community, arid this has a generally positive effect on stakeholder motivation, commitment and performance.

3.4 BOBP member-countries

3.4.1 Financial resources

In most of the countries visited, national project activities had suffered from lack of local funding or, in some cases, difficulties in accessing that funding in a timely manner. This is one of the reasons why many BOBP counterpart staffwere disappointed that BOBP3's own funding allocations were less generous and more difficult to access than they had hoped (see Section 4.3.2).

In a couple of cases the BOBP national coordinators had been able to solve the problems of accessing local funds and now had in place workable systems. In most cases, however, national coordinators still have considerable difficulty in obtaining approval to spend government funds on BOBP-related activities, even where, technically, these have been allocated for this purpose. A difficulty experienced in several countries is that BOBP's activities are somewhat unconventional and not in line with usual fisheries agency activities. As a result they do not always easily fit into any established budget category or allocation.

On the other hand, there is always the risk that funds, whether from government or from BOBP, could be abused. This of course is the underlying reason for many of the government financial control procedures that BOBP's national counterparts have found so obstructive. The difficulty that arises is that in genuine cases of need, project activities may be delayed or cancelled because the national project coordinator cannot access either BOBP or local funds, even though both may be technically available.

There is thus a need for BOBP to be vigilant on this issue, to remain in close contact with national counterpart staff, and to try to ensure that financial control procedures on either side are not so inflexible that they interfere with the work programme. In future such exercises, there may be merit in establishing more formal memoranda of understanding or similar control instruments which lay down the contributions, responsibilities and operational arrangements of each partner in regard to the project.

3.4.2 Human resources

BOBP's *modus operandi* for national execution has been to agree with the partner agency in each country on the selection ofa national BOBP coordinator who will take responsibility for liaison with BOBP, coordination ofactivities in-country, and management of inputs from the national side. This arrangement places a large share of the responsibility for BOBP outputs in the hands of the national government, and may thus help generate a sense of ownership of the national activities undertaken. However, there are also some inherent weaknesses, the most important of which is that the individual nominated as BOBP coordinator is almost always expected to take on BOBP-related duties in addition to his or her existing workload, and so may be unable to dedicate as much time to BOBP activities as they really need. There is no doubt that this situation has led to delays in the iniplementation of BOBP activities at the national level.

As noted above, a better arrangement might have been thie establishment of a formal memorandum of understanding between BOBP and each of its member-countries. Such an agreement would lay down financial arid managerial respnsibilities, and would also make it easier for member-countries to make – and follow through on – commitments such as allocation of staff or financial resources.

The participatory management approach generally requires the government officers involved to dedicate a substantial amount of time to travel and field work, often outside normal working hours. This has led to difficulties in certain cases, where officers have been either unwilling to work in this way, or have expected additional financial recompense for which there is no government provision. In some cases BOBP has had to pay travelling allowances to government officers in order to induce them to go into the field.

Further weaknesses in the present national-level implementation arrangements relate to government procedures concerning staff rotation. BOBP3's operational philosophy is that its activities should support the development of national capacity in each of its member-countries to effectively manage coastal resources through a process-oriented approach. Since government is the body that has ultimate responsibility for resource management, the Programme's capacity-building efforts have been concentrated there, with all BOBP's projects being carried out in partnership with national or state government agencies. Where appropriate other partners, such as NGOs or the private sector, may also be involved. Each of BOBP3's national-level projects has been the focus of a major training effort aimed at introducing participatory and consultative approaches to dealing with fishery stakeholders. The staff of the participating government departments and various partner organisations are the main direct recipients of BOBP3 training activities.

Unfortunately. niany of the individuals trained, especially those in government fishery agencies, have subsequently been transferred to other work areas. In some BOBP member-countries, staff are regularly transferred between posts. sometimes in distant locations, so BOBP may lose an experienced coordinator and gain someone who has to go through a learning process before becoming effective, thus interrupting the flow of project activities. In one country this has happened so frequently that there have been four different national coordinators since BOBP3 was established. The problem also applies to other officers who have undertaken BOBP-sponsored training. In one case most of the government officers who undertook training in participatory management principles have now been transferred elsewhere. This constant process of staff rotation is outside BOBP's control, but has a significant negative effect on the Programme's ability to achieve its objectives.

It was pointed out to the study team that this process may lead to spin-off benefits if staff are transferred to positions where they can continue to use the skills or knowledge they have acquired as a result of their BOBP-sponsored training. In some cases the training has caused participatory approaches to be introduced into other areas of the fisheries agency's work programme, thus enhancing capacity overall. In this sense the 'pilot project' approach of BOBP has produced significant benefits. In many cases, however, the staff concerned have been transferred to jobs with entirely different functions and responsibilities, thus wasting the resources spent on providing them with training.

The study team attempted to explore this problem during the country visits. No perfect solution emerged, but there was a consensus that a good arrangement would have been for the national coordinators to be seconded to BOBP, preferably under an arrangement whereby the Programme paid for some or all of their salaries and other costs. This would allow the coordinators to spend 100% of their time on BOBP-related work, while the salary contributions received froni BOBP could support an additional staff member or relief officer to take over their original duties in the national agency concerned. The specific mechanisms whereby such an arrangement could be put in place varied froni country to country, but the general idea was favoured by most. A budget for such a purpose niust be provided for.

It was noted that under such an arrangement. the national coordinators would be able to undertake additional useful activities that had not so far been possible. including the preparation of more local—language materials

based on information from other BOBP national projects. It was also suggested that under this arrangement each national coordinator should spend at least some of his time working at BOBP headquarters. This would enhance the working relationship with BOBP staff, thus making communications easier. It would also enable national coordinators to become more familiar with BOBP's work in other countries, and allow them to make more use of the Programme's information resources in support of their own projects. All these suggestions seemed to the study team to be positive and constructive.

Alternative arrangements were also explored, including the use of full-time BOBP staff, local NGO staff, local consultants, or other individuals as national coordinators. In most countries it was felt that, in order to have full participation by government, the national coordinator would need to be an officer from within the government system, at a level senior enough to mobilise resources or high-level support when needed.

3.4.3 Incompatible functions

During the course of the present study, an incompatibility was observed in the functions of some national fisheries agencies. In a number of cases the agencies are involved in managing welfare schemes (such as the provision of subsidised equipment and fuel) for fishermen. In some instances, administration of the scheme puts the fisheries officer in a position of 'dispensing largesse' to fishers, who themselves become dependent on the fisheries officer's favourable inclinations or goodwill. This tends to discourage 'listening' on the part of the fisheries officer, and reinforces the development of a 'top-down' communication process.

This observation was not universal, and a great deal obviously depends on the personality and approach of the individuals involved. There was nevertheless an observable difference between the attitudes of fisheries agents in situations where welfare schemes were in place, and those where they were not. In broad terms it would seem that when fisheries officers are expected to administer welfare schemes, they are less likely to be effective in generating the two-way communication process on which participatory management relies.

3.4.4 Involvement of NGOs

In general, government departments involved in BOBP3 activities appear to be suspicious of NGOs, and reluctant to work closely with them. In cases where NGOs have been involved in BOBP-related work, the attitude of the national fisheries agency has ranged from lack of interest to hostility. In at least two BOBP countries the national or state fishery agencies appear to have actively discouraged NGO participation in BOBP-sponsored work, sometimes covertly. The observation was also made that NGOs should stay out of technical areas, which they are usually less well-equipped to deal with, and stick to social issues. NGOs were accused of causing confusion by giving technical advice that was wrong, and contrary to that given by the fisheries agencies. Reciprocally, NGOs are frequently less than enthusiastic about developing close relationships with government departments, with whom they may not want to be too closely identified in the eyes of the communities or groups with whom they work.

This is an unfortunate situation, because NGOs often have good links with coastal communities and may be able to act as vehicles for communication between stakeholders. They are considerably more flexible in terms of working in the field outside normal working hours, and are less likely to be constrained in this by the lack of financial provision for travel allowances and overtime, as has been the case with some of the fishery agencies. In addition, NGOs can be more flexible and responsive to stakeholders because they are not constrained by the restrictions that official government policies or practices may impose. In some countries of the BOB region, external donors are actively channelling development funds through NGOs in preference to government, often precisely because of these close links. NGOs may thus become increasingly important players in the development process in some areas.

Where they can be achieved, therefore, tripartite working relationships involving government, communities and NGOs could be constructive. However, for this to happen, one party needs to be willing to take the initiative and work to pint such arrangements into place. BOBP has attempted to foster this approach in certain locations, but so far the results have been less positive than expected and BOBP has ended up working mainly with either the government agency, or the NGO, but rarely both.

3.4.5 Adoption of the BOBP approach

In several of the countries visited by the study team, governments have recently worked with bilateral and multilateral aid donors to establish national projects aimed at improving the management of coastal resources or the coastal zone. In several cases these projects place considerable weight on the participatory approach and the empowerment of coastal communities. Where possible the study team attempted to establish whether any of these projects had benefitted from observation of BOBP3's activities or method of operation. In the two countries where it was possible to meet the leaders or co-ordinators of such projects (financed by the Asian Development Bank and the World Bank respectively), the answer was an emphatic 'yes'. In both cases the individuals concerned were familiar with the participatory principles and ideas applied by BOBP3 and had adopted these ideas in their own projects, although with modifications in each case. In addition, BOBP staff informed the study team of two further donor-supported projects being planned or implemented in BOBP member countries, and which had adopted participatory methods pioneered by BOBP3.

Fhus, as well as the gradual diffusion of participatory approaches into fisheries agencies and NGOs in BOBP countries, it appears that the Programme has also played its part in helping to refine or modify the thinking of the bilateral and multilateral donor community. This can be viewed as an additional way in which BOBP3 has moved towards its goal of awareness-raising in regard to coastal fisheries management.

3.4.6 Future requirements

All of BOBP's member-countries felt that the work that had been initiated by BOBP had assumed a life of its own to at least a certain degree. Some interviewees expected that the work would continue after BOBP3's intended closure in December 1999. but not all were confident about this. Nevertheless BOBP3 can be said to have left a 'footprint' in that it has raised awareness and, to some degree, changed behaviours in regard to coastal resource management.

In all cases, however, the member-countries voiced a strong desire to see the work begun by BOBP3 continue after the currently scheduled closure of the Programme on 31 December, 1999. It was noted that the catalytic and information-sharing functions provided by BOBP would enable national activities to move forward much more quickly and completely than they would in the absence of regional-level support. An important aspect was that all players. from coastal communities through to senior officials, felt more highly motivated when they knew they were involved in a regional activity, and being observed by other countries. The advocacy and leverage functions referred to in section 3.3.9 (page 15) were érpphasised as being extremely valuable, as also were the easy arid timely access that BOBP could provide to expertise and technology that might not be available locally.

Some countries felt that even a downsized BOBP with only skeleton staff would still be better than no programme at all, since it would still be able to provide some of these functions. Based on the team's observations, however, any future implementation of a BOBP3-type programme should more appropriately be up-scaled, and should extend beyond a process-oriented approach. As noted earlier, the mechanism of identifying management solutions raises expectations that then need to be addressed by technical interventions so that the solutions can be

implemented. Any future BOBP3-type programme may also need to extend beyond specific coastal resource management issues in order to provide broader-scale coastal zone or EEZ management advice to its members.

When discussing future arrangements under which the work of BOBP3 could be continued, most countries expressed themselves satisfied with the present structural arrangements, i.e. an FAO regional programme supported mainly by one or more external donors and with a continued focus on the promotion of coastal fishery management arrangements. There was less enthusiasm for other arrangements, such as the uptake of BOBP3-type work by other existing regional bodies, all of which were felt to have their own roles or specialities that differed significantly from those of BOBP3. The creation of a new permanent regional organisation to assume BOBP3's functions was not generally regarded as a desirable option.

Most of the individuals interviewed by the study team were technical officers who were not in a position to express their views about how future BOBP3-type work should be funded, or to assess the willingness of their own administrations to provide financial support. In the few cases where senior officers expressed an opinion on this matter, it was generally to the effect that national country commitments would by necessity have to be limited (several mentioned the recent Asian financial crisis that their governments were still trying to recover from) and that there would be a need for substantial aid donor funding. FAO is currently leading a regional initiative to establish a Strategic Action Plan for the Large Marine Ecosystem of the Bay of Bengal under Global Environment Facility (GEF) funds. This initiative (abbreviated hereinafter to 'the GEF project') has now been endorsed by most countries of the region.

During the present study, most interviewees were under the impression that the GEF project may represent a mechanism for continuing BOBP's work. However, it is the understanding of the consultants that what is currently being proposed is a project preparation exercise which may or may not lead to the formulation of a longer, GEF-funded programme. Even if this programme materialises, there is no certainty that it will focus on participatory management of coastal resources. Indeed if the experience of other geographical regions is anything to go by, such a programme might be expected to focus more on the Bay of Bengal's larger-scale trans-boundary problems.

Under normal circumstances, GEF project funds are intended to be incremental, and are used to 'top up' funds already being expended by government(s) so that the activity being undertaken can be carried out in a manner which is more beneficial or less harmful to the global environment. Many BOB countries are now committing large amounts of government or aid donor funding to the establishment of participatory or community-based management arrangements for coastal resources. In most cases these national-level projects will generate information and experience that has substantial value to other countries of the region. For the most part, however, such national projects do not contain financial or other provisions for information-sharing or for otherwise extending the benefits beyond the national (or in some cases local) horizon. A legitimate function of the GEF project, if approved, *might* therefore be to provide incremental funding so that a regional mechanism can be established to promote the exchange of information and the sharing of resources in this field. It is not difficult to envisage that such a mechanism could function along the lines of BOBP3, and it may also be possible for such a project to become involved in some of the higher-level functions, such as policy formulation, that BOBP3 has not been able (or mandated) to do. For such a course to be followed, however, it would be necessary for BOBP member governments to make the appropriate representations to FAO and GEF during the project preparation exercise.

During the mission, the study team was advised that approximately US$ 250,000 of unspent funds will remain in the BOBP budget on 31 December, 1999. Conflicting information was received about the source of these funds (i.e. whether they were derived from the contributions of an aid donor or from BOBP member-country contributions) and about the uses for which they might be eligible. Given that every country consulted strongly

urged that BOBP3 be extended, it would seem reasonable to consider using these funds for that purpose if it can be done.

Unfortunately, however, unless further additional funds can be identified, then even with substantial downsizing it seems unlikely that this amount would be sufficient to extend BOBP for the 18-24 months that would probably be needed before any GEF funds came on stream.

4 Conciusions and recommendations

Althotngh inipeded by limited financial and human resources, BOBP3 has made significant progress towards its goals ofawareness-raising in regard to coastal fisheries management. Awareness of the need for and benefits ofmanagement in the BOB region has increased at all levels, from coastal communities to senior government officers, as a direct result of programme activities. BOBP3 has also influenced the thinking of other donor agencies, which are increasingly basing programmes and projects on participatory management approaches.

The awareness-raising work has led to the actual establishment of management regimes only in a small number of cases. More progress in this respect could probably have been made if the Programme had had access to greater financial and liunian resources. However, the Programme itself was not formally oriented to the delivery ofmanagement outputs *per* se, only to establishing management mechanisms. In this regard BOBP3 is somewhat out of sync with the desires of its member countries, which aim to see the management process move beyond awareness-raising and into action. Management does riot follow automatically once the appropriate processes have been established, usually because the implementation of management solutions requires the commitment of additional funds which may not have been accounted for at the outset. With the benefit ofhindsight, it now seems that more effort should have been put into identifying and trying to meet these funding requirements as the process approach proceeded, so that the management activities identified by the participatory process could then be put in place.

In general, therefore, BOBP3's activities have not resulted in the actual implementation of management activities or improvements to the extent that might have been wished. However, in most of the locations where BOBP3 has worked the foundations have now been laid and there is great potential to move forward into the actual implementation of management if resources can be found to allow the process to continue. Despite various criticisms of specific aspects of the Programme's operation, all BOBP3's member countries and all participants in the national projects, at all levels, voiced a desire to see the Programme continue. Underlying this desire was the view, which was shared by the study team, that it would be more cost-effective if the process of establishing management arrangements could be carried through to completion, than for the process to be terminated mid-stream. Some but not all member-countries felt that they would be able to complete the process without further BOBP3 assistance if necessary. However, all countries made strong and convincing arguments about the numerous extra benefits if the work begun by BOBP3 could continue.

On the basis of these conclusions, and the more detailed discussions contained in the preceding sections, the study team makes the following recommendations to FAO and to BOBP3's member countries:

- All BOBP3 member-countries, and all participants in the pilot projects, expressed a desire for continuation, at a regional level, of the valuable work begun by BOBP3. The present arrangement, of a regional project implemented by FAO, was considered appropriate for the future. It is **therefore recommended** that FAO and BOBP member-countries work together to identify funding mechanisms that will allow continuation or renewal of the Programme.

- If it is agreed that the work of BOBP3 should be continued, then closure of the current Programme in December 1999, as presently scheduled, would result in considerable loss ofcontinuity and momentum. It is **recommended** that, until a significant block of donor funding can be identified to allow establishment of a new or continuation

project, bridging funds be applied to extend the present Programme, even if only at a skeleton level. Any unspent funds remaining in the current BOBP3 budget should be used for this purpose.

Any extension of the current Programme for bridging purposes will by necessity result in a reduced level of staffing and activity. During such a bridging period, it is recommended that the Programme dedicate the resources it has available to (a) continued information sharing and dissemination (including continuation of *Bay of Bengal News)* and (b) encouraging the establishment or refinement of coastal management regimes in those pilot projects where most progress has already been made.

A prospective source of funding for a follow-on programme could be the Global Environment Facility, provided that the planned GEF-funded project to establish a Strategic Action Plan for the International Waters of the Bay of Bengal determines that this would be a valuable and legitimate way to apply incremental funding. The wishes of BOB countries as expressed during this study, and the fact that many countries are now committing national development resources to promoting the participatory management of coastal resources, suggest that it would: incremental funding could be used to ensure a regional dimension to the various national-level activities being planned or carried out. ft is recommended that BOB countries ensure that this issue is emphasised during the GEF project preparation exercise.

BOBP3 has suffered from limited financial and human resources, which have significantly slowed progress and prevented it from achieving as much as it otherwise could have. ft is recommended that these factors be carefully analysed as part of the design of any new Programme, and that if possible more substantial resources be secured than were available to BOBP3.

A number of BOBP3 member-countries felt that the Programme could usefully have contributed to national-scale coastal and oceanic fishery management issues, in addition to operating pilot projects on more restricted scales. In addition, the study team observed that there might be opportunities to introduce the participatory process at a higher management level in some countries, and that interventions at this level could be cost-effective and have significant flow-on effects. It is therefore recommended that any new project not be restricted to local-level interventions, but that, where possible, opportunities be taken to encourage use of the participatory approach at higher national or policy levels in member countries.

BOBP3 has focussed on the establishment of management processes, but without necessarily providing for the implementation of any management solutions that the process may identify. In some cases funding has been found to allow such solutions to be implemented, but in many others this has not been the case and stakeholders have been left frustrated by the process. It is recommended that any future Programme to continue the work begun by BOBP3 should take account of the need to move beyond the process itself, and should have the delivery of management solutions formally embedded in its goals and objectives. Programme design will need to address this in terms of funding requirements, and the roles and responsibilities of the programme's member-countries in this regard.

Arrangements for execution of national pilot projects during BOBP3 experienced a number of weaknesses. In particular, member-countries have often been unable to commit promised counterpart funds in a timely or efficient manner. It is **recommended** that any future Programme should establish a formal memorandum of agreement in regard **to** each national project, which lays down the responsibilities and inputs of each project partner.

The arrangements under which national coordinators have been assigned to BOBP3 pilot projects have had a number of shortcomings. The individuals concerned have frequently been burdened with conflicting duties and responsibilities, and BOBP3 activities have suffered as a result. It is recommended that the design process for any new Programme identify mechanisms whereby national project coordinators can be seconded to the

Programme on a full-time basis. Such mechanisms should permit them to interact more extensively with programme staff (including by spending a substantial part of their time at Programme headquarters) and to assume greater responsibility for Programme activities (including financial management) in-country. The mechanism should also encourage greater direct exchange oftechnology and knowledge among national projects.

- Dispersal or re-assignment of trained national personnel has been a significant impediment to BOBP3's impact at the national level. As part ofthe design process of any new or follow-on programme, it is **recommended** that discussion take place with participating countries or agencies to identify mechanisms that will minimise the loss of trained personnel.

- BOBP3 has attempted to involve both government and non-government agencies in the various national pilot projects that it has sponsored. In many cases there has been a reluctance for these two groups to work together, even though both groups have complementary strengths. The current trend appears to be for donor agencies to make increasing use of NGOs in the delivery of development projects. It is recommended that any BOBP3 follow-on project continue to work with both government and non-government agencies, and to actively foster and encourage closer working relationships between these two groups.

These recommendations essentially bring together the major issues that arose from the study in regard to BOBP3 and its possible fLiture. In order not to dilute the main findings, the study team has refrained from making detailed recomniendations relating to minor aspects of BOBP3 's implementation, or generic recommendations to BOB countries and the aid community at large.

Appendix 1: Terms of reference for the study

Terms of reference: The Consultant, under the general direction of the Project Operations Officer, RAPR, FAO and in close co-operation with the Programme Coordinator and staff of the BOBP, its counterpart agencies and key stakeholders, shall identify, extract and document the learnings of the Third Phase of the Bay of Bengal Programme of the FAO. The Consultant shall:

- Review the past and current activities of BOBP, the approaches and methodologies used, the outcome of various pilot activities, as well as their impacts in the participating countries. The lessons learnt should highlight both positive and negative aspects as guiding elements to be taken into consideration in similar future activities.
- Study the existing documentation in terms of publications, other material outputs and files; hold in-depth discussions with counterpart staff of fisheries, key stakeholder representatives and other agencies directly involved in implementation and cooperation with BOBP; discuss with BOBP and FAO staff modalities of operation, problems and constraints encountered.
- Visit pilot activity locations in member-countries for in-depth discussions with counterpart staff directly involved in implementation and with key stakeholder representatives; hold in-depth discussions with senior technical and administrative staff of concerned government agencies and with decision-makers associated with and concerned with the Programme and its activities.
- Identify and document the learnings of the Programme, and discuss them, with a view to verify and confirm the findings, with BOBP and FAO staff and in a regional meeting of member countries' representatives, if necessary.
- Prepare and submit the report on the learnings of the Programme to BOBP and FAO.

Duration: Three months

Duty Station: Chennai, India with travel in the BOBP region, and possibly to Rome

Qualifications: The incumbent will have a background in Natural Resource and Environmental Economics, M&E impact assessment work or related fields. He will have at least 15 years experience of being involved in or having studied and reported on developmental activities in general, and fisheries development and management efforts in particular. He/she will be familiar with a wide range of developmental strategies and efforts in developing countries and would, in particular be familiar with the member-countries of the BOBP.

The incumbent will be comfortable in dealing with all levels of stakeholders, from political leaders and decision makers to artisanal fishers, and will be sensitive to political contexts, legal and regulatory regimes, administrative and organisational cultures and practices, attitudes and perceptions of stakeholders. He/she should have a proven track record of being an objective investigator and analyst who can understand complex situations and activities and report on them in a short period of time. He/she must also possess excellent skills in inter-personal and cross-cultural communication to uncover significant and meaningful lessons, including those not so obvious, subtle or hidden.

Mr. G. **Preston:** The consultant will lead the two-man mission to document leanings of the BOBP third phase as per attached terms of reference. He will assume responsibilities for the final output report, coordinating inputs to be provided by national consultants and by the other mission member.

Dr. **V. S. Vadava:** The consultant will participate in the two-man mission to document leanings of the BOBP third Phase. Within the frame of the attached overall mission terms of reference he will contribute a report on topics as agreed to with the mission leader, as well as on specific leanings of countries he will be visiting.

Appendix 2: Names and Terms of Reference of National Consultants

The National Consultants were as follows:

- Bangladesh Mr. Iqbal Haroon
- India Dr. Dipankar Saha
- Indonesia Mr. Sihar Siregar
- Malaysia Raja Mohammad Noordin bin Raja Omar
- Maldives Mr. Maizan Hassan Maniku
- Sri Lanka Mr. H. V. C. Fernando
- Thailand Mr. Jate Pimoljinda

Terms of Reference: The Consultant, under the direction and supervision of the Project Operations Officer, RAPR, FAO and in close co-operation with the staff of the BOBP, of MOFAMR and other concerned agencies and key stakeholders, shall identify, extract and document the learning of the BOBP-assisted activities in [Country] during the third phase. The Consultant *inter alia* shall:

- Study the existing documentation of the BOBP-assisted activities in [Country], in terms of publications, other material outputs and files;
- Hold in-depth discussions with staff of relevant agencies with whom the BOBP has cooperated in the Project;
- Visit pilot activity locations, if necessary, for in-depth discussions with counterpart staff directly involved in implementation and with key stakeholder representatives;
- Hold in-depth discussions with senior technical and administrative staff of concerned government agencies and with decision-makers associated with and concerned with the Project and its activities;
- Identify and document the leanings of the Project, in a brief report of approximately 25 pages, and submit it to the BOBP for discussioh and inclusion in the larger effort of documenting the learning of BOBP's third phase, as a whole.
- Assist the International Consultants documenting the leanings of the BOBP's third phase, during their visit to [Country], as necessary.

Duration: Three weeks.

Duty Station: [Country]

Qualifications: The incumbent should ideally have been directly involved in the BOBP-assisted activity in [Country] during its Third Phase both in technkal and managerial aspects. The incumbent should be comfortable in dealing with all levels of stakeholders, from political leaders and decision makers, to artisanal fishers, and will be sensitive to political contexts, legal and regulatory regimes, administrative and organizational cultures and practices, attitudes and perceptions of stakeholders. He/she should have a proven track record of being an objective investigator and analyst who can understand complex situations and activities and report on them in a short period of time. He/she must also possess excellent skills in inter-personal communication to uncover significant and meaningful lessons, including those not so obvious or hidden ones.

Appendix 3: Information framework

Institutional lessons at the regional level

- What lessons can be learned from BOBP about the structure and function of regional or inter-governmental fisheries management organisations, projects or initiatives?
- What issues are best addressed through a regional approach? Are there issues where a multi-country approach would be unsuitable or inappropriate?
- What are the comparative advantages of dealing with issues or problems on a multi-country basis?
- Why not establish national or bilateral programmes to achieve goals, rather than a multi-country arrangement?
- Have the subjects and areas of work chosen by BOBP been the most appropriate?
- Have the method(s) used for such selections been carried out with due consultations with all concerned?
- What have been the major constraints in implementation of the Third Phase ? Whether enough opportunities were available for mid-term correction ? Ifso, did the country utilise such opportunity ?
- What are the channels for communication between local institutions and BOBP? What other agencies could provide services or assistance comparable to those of BOBP?

Institutional lessons at the national level

- What are the factors within government that contribute to, or impede. fisheries management success?
- Why is the intervention of a BOBP-type organisation needed?
- What types of partnerships (e.g. between Government, NGO, formal or informal associations, etc.) appear most effective?
- What scales of intervention suit what types of problems? (e.g. can community-level interventions expect to cope with large-scale coastal management issues?)
- How useful have been the country-level workshops in tackling important issues?
- In what manner have the recommendations of such workshops been implemented (including plans finalised for such implementations in the future)?
- Has the end user (fisherman / fish farmer) felt the presence of BOE3P?
- What factors are most likely to contribute to sustainable management after external (i.e. supra-national) interventions reach their conclusion?
- How do you visualise the future role of BOBP? Should BOBP be more involved in normative work or field level activities in transfer of proven technologies to the end-users.
- If there were to be another phase of BOBP, what sort of institutional/administrative arrangements would be most appropriate?
- Jfthere were to be another phase of BOBP, what are the three most important activities that it should carry out?

Functional factors

- List the three most important contributions made by BOBP during the Third Phase (e.g. changes in policies / programmes, improvements / additions to legal framework, implementation of certain provisions of legislation for betterment of fisheries / participatory approach to management / training, etc.).

- How effective has been the delivery of inputs to project sites? How could these have been made more effective?
- What alternative delivery strategies might usefully have been considered?
- How essential is external input or funding to solving fishery management problems?
- How useful have information dissemination activities/ initiatives been?
- How is information exchanged between BOBP projects! sites?
- How useful has been the documentation work of BOBP in bringing about changes in management of coastal fisheries and aquaculture?

Gender/ class equity

- What factors influence the distribution of (project) benefits among social groups or sectors?
- In terms of fishery management success, are there clear beneficial or negative aspects from such distributional differences?

Perceptions of success/ management objectives

- How do different partners! players perceive or measure fishery management success or failure?
- What are the consequences of differing perceptions among participants?
- How can subjective perceptions be verified or corroborated?
- Are there non-subjective measures that can be used or developed?

Technical lessons

- What specific fisheries management principles may be derived from project results? (For instance, is there any contribution to the current debate on appropriate size of marine protected areas [multiple small MPAs for fishery management vs. few large MPAs for conservation or other goals])?
- Have attempts to displace fishing methods that are perceived as destructive given the desired results in terms of resource recovery or amelioration?
- Has the promotion of alternative income-earning opportunities proved to be effective in shifting effort away from these fisheries?
- Are coastal aquaculture management initiatives proving effective?

Appendix 4: Country summary – Bangladesh

An estimated 20% of Bangladesh's population of over 123 million people live in coastal areas, and a sizable majority are fisherfolk or are dependent on marine resources for their livelihoods. A situation analysis undertaken by the Bangladesh Department of Fisheries (DOF) of the Ministry of Fisheries and Livestock (MOFL) in 1994 identified the estuarine-set bag net (ESBN) and push-net fisheries as problem fisheries whose management needed immediate improvement. The analysis was based on a bio-socio-economic study of the fishery for black tiger shrimp *(Penaeus monodon)* undertaken in a UNDP-supported activity during the second phase of BOBP.

The ESBN fishery is a traditional fishery which not only provides livelihood to a large population of mostly poor rural inhabitants, but is also responsible for a sizable proportion of the country's marine and brackish-water capture fisheries production. The fishery provides most of the animal protein consumed by the rural poor in coastal areas. The ESBN fishery interacts with at least seven other fisheries and has been shown to be destructive. It could lead to growth and recruitment overfishing of several important marine and brackish-water species.

It is widely agreed that the only realistic option to improve the management of this fishery is to reduce the fishing effort – through closed seasons or closed areas, for instance. However, this depends not only on ESBN fishers and other stakeholders being aware of the need for, the benefits of and methods of management, but, more importantly, on their having alternative sources of income generation to ensure livelihood and food security.

Another approach may be to attempt gear modification to make it less destructive, but it is not yet clear how this could be done. The large number of fishing gears currently in use means that any organisms discarded alive would quickly be captured again by another unit of gear. There may be potential to use aggregators to collect shrimp seed for capture, but this is an alternative, not a technological improvement.

The push-net fishery is of more recent origin, having evolved to supply Bangladesh's rapidly growing coastal aquaculture industry with *P. monodon* and *Macrobrachium rosenbergil* post-larvae. The fishery is very destructive because over 90% of its catch consists of juveniles of other commercially important species of marine and brackish-water organisms, which are discarded. The fishery not only provides the vast majority (over *95%)* of the seed requirement of the coastal aquaculture industry (which is Bangladesh's second largest foreign exchange earner), but also provides seasonal livelihood for several thousand poor people, including a high proportion of women and children.

The best management option for the push-net fishery would be to ban it completely, but this is impossible given the coastal aquaculture sector's dependence on it, not to mention the number of poor men, women and children who make a living from it. The Government of Bangladesh is nevertheless under pressure from trawler owners to ban both the ESBN and push-net fisheries, which they claim are reducing their yields.

The purpose of BOBP's intervention in Bangladesh was to facilitate and enable improved management of the ESBN and push-net fisheries in selected coastal areas. This was to be achieved through awareness-building, strengthening the institutional capacity of concerned agencies, and provision of technical assistance.

As regards the ESBN fishery, it was decided that the BOBP project should focus on awareness-building of stakeholders at all levels, and in building the capacity of the DOF and the Fisheries Research Institute (FRI) in participatory techniques. It was also agreed to attempt several pilot seasonal and area closures of ESBN fishing activity to test the feasibility of the idea and to gauge the social and economic implications of such initiatives.

As regards the push-net fishery, BOBP hoped to influence policy through awareness building and consultation amongst stakeholders in order to move towards more sustainable aquaculture practices based on hatchery-produced seeds. Hatchery development is seen as a long-term mitigating measure, but the small number of hatcheries in the country

(14-24 according to different commentators) is constrained from growing by lack of investment capital. BOBP also aimed to work with the seed collectors and other stakeholders to reduce by-catch mortality, as well as mortality of shrimp seed themselves during handling and transport.

BOBP's initial activities in Bangladesh took place in 1995. DOF and FRI staff were trained in participatory techniques, and the planning of field work to undertake a series of stakeholder studies in three areas selected for this purpose. Subsequently. in 1996, several workshops and stakeholder consultations were held at which the strategies for the two fisheries were articulated and refined into a more detailed work plan. This involved identifying alternative income-earning opportunities for ESBN fishermen, and research on aspects of by-catch and seed transportation mortality in the push-net fishery. The stakeholder consultations led to involvement in the project of SAVE, a development NGO specialising in the production of media and awareness materials. SAVE was commissioned to produce poster exhibitions, audio tapes and radio programmes to be broadcast on Radio Bangladesh, and comic books in support of the project's awareness-raising activities. Most of these tasks have been completed. although there were some delays in actually having the radio programmes broadcast once they were made.

The research work and stakeholder consultations led to the selection of the Cox's Bazaar area for a trial closure of the ESBN fishery. Seasonal closures from February-March and September-October were proposed as these were times of high shrimp seed catch. To prepare for the closures, a study of alternative income-generating (AIG) opportunities was carried out in six villages of the area by the Community Development Centre (CODEC), an NGO based in Chittagong. Various options were identified, including betel-nut growing, small trading, crop cultivation, salting of hilsa (river shad), mechanical repair. etc. In reality, however, the solution of using alternative income-generating activities as a fishery management tool is fraught with problems, including the establishment of suitable banking and credit arrangements, dealing with seasonal ity of occupation, and preventing new economic migrants from entering the fishery if current fishermen move to alternative occupations.

At present it seems that there is little to prevent new fishermen coming into the fishery to replace those who move out. Many of the present push-net fishermen are new entrants who were previously working in unskilled or low-paid jobs such as rickshaw-pullers. and others may be waiting in the wings to replace those who leave the fishery. Part of the plan to support AIG activities involves ther setting up ofa financial or banking scheme which will be administered by DOF and implemented by selected NGOs, who will be able to make credit available to fishermen for alternative income-generating activities. However, the size and complexity of this task appears to have been underestimated by the DOF. Promoting alternative income-generating schemes is a complex and expensive task requiring skill training, credit support, managerial assistance and marketing help, and without the support of other government agencies and donors it will be difficult for DOF to do justice to this task, with or without BOBP assistance.

The state of play at the time of the study was that a series of public consultations would take place in order to promote broader public understanding of, and hopefully support for, the proposed closure, It was intended that this be accompanied by training in reduction of shrimp mortality (e.g. through the use of air pumps). Subsequently, DOF will be able to move ahead with implementation of the seasonal fishery closures, in parallel with the AIG activities described above. The seasonal closures were originally scheduled for June 1999 but at the time of the present study (July 1999), the process had not really commenced.

In general, therefore, BOBP's primary activities in Bangladesh have proceeded in the direction planned, but there have been delays in some components. The level of performance ofjunior and middle-level DOF officers is said by BOBP staffto have been high, and in some cases outstanding, with many officers being enthusiastic about the project and the concepts it introduced. However, the organisational culture and management environment of the DOF are often not conducive to supporting innovative and creative efforts such as fisheries management. Funding shortages appear to be an important constraint; it not only makes national execution difficult, but raises the question of post-project sustainability.

The Marine Wing of the DOF, which is responsible for implementation, does not have staff presence at the district and thana levels, and this may result in implementation problems. Testing of management initiatives will require issue of regulations, ordinances and notifications which can be delayed due to lengthy bureaucratic processes, and this can delay the project. Management initiatives, all of which depend on reduction of fishing effort, will succeed only if alternative income-generation options exist and are accessible, but initial indications are not very promising. Essentially, the fishery management problems being faced are huge and intractable.

Other activities have also been carried out, such as provision of training on participatory exploratory fishing trials, which took place in 1996 through a consultancy input but which seems to have led to little in the way of follow-up by DOF. In 1998 BOBP organised a workshop on the Code of Conduct for Responsible Fisheries (CCRF) in Bangladesh as well as a workshop on monitoring and evaluation of fisheries development and management. BOBP has also worked with DOF, FAO and the British Department for International Development (DFID) to organise a National Workshop on Fishery Resources Development and Management. This was held in 1995 and brought together policy-makers, planners, administrators, fishery professionals, industry representatives and fisherfolk to discuss the status of Bangladesh's fishery resources and give direction for the future. In 1997, the same group of agencies organised a senior decision-makers' consultation which brought together Members of Parliament from the coastal constituencies, as well as ministers and technical advisors from government ministries concerned with coastal development, to discuss coastal management and food security issues. The meeting provided an opportunity for senior administrators, policy-makers and politicians to be exposed to the needs and problems of coastal communities, and was viewed as a very valuable and important exercise.

It was noticeable from the study team's discussions in Bangladesh that BOBP was considered a small and somewhat insignificant project compared to the numerous much larger national projects that are being developed, and which include elements of community-based management of coastal resources. The consultants were advised about several such projects, varying in magnitude between US$ 7 million and $ 26 million, that were currently in the planning phase, with support from a range of donors including the UNDP, GEF, and the British and Dutch Governments. Compared to these projects, the inputs from BOBP are indeed relatively tiny. However it was gratifying to observe that the approach and methodology pioneered by BOBP were being adopted by other donors in formulating these projects. In one case, BOBP had been formally invited to provide direct assistance to the project design process in order to ensure that the participatory approach was fully embedded in the project.

Other issues raised in Bangladesh related to some of the procedures used by BOBP. There was a broad feeling that national officers working with the project had too little say in the decision-making process (especially financial), and that the Programme itself was 'too remote', with actual in-country interventions being relatively limited. This was considered by the study team to be a reflection of the limited resources available to BOBP3 itself, and perhaps also to the above-mentioned factor, that in Bangladesh BOBP3 is a very small project compared to many others being established in the country.

From the opposite point of view, it is clear that the Bangladesh Government procedures for approval of activities and financial disbursement are not at all geared to the type of work promoted by BOBP. The Government system requires a rigid work programme and a budget approved far in advance, and makes little or no provision for modifications or amendments as the activity progresses. This approach is unsuitable to a BOBP3-type project, where the learning process is continuous, and the need to develop or modify activities in response to study findings or outcomes of the participatory process.

In spite of all these constraints and problems, a lot has been achieved in Bangladesh. Significant capacity-building within the DOF has been realised, and test management initiatives are ready for implementation. The participatory principles on which BOBP3 has operated have been adopted by at least two other, much larger aid-funded projects aimed at managing fisheries through the empowerment of coastal communities. In one case this is a direct result of

BOBP involvement in project formulation. At the senior decision makers' consultation organised by BOBP, MOFL announced the development of a comprehensive fisheries policy and proposed the establishment of a high-level, inter-ministerial task force, with the Prime Minister as Chairperson, to give direction to, coordinate and oversee coastal development, including development and management of marine and coastal fisheries. With MOFL taking increasing responsibility and gearing itself up for testing management initiatives, it is intended that BOBP's role during the remainder of the Project period will be reduced to conducting reviews and providing technical assistance as required.

List of persons consulted - Bangladesh

Ministry of Fisheries and Livestock, Bangladesh Secretariat, Dhaka

Mr. Ayub Quadri, Secretary, Fisheries and Livestock, MOFL

Mr. D. K. Chowdhury, Joint Secretary (Fisheries), MOFL

Mr. M. A. Matin, Director-General of Fisheries. DOF

Mr. Md. Habibur Rahman, Joint Chief (Planning), MOFL

Mr. Md. Masadur Rahman, Director (Marine), DOF

Mr. Md. Harun Rashid, Deputy Director (Marine), DOF Chittagong,
& BOBP Coordinator

Mr Iqbal Haroon, Asst Director (Marine), DIF Chittagong.

FAO Office, Dhaka

Mr Hiroyuki Konuma, FAO Representative in Bangladesh

Dr S. Salim, Programme Officer

UNDP Office, Dhaka

Mr Aminul Islam, Programme Officer, Environment and Sustainable Development

DFID Fisheries Management Support Office, Dhaka

Mr Abul Kashem, Projects Officer

Consultant

Mr Aminul Kawser Khan, SAVE

Appendix 5: Country summary - India

General

In India, jurisdiction over fisheries development and management rests with the State Governments. The Central Government acts as a coordinator, carrying out fishery research and channelling funding support to the states in line with national priorities and the commitments made by the State legislatures.

Because of its large size and extensive coastline, which makes up about half of the BOB's littoral zone, India has had something of a special status in regard to BOBP. The Government of India has hosted BOBP since its inception in 1979, and in addition to paying its regular contributions to the programme also continues to cover the cost of office facilities and telecommunications, and to provide other forms of direct support.

Four States – Tamil Nadu, West Bengal, Orissa and Andhra Pradesh – are part of the Bay of Bengal. Each State has a substantial coastline and fishing population. Traditionally, therefore, BOBP has treated each Indian state almost like an individual member-country, maintaining distinct projects or activities in each. The BOBP's National Coordinator in India is an official of the Central Government, while state-level activities are managed by a local coordinator in each State.

During the present study, Tamil Nadu and West Bengal were visited by one or both members of the study team. In Tamil Nadu, individuals connected with the project were interviewed in Chennai and Kannya Kumari districts, and discussions were held with participating communities in the latter area. In West Bengal, individuals connected with the project were interviewed in Calcutta. A list of the individuals consulted is shown in Appendix 5. For the other two states, information was obtained from documents and discussions with BOBP staff. In addition, of course, one of the team members has considerable prior knowledge of BOBP's activities in India by virtue of his official position as Commissioner for Fisheries Development and BOBP National Coordinator.

The initial BOBP situation analysis for India was prepared by the Madras Centre of the Central Marine Fisheries Research Institute (CMFRI) and submitted to BOBP in November 1994. The analysis identified two major fishery problem areas along India's east coast: management of the trawl fishery, which had been growing rapidly, particularly along the Coromandel coast; and management of coastal aquaculture activities in the four BOB states. Subsequently, a meeting between BOBP and Indian Central and State Government fishery agencies was held in July 1995 to discuss the situation analysis. The meeting agreed that coastal aquaculture management was a valid area for BOBP to get involved in, but that overall management of the east coast trawler fleet was an issue that extended beyond coastal areas, involved development and co-ordination of policy and legislation at both national and state levels, and was not in line with BOBP's main thrust or the financial and manpower resources available to it. The meeting agreed that BOBP should focus on coastal aquaculture management in West Bengal and Andhra Pradesh, and on a subset of the trawl issue – namely state-level management of coastal fisheries involving interaction between trawlers and other craft – in Tamil Nadu and Orissa.

Tamil Nadu

In Tamil Nadu, BOBP3's main work has been in support of a programme of conflict management among fishermen in coastal villages of the Kanniyakumari district in the south of the state. BOBP had worked in the district during its second phase; among other activities, the Programme was responsible for introducing hygienic fish containers to women fish traders in the area. For a number of years now the district has been plagued by regular conflicts among fishermen, and BOBP3 decided to focus on this problem. Prior BOBP experience and favourable public attitudes in Kannya Kumari were thought likely to reduce the learning period and increase BOBP's chances of success in developing a participatory approach to management which would aim to reduce or eliminate the conflict.

Conflicts among Kannyakumari fishermen date back many years. Till the early 1990s, they grew progressively worse as the fishing fleet rose in numbers and efficiency. The conflicts involve groups of fishermen who use different vessel types (kattumarams. or traditional non-powered craft; vallams, or motorised canoes; and trawlers). In theory these fleets are kept distinct by a zonation contained in Tamil Nadu fisheries legislation: areas inside one mile from the coast are reserved for non-motorised craft; those between one and three miles are reserved for vallams, while trawlers are restricted to outside three miles. In practice, however, the zonation is ignored and all craft operate in waters close to the shore, leading to conflicts between different fleets and gear types.

In some cases, conflicts also occur among different fishing castes using the same vessel type, as in the recent case of Mottham village. Many of the fisherfolk's homes were damaged during street battles in May 1999, and a large part of the village is now deserted because a part of the population has been evacuated.

The basic source of the conflicts seems related to overcrowding, both on land and at sea:

On the land, fishing communities are crowded due to poverty and a lack of land ownership. The vast majority of the fishing population are Catholics and most of the fishing communities occupy parcels of coastal land belonging to the Catholic church. Dwellings are clustered close together and homes are often occupied by numerous members ofan extended family. Water, sanitation, electricity and other facilities are lacking or basic, as also are fundamental services such as schools and clinics. The overcrowding, poverty and lack of basic amenities create an environment in which disagreements or minor incidents can quickly be magnified into more serious conflicts involving the larger community.

- On the water, fishing vessels operate in a limited coastal strip, competing with each other for fish and interfering with each other's operations. The problems become most acute during the southeast monsoon (May-August), when small vessels cannot be launched from their usual village beaches because of surf. At these times, many ofthe vessels are relocated to two or three small harbours that are protected enough to allow small-boat launching and beaching during the monsoon. Because of their limited range, the boats are concentrated in a much smaller fishing area during this period.
- In addition, the monsoon is the time when approximately *325* trawlers from the area, which usually fish elsewhere, return to base their fishing operations in their home ports. These vessels prefer to operate in the more productive fishing grounds of Kerala or other states when possible. but are forced to return home during the monsoon when these states impose closed seasons (June 15-Aug 31 in Kerala)3. Although technically confined to waters beyond a 3-mile limit while operating in Tamil Nadu, there is little or no enforcement of this regulation. Trawlers frequently operate close inshdre, in the zone nominally reserved for smaller craft. This aggravates the overcrowding and the conflict.

The consequences are periodic disputes among the fishing community which may result in violence, damage to property, injury and, sometimes, loss of life. These episodes have taken place sporadically over many years, but in 1994 a particularly violent conflict arose during which riots broke out in the fishing communities, people were injured, boats were burned, and houses damaged. The national police were unable to control the situation, which persisted for several months. Subsequently the Catholic church, to which the vast majority of the fishing community belong, realised the need to deal actively with the conflict. In June 1995, the Coastal Peace and Development Committee (CPDC) was establilshed specifically for this purpose.

As of the year 2000. Tamil Nadu will impose a 45-day ban on commercial fishing within 12 nautical miles of the coast during the same period. Negotiations are currently under way to put in place simultaneous commercial fishing bans in all of India's coastal states. This arrangement is also expected to be in place in the year 2000.

By appointing senior or respected representatives of fishing communities to act as arbitrators when conflicts arise, the CPDC has progressively established itself as a mediator. Over the four years of its existence, the CPDC's role has grown from one of conflict resolution to one of conflict management *(i.e.* prevention rather than cure). More recently, the Committee has begun to initiate development activities, such as the establishment of schools and health centres, in an attempt to tackle the root causes of the problems.

BOBP became involved in this situation shortly after the establishment of the CPDC. The Programme's staff already had a knowledge of the individuals involved in the CPDC due to earlier work in the area, and had long-established connections with the district office of the state DOF. BOBP became involved in developing a community-based approach to fisheries management as part of the broader conflict management agenda, and worked with both the DOF and CPDC to develop a strategy for stakeholder consultation, problem analysis and identification of solutions. The strategy involved training for Government personnel in these fields, as well as the organisation of meetings, workshops and other awareness-raising activities for the various stakeholders, and studies aimed at filling knowledge gaps.

The Tarnil Nadu State Government allocated a substantial amount of funding (one million rupees in 1997-98) to support this effort. It was intended to facilitate participation by DOF staff, which might be impeded when specific budget allocations were not made. In reality, however, there have been a number of barriers to DOF's active participation in this work. One problem is that DOF staff are generally not used to working outside normal government hours in field conditions, and expect to be financially compensated for such duties, but there is no mechanism for such compensation. BOBP has financed subsistence or field allowances for DOF staff from time to time, but this is only a partial solution to the problem. If the participatory approach is to be embedded in the DOF's operational culture, then this needs to be backed up by appropriate financial arrangements within the Department. More importantly, unless DOF staff have a genuine commitment to the process of stakeholder consultation and participation, financial inducements alone are unlikely to lead to its successful implementation.

Another more subtle problem is that a major function of the DOF is to administer state development schemes, most of which involve giving fishermen subsidies or other forms of assistance. This puts DOF staff in the position of exercising judgment on fishermen and distributing largesse to them -- which may not be entirely compatible with the 'listening' function implied by stakeholder consultation.

Because of these and other issues, DOF participation in the work being promoted by BOBP3 has been less than anticipated. In practice the Programme has carried out a good deal of its work through the CPDC. Result: there has been progress with stakeholder consultation, but polarisation has occurred between DOF and CPDC. Representatives of each party claim to recognise the desirability of working with the other, and express a readiness to do so if approached or requested, but neither side appears willing to actively initiate a closer working relationship. DOF claims that CPDC's 'unofficial' status as an NGO prevents it from channelling State development funds through the organisation, which it says can be done only through officially recognised co-operative associations. However, other Indian state governments appear to have no difficulty in working with religious NGOs, as noted in the later section on West Bengal.

BOBP's activities in Kanniyakumari have focussed on stakeholder identification and analysis, and defining the problem areas being faced by the communities. This has meant providing training in these fields to DOF and CPDC staff, as well as in organising workshops for the communities themselves. As part of the training programme, BOBP first undertook a training needs analysis and skill gap analysis with DOF staff in order to determine future management capabilities, and subsequently provided training to strengthen DOF's monitoring and evaluation capacity. The national consultancy report of learnings in India indicates that the training activities have been found valuable by DOF staff and appreciated by them, although many of the personnel concerned have since been transferred out of the district. In practice, however, it appears that much of the consultation with stakeholders has been done through CDPC rather than DOF, especially in recent times.

BOBP has also initiated two studies to fill knowledge gaps identified during the participatory exercises. The studies involved a mapping exercise to determine the concentration of fishing units and landings along the coast, and a socio-economic study to ascertain the presence or absence of basic facilities in coastal villages, carried out to assist the development of a coherent development plan for the area. The results of both studies were presented to the various stakeholders (including community representatives, DOF and CPDC) at a workshop.

During the interviews carried out by the present mission, the value of each study was noted by the people interviewed, but a number of limitations were also recognised. In the case of the mapping study, it was felt that existing information already compiled by the Catholic church had not been sufficiently utilized. Further, the field enumerators who did the study had not fully understood the purpose of the questions they were expected to ask, casting some doubt on the reliability of the information gathered. As regards the socio-economic study, the information presented to the stakeholders served to highlight their sense of neglect by government and other development agencies.

In general, the process of stakeholder analysis and problem identification has gone well in Kanniyakumari – probably more than in any other BOBP project except for Phang-Nga Bay in Thailand. However, unlike Phang-Nga Bay, the process has not been accompanied by the identification of solutions that the stakeholders feel they can implement themselves. The result is that expectations have been raised high in Kanniyakumari, and fishing community representatives are now wondering when the move from talk to action will take place. The stakeholders themselves can see many possible approaches to solving their problems. Solutions proposed during a discussion with CPDC village representatives included the following:

- Building of more schools in coastal villages, so that children could be educated to increase their chances of finding non-fishing jobs;
- Classification of fishermen as a minority tribe so that they could benefit from preferential government employment schemes designed to benefit these groups;
- Diversification of fishing activities, for instance by fishing further offshore and exploiting species that were not traditionally utilised;
- Construction of 'groynes' in selected coastal villages to increase the number of beach-landing sites that could be used during the monsoon, thus reducing the crowding that takes place during this period;
- The creation of artificial reefs.

However, all of these proposed solutions require government action and, in some cases, the commitment of development funds. The issue of overfishing, or of fishery resources being depleted. did not seem to be a preoccupation in the discussion with fishing community representatives. While some fishermen acknowledged the possibility of resource depletion. others argued strongly that this was not the case, or not the real source of the problem. Certainly during a visit to the fish landing site at Colachal, the study team observed a surprisingly high proportion of large apex predators among the catch of certain fishermen. Although the details of the fishing methods and areas from which these originated were not clear, this is apr/or/not an observation one would expect to make in a depleted fish community.

Various individuals, but especially those from Government, pointed to the high levels of wastage in the fishery due to spoilage. This was particularly acute during the monsoon, when up to 30% of the catch could be lost. This is an obvious area to be addressed, and may result in increased economic returns to those dependent on the fishery without any increase in fishing effort. Several people interviewed referred to earlier experimental work by BOBP to promote anchovy drying in the area[4], which seemed to be greatly appreciated, but was ultimately abandoned due to lack of markets for the product.

In fact this work was sponsored by DFID under the umbrella of BOBP's second phase.

One indirect observation that relates to marketing was the potential for involvement of middlemen in fisheries management. BOBP staff informed the team that a single individual was the dominant fish buyer in the area. This person had indicated that, if he felt a resource was threatened, he could modify his fish buying practices to reduce demand for that product. As a general principle, if the market for the fishermen's catch can be regulated in such a way, there is potential to use this as a mechanism for reducing fishing pressure. The effectiveness of the mechanism depends on the mechanics of this fishery, and specifically whether a reduction in market demand will actually lead to reduced fishing effort/ pressure, or just more discards.

Two artificial reefs have been deployed in the Kanniyakumari area with BOBP assistance and mediation. The national report of leamings and various items of BOBP documentation indicate that fishermen are appreciative of the reefs, have developed a sense of ownership about them, and are managing them through their own internal arrangements (although none of these comments were made directly to the study team). DOF, with BOBP assistance and support, has submitted a proposal to the central government to finance further deployments of artificial reefs.

The general impression seems to be that artificial reefs will enhance fishery resources by creating an extra habitat for fish, but research in other areas has shown that, in general (and with certain specialised exceptions) the main function of artificial reefs is to aggregate organisms already present in the area, thus increasing their catchability. In an area where resource depletion is suspected, artificial reefs may simply enable the fishermen to capture more efficiently the part of the stock that remains, even if they do lead to a small production increase. This characteristic of artificial reefs needs to be balanced against their other attributes, such as obstructing trawlers, acting as a basis for the development of user rights, which may have positive fisheries management implications.

Another management option that has been considered for this area is to encourage small trawlers to diversify into fishing activities that can be practised further offshore, in order to reduce overcrowding in inshore waters. However, few fishermen are equipped for such ventures, and there is little information on the availability of resources or the best fishing methods with which to target them. Again with BOBP assistance, DOF has submitted a proposal to the Central Government for financing exploratory fishing trials which will investigate the prospects for offshore fisheries development in the area.

In summary, it seems that BOBP's work in Kanniyakumari has made substantial progress in the face of very difficult circumstances. The problem selected for BOBP attention is one of the most intractable that the Programme has attempted to tackle, and whose solutions lie both within and well outside the fisheries sector. Unfortunately these problems appear unlikely to be resolved without the allocation of significant financial resources to support both social development and fisheries management, and it is far from certain that these resources will become available in the short-term. BOBP is attempting to leverage funds for certain fisheries-related activities which should contribute to improving the situation, but there is also a need for government to seriously address the larger social and development issues affecting the fishing communities.

Andhra Pradesh

The State of Andhra Pradesh has in recent years witnessed a period of very fast growth in shrimp aquaculture. The growth, however, could not be sustained for long, and the sector is now confronted with a large number of issues, and needs both technological and managerial interventions.

The objective of BOBP3 in Andhra Pradesh was, therefore, to enable and facilitate improved coastal aquaculture management in selected districts of the State, through awareness building, strengthening institutional capacity of concerned agencies, and technical assistance. East Godavari . West Godavari and Krishna districts were identified as the geographical focus. The Department of Fisheries (DOF) of the State Government and the Central Institute of Brackishwater Aquaculture (CIBA), Chennai were the implementing agencies. Some of the important activities implemented by the Project:

- Thirty DOF staff from East Godavari, West Godavari, Krishna, Prakasam and Nellore Districts were given an orientation on the BOBP project and its approaches and to management of aquaculture to ensure sustainability. They were also given training in undertaking stakeholder identification, stakeholder analysis and stakeholder communications and perceptions analysis using participatory rapid appraisal methods.
- A one-day consultation was held with representatives of stakeholders of coastal aquaculture in East Godavari and Krishna Districts to discuss their problems and solution options.
- .A follow-up Workshop was held for DOF staffof East Godavari, Krishna and West Godavari districts to discuss the findings ofthe stakeholder studies. Work plans for future action, which included identifying one cluster of aquaculturists in each district with whom they could work closely towards developing sustainable aquaculture, were evolved.
- DOF staff undertook field work to identify and select a cluster of farmers in each district, using the same water source, and collected preliminary information on aquaculture and socio-economic aspects ofthe selected clusters.
- A four-day training workshopwas conducted on Farming Systems Research (FSR), Participatory Rapid Appraisal (PRA) methods and collection of local and indigenous knowledge, for nine DOF and NGO staff. A detailed work plan was evolved for the conduct of FSR and PRA in the selected clusters, to get a better understanding of present aquaculture practices and problems.
- Dr Charles Angell, Aquaculturist and FAO Consultant, undertook a short mission to Chennai and Andhra Pradesh to better understand current culture practices and innovations in coastal aquaculture, with a view to recommend guidelines for small-scale coastal farmers, to enable sustainable aquaculture. Dr Angell led a one day workshop in Chennai, which brought together DOF, CIBA and industry representatives, to discuss his findings and recommendations.
- A co-operative venture of BOBP and the Aquaculture Foundation of India (AFI), an NGO representing coastal aquaculture farmers and industry, was initiated towards developing guidelines for small-scale farmers to help them practise sustainable aquaculture. The AFI project is beingsupported by the Royal Netherlands Embassy in Delhi, and the output will be illustrated guidelines in local languages (Telugu and Bangla) in comic book form. The cost of this effort, except for the participation of BOBP staff, are entirely borne by the AFI with Dutch support.

Besides the above activities, the DOF on the basis of stakeholder consultations and analysis, and farming system analysis, published useful leaflets in the local language (Telugu) on (i) *Package of Practices on Shrimp Farming,* (ii) *Identification of Quality Seed* and (iii) *Identification of Disease and its Prevention.* The DOF further seeks to improve shrimp culture operations by adopting measures such as low stocking densities, use of supplementary pelleted feed and pro-biotic.

The State has been facing financial constraints. Project objectives could not therefore be implemented as envisaged. The general feeling in the State Government is that the Government of India and BOBP will have to carry the bulk of the financial responsibility for the activities. However, the Project has been successful in building up the capacities of the DOF, staff, instilling confidence in them, and improving their communication and technical skills in handling projects of this nature. The illustrated guidelines on development of sustainable shrimp farming would be a good output of BOBP3 in Andhra Pradesh.

Orissa

Early in 1995, after the 19th Meeting of BOBP's Advisory Committee had agreed to and endorsed the proposal ofthe Situation Analysis, the GOI suggested that the geographical scope of BOBP-assisted activities along the east coast of India be expanded to include the State of Orissa. The objectives of BOBP3 in Orissa were to enable and facilitate

improved management of coastal fisheries in selected districts of the State of Orissa, through awareness building, strengthening the institutional capacity of concerned agencies, and provision of technical assistance. The geographical area of the Project was restricted to Baleshwar and Cuttack Districts. The Department of Fisheries, Orissa. in co-operation with the Central Marine Fisheries Research Institute, was identified as the implementing agency.

The State ofOrissa has a long coastline of480 km and a fishing fleet of 7,796 traditional craft, 2,453 motorised vessels and 1.665 mechanised fishing vessels below 20 meter overall length. Although the State Government has enacted the Marine Fishing Regulation Act, which provides zonation for different categories and sizes of fishing vessels to operate in demarcated areas, this seldom takes place. A sizable percentage of the fishing vessels operates in near-shore waters (i.e. within 12 nautical miles), leading to pressure on the coastal finfish and shell fish resources and regular conflicts between traditional and mechanised sectors. To address these issues, the Project implemented some important activities:

- 26 DOF staff from Cuttack and Baleshwar Districts and two from DOF HQs were given an orientation to the project and its approaches; and provided training in undertaking stakeholder identification, stakeholder analysis and stakeholder communications and perceptions analysis using participatory rapid appraisal methods.
- A one-day consultation was held with representatives of stakeholders of coastal fisheries in Baleshwar and Cuttack Districts to discuss their problems and solution options.
- The participating DOF staff undertook six weeks of field work in their respective Districts to do the stakeholder studies.
- 10 DOF staff were trained in the design, planning and management of participatory exploratory fishing trials, by international consultant. Dr Marcel Giudicelli.
- Field study on stakeholder perceptions and communications was undertaken by the DOF staff trained at an earlier Workshop (August 1997).

The activities under BOBP3, in spite of a good beginning, could never take off in the State. Retirement of a large number of senior-level officials ofthe DOF at very intervals brought in a state of vacuum and many activities, including those under BOBP3 in Orissa were shifted to a lower priority. The financial crisis in the State further compounded the problem. Delays in filling up vacant positions and the continuing financial crunch did not allow the situation to be reversed. At the 23rd Meeting of the Advisory Committee of BOBP it was, therefore, agreed that the BOBP-assisted activity in the State of Orissa should be terminated as, given the delays in implementation, it would be difficult to do justice to the objectives within the remaining period ofthe Project.

West Bengal

BOBP3's work in West Bengal has focussed on improving the management of coastal shrimp aquaculture systems. Shrimp aquaculture is a traditional activity in the State which dates back at least 200 years to a time when it was carried out within a mixed rice! shrimp polyculture system. Rice paddies were allowed to flood at the beginning of the growing season, permitting wild shrimp post-larvae to enter the fields. Following the rice harvest, shrimps and other species (notably mullet) were also cropped. Subsequently, farmers began to supplement the shrimp stock by collecting additional post-larvae from the wild and putting them in the paddy fields. With time, some farmers abandoned rice growing altogether in order to focus on the more profitable shrimp and fish culture. Initial stocking of the fields still relied on the process of seasonal flooding, but the importance of additional stocking with wild-caught larvae progressively increased.

Eventually this system led to the establishment of permanent ponds which were stocked almost entirely using wild-caught seed. Initially such farming was carried out extensively, with low shrimp stocking densities and without supplementary feeding. Expansion of this economic activity was supported through a World Bank Project in West Bengal which began in 1992, and which provided technical and financial assistance to allow poor farmers to take up

shrimp aquaculture. Subsequently, some larger companies also got involved in shrimp farming, and established operations with higher stocking densities (using seed produced in their own hatcheries) and artificial feed. These techniques were picked up by some of the smaller farmers who also began stocking at higher densities, using wild-caught post-larvae and compounded feeds.

The large numbers of post-larvae being collected from the wild to stock the farms began to be a source of concern to the government, because of fears about depleting natural stocks, and because the collection methods used (push-nets and set bag-nets) destroy the larvae of many other species. As a result the Central Government in 1995 issued a set of guidelines on the management of shrimp aquaculture, recommending that State governments ban wild shrimp seed collection. A number of hatcheries also began to be established at this time, and there are now 14 in operation, so there is a reasonable supply of hatchery-produced seed available to farmers. Despite the ban, however, wild collection of shrimp seed continues, partly due to lack of enforcement capability by the state government. In fact, although some of the wild-caught seed is used to supply farms in West Bengal, the majority goes to neighbouring Bangladesh, where demand for shrimp seed far outstrips supply.

In 1995 West Bengal too was struck by shrimp 'white spot' disease which started in some of the southern States and then moved north up the coast. The disease first appeared in West Bengal in company-owned farms, then spread to smaller farms, and wreaked extensive damage to both. Farmers believed that the disease came about as a result of the use of hatchery-produced seed by the large farms, and from infected feed. In reality the problem was more likely to have been associated with overstocking and poor water management practices (which for example led to waste water from one pond or farm being taken into another).

It was at this time that BOB P3 came into the picture, and, working with the West Bengal State government, identified management of the shrimp farming as its area of focus. After the initial period, during which the nature of BOPB's interventions was defined, field activities began in 1996. These focussed on training DOF staff in stakeholder consultation and participatory rapid appraisal techniques, and organisation of information-gathering activities in the State's three coastal districts. Subsequently a number of workshops were held to discuss the findings of the information-gathering activities and to develop management initiatives. Most of these focused on helping farmers manage their shrimp culture activities more effectively through establishment of appropriate stocking densities, proper management of water exchange, and improving feeding regimes.

The most intensive period of BOBP3's activity in West Bengal was in 1996, when many of the training and consultative activities were carried out. BOBP's inputs tailed off in 1997 and later years, partly because the DOF had been equipped with the basic skills needed to move forward, and partly because other agencies began to become involved in aquaculture nianagement activities. One of these was the Ramakrishna Ashram Krishi Vigyan Kendra (RAKVK), a development NGO set up by a religious organisation in West Bengal. This agency, which receives financial support from both State and Central governments, was first commissioned by BOBP to assist in the delivery of some of the programme's training activities. It has since developed its own training courses to help shrimp farmers. In addition the Aquaculture Foundation of India (AFI), with funding from the Dutch Government, also began to study the problems ofaquaculture management in the area, and organised workshops and studies to this end. BOBP has co-operated fully with both these agencies, and now undertakes most of its activities jointly with them. There was some initial suspicion on the part of the State Government towards AFI when it first began to gather detailed information on the magnitude of aquaculture problems in the State without first properly explaining the reasons for its interest. However, relations between the State Government and the two NGOs now appear to be good.

Shrimp farming in West Bengal, as well as in the rest of the country, suffered a blow in December 1996 when a Supreme Court decision placed a ban on shrimp farming within the Coastal Regulation Zone, a coastal strip 500m wide inland of the high water spring tide line. The Supreme Court decision was made under the Coastal Regulation Zone, Notification of 1991 in response to a public interest litigation raised by private individuals who were opposed to this

form of development in the coastal zone. The Indian Ministry of Agriculture is currently seeking to have the judgement repealed, and atthe same time is developing legislation that, when enacted, will allow proper control ofcoastal aquaculture development without the need for an outright ban, which is considered too restrictive.

During the mission to West Bengal. the Mission noted the apparent overall satisfaction with the nature and quality of BOBP's inputs. Two minor complaints were raised, neither of which was felt to be serious, and both ofwhich seemed to involve procedural rather than substantive issues. The first concerned communication protocols with BOBP: it was alleged that BOBP failed to go through the proper official channels for correspondence, and that this had led to delays in responses by the West Bengal DOF. Second, an overseas training programme for several DOF officers had been requested and approved in principle by BOBP. However, the process is now stalled because BOBP is requesting DOF to submit background information on the nominees prior to final approval of the training, whereas DOF requires formal confirmation that the opportunity is available before going through the process of selecting the trainees.

Otherwise BOBP is continuing its work in West Bengal, mainly through joint actions being carried out in co-operation with the AFI and other agencies involved. Together, these bodies are developing farm management guidelines which will help coastal aquaculturists move towards more sustainable forms of aquaculture. Once completed, these will be developed into illustrated comic books in Telugu and Bangla languages for distribution to farmers. In 1998-99 the West Bengal State government niade a commitment of Rs. 500,000 to enable the DOF to undertake activities in support of the BOBP initiatives.

In summary. BOBP's interventions in West Bengal appear to have been valued and have led in particular to an increase in the capacity ofthe DOF to address aquaculture management and other issues in a participatory manner. Other BOBP impacts may have been diluted by the work of other agencies which have become involved in the same problem areas as BOBP. but in many ways this also has many positive aspects as it implies that BOBP's activities are being taken up by local bodies, as they should be.

Summary – India

BOBP's work in India has had mixed impact. There have been significant delays in implementation, partly due to natural calamities, but more often due to delays in issuance ofgovernment orders, conflicting work obligations of staff, or transfer of staff to other positions after they had been trained or had partly completed BOBP-related work. In addition, allocation of government funds in support of BOBP activities was less than expected. Initially there appears to have been a misunderstanding about the source of counterpart government funding: the States expected the Central Government to make a grant of additional funds to support BOBP-related work, but did not complete the proper procedures in order to have these allocations made. Ultimately the Tamil Nadu State Government made a counterpart funding allocation of Rs. 1.0 million in 1997-98, and the West Bengal government allocated Rs. 500,000 in 1998-99. In general terms, however, the limited financial support to BOBP3's activities from Indian government sources has impeded their progress.

An important achievement in all the Indian States appears to be that BOBP3's training activities have resulted in a genuine improvement in the capability of DOF staff to interact both with fishermen and with each other. Senior officers state that junior staff who have been through BOBP3's training programmes are now more vocal, ask more questions, and are more creative in their thinking. Although staff in some States have been transferred away from BOBP3-associated work, they take their new skills and attitudes with them and thus BOBP3 is having a more generalised positive influence on capacity-building within each state DOF.

BOBP3's work has made furtherprogress in Tamil Nadu than in any ofthe other states, with the stakeholder consultation process having been taken to an advanced stage and the need now being for interventions which will help realise some of the solutions identified. Achievements in West Bengal and Andhra Pradesh have been valuable but nevertheless

more limited, essentially comprising the provision of training inputs, co-ordinating initial stakeholder consultations, providing certain specialised technical inputs, and starting to develop guidelines for the management of coastal aquaculture.

List of persons consulted - India

Bay of Bengal Programme, chennai, Tamil Nadu

Dr. Kee-Chai Chong, Programme Coordinator.

Mr. Rathin Roy, Sr. Communications Adviser

Mr. S. R. Madhu, Information Officer (Consultant)

Tamil Nadu State Department of Fisheries, Chennai

Mr. S. Anser Ali, Director of Fisheries & Managing Director, Tamil Nadu Fisheries Development Corporation

Mr. Hans Raj Verma, former Director of Fisheries

Mr. G. Sathyamoorty, Joint Director of Fisheries (Marine)

Mr. T. Md. Lingarajah, Joint Director of Fisheries (Research)

Mr. P. Pichaiah, Joint Director of Fisheries (Inland)

Mr. K. D. Sundaramurthy, Assistant Director of Fisheries

Mr. D. Michael, Assistant Director of Fisheries

Mr. J. Jude Armstrong, Assistant Director of Fisheries, Nagerkoil, Tamil Nadu

Mr. S. Vincent, Inspector of Fisheries, Nagerkoil, Tamil Nadu

Mr. A. Robinson, Inspector of Fisheries (Marine), Nagerkoil, Tamil Nadu

Mr. S. Balasubramaniam, Assistant Director of Fisheries, Nagerkoil, Tamil Nadu

Kanniyakumari District (Coastal Peace and Development Committee),
Nagerkoil, Tamil Nadu

Fr. P. Maria Soosai, Director, CPDC

Rev. Fr. A. Selva Raj, Correspondent, R.C. Schools of Mulagumoodu Vicariate, Thuckalay

Fr. Tobias, Member, CPDC

Fr. Dionysius, Member, CPDC

Fr. Thomas, Catholic Priest, Kovalam, Kanniyakumari District.

Capt. E. Siluvai, Assistant Director of Fisheries (retd.)

Meetings with representatives of fishing communities in the Tamil Nadu villages of:

- Kovalam
- Kollachal
- Muttam
- Kanniyakumari

Group meeting with 11 Board members of the Kanniyakumari District Coastal Peace and Development Committee, Nagerkoil, Tamil Nadu

West Bengal State Department of Fisheries, Calcutta, West Bengal

Mr. B. Sengupta, Deputy Director of Fisheries (Brackishwater)

Mr. S. B. Chakraborty, Chief Executive Officer, Brackish Water Fish Farmers Development Agency

Ramakrishna Ashram Krishi Vigyan Kendra, Nimpith Ashram, South 24 Parganas, West Bengal

Dr. Dipankar Saha, Training Organiser

Appendix 6: Country summary - Indonesia

Indonesia, as the largest archipelagic State, has a coastline of 80 000 km and jurisdiction over 3.1 million sq. km of territorial waters and 2.7 million sq. km of exclusive economic zone. The contribution of fisheries to food security, employment and income has been recognized by the Government ofindonesia and fisheries development is an integral part of the National Economic and Social Plan.

Like other countries in South and Southeast Asia, the marine fisheries of Indonesia is a multi-gear, multi-species fisheries, operated by a large number of small-scale fishermen and confined to inshore and coastal waters. Fisheries in Indonesia is primarily artisanal and the fishing fleet is dominated by small boats, non-powered and outboard and inboard motor-powered boats of less than 30 GRT.

The Directorate General of Fisheries (DGF), Provincial Fisheries Service and the Central Research Institute for Fisheries (including the Research Institute for Marine Fisheries) are government agencies responsible for administration, development and management of the fishing industry in Indonesia. The DGF and the Research Institutes are under the Ministry ofAgriculture, while the Provincial Fisheries Service is underthe Ministry ofHome Affairs. The administration ofthe local fisheries industry comes under the responsibility ofthe Governor at the provincial level, and of the Head of the District at the district level.

The Mission visited Jakarta, Indonesia during the period 17-2 l July, 1999. During the visit, the Mission had detailed discussions with officials of the Directorate General of Fisheries and of the Asian Development Bank's Project at Jakarta. A list of individuals met is shown at Appendix 5. The Mission, however, could not visit any of the field sites. The observations in the document are based on interactions with DGF and others.

The Situation Analysis conducted in 1994 identified inadequate management measures and inappropriate enforcement mechanisms leading to conflicts between groups of fishermen and other stakeholders as management problems to be addressed. The recent development ofmariculture leading to collection ofwild seed using destructive fishing practices, unmanaged development of fisheries to generate feed for the mariculture sector, and pollution were cited as topical examples. Realizing the complexity of such problems and given the constraints it faces in terms of manpower and resources, the government expressed its keen interest in addressing the problems comprehensively through participatory approaches at the community level.

In view ofthis, the Situation Analysis proposed development of model management schemes for coastal fisheries and mariculture using participatory, community-based approaches to conserve and sustain coastal fisheries resources and improve the livelihood offisherfolk. The Analysis recommended a pilot exercise in the Tapian Nauli Bay area of North Sumatra Province, in the hope that learnings from the exercise could be extended to other parts of Indonesia.

The functional focus of the DOF/BOBP Project was defined as Community-Based Fisheries Management (CBFM) and mariculture and the geographical focus of the Project was identified as Tapian Nauli Bay area in North Sumatra Province of Indonesia. The implementing Agencies in Indonesia are the Directorate-General of Fisheries, the Provincial Fisheries Service of North Sumatra Province (PFS) . and concerned District Fisheries Services (DFS) in Tapian Nauli Bay area. Mr Sihar Siregar, Chief, Sub-Directorate of Mariculture, Production Division, DGF supported by the PFS, North Sumatra at provincial level was the National Project Coordinator till March, 1999. After his retirement from service, Mr. M. Ichtiadi took over as the National Coordinator. However, in consultation with DGF, FAO assigned the task of documentation of learning ofBOBP in Indonesia to Mr Siregar.

In Indonesia, the Project Objectives of BOBP3 were to undertake CBFM, facilitate and enable improved management ofmariculture, anchovy lift-net fishery and small-scale fisheries in the Tapian Nauli Bay area ofNorth Sumatra Province, so as to evolve model fishing villages. Awareness building, strengthening institutional capacity of concerned agencies

and provision of technical assistance were considered as the key activities to attain such objectives. The Project was initiated in 1995. Some of the important activities undertaken by the Project:

- Selected DGF, PFS and DFS staffwere trained in the conduct ofstakeholder identification, stakeholder analysis, stakeholder communications and perceptions analysis. The staff designed and developed a study design to undertake stakeholder analysis.
- Organized a stakeholder consultation in 1995 which brought together representatives of stakeholders of all three target fisheries for discussions ontheir problems and concerns and their suggestions of solution options.
- Conducted a Workshop in Medan. North Sumatra, in 1996, to discuss the findings of the stakeholder analysis and on the basis of the analysis evolved a project strategy and work plan. The Project work plan was endorsed by [)GF, PFS and DFS and commitments were made regarding responsibility and resource allocations to facilitate the Project.
- Assigned a study to review the institutional and regulatory framework to facilitate participatory CBFM to a group of national consultants. The report of the study is expected later in the year when it will be discussed in a national Workshop.
- Completed field work for the study of values, perceptions and attitudes of fisherfolk and other stakeholders. BOBP staffconducted an orientation in the processing ofquestionnaires into ready-made information for analysis.
- BOBP in co-operation with the DGF and the ADB-supported Project on Coastal Community Development and Coastal Fisheries Management organized a 4-day Workshop on CBFM in Bengkalis, Rjau Province, which helped the participants drawn from various provinces to better understand CBFM and incorporate the approaches in their efforts.

To implement the Project, a multi-pronged strategy was evolved on the basis of Stakeholder Analysis. At the national level it was proposed that efforts had to be taken to build awareness and promote the concepts ofCBFM and stakeholder approaches. At the local level, the approach was to build awareness on the need for, the benefits ofand the methods of management amongst all stakeholders; promote and encourage consultation and negotiation amongst and between stakeholders to arrive at management plans; and provide technical inputs to enable more sustainable practices in fisheries. The overall approach was to take the participatory consultative route, wherein solutions and strategies would emerge from consultations amongst stakeholders.

DGF designated the PFS ofNorth Sumatra and the DFS ofSiholga and Tapian Nauli Districts as the agencies responsible for implementation of the BOBP-assisted activity. These staff were trained in the conduct of the regional study of values, perceptions and attitudes offisherfolk and other stakeholders towards fisheries resources, fishing practices, and fisheries management. The questionnaire was also translated into E3ahasa Indonesia. DGF incorporated fund allocations into their annual budget to cover necessary expenses beyond the assistance available from BOBP sources.

The Mission, during their visit to Jakarta. had detailed discussions with the Director General of Fisheries, Bkp. Untung Wahyono and officers of the DGF responsible for implementation of BOBP3. The DGF at the outset said that the spirit and philosophy of the Project has been good. The fishermen have been very enthusiastic about the Programme, and it has been effective in raising the awareness levels on susiainability and CBFM. hut translation of the awareness to concrete action has not taken full shape. Training was very significant for fishermen. It had some positive impact. Earlier, management action merely meant following instructions from the Government, but now there is a better understanding in the minds of the fishermen about joining hands with the Government for management of fisheries. The Precautionary Approach Workshop in Medan was particularly good for policy- makers. It made them aware ofthe Code ofConduct for Responsible Fisheries (CCRF). A Workshop on CCRF is also being planned during 1999. Translation of the CCRF has just started, and an amount of Rupiah 120 million (Rupiah 8.500 = US $ I) for translation and distribution ofthe CCRF has been earmarked. The FAO is also being approached on this subject. The Fisheries Research Institute and the Fisheries Department of the Bogor Agriculture University are to he involved in the translation.

Summing up. the DGF said that the project has been very useful. The Asian Development Bank's project on CBFM has originated from the community-based participatory approach adopted in the BOBP Project. The Government has just acted as a facilitator. The time-scale in which the project has operated could be considered as a limiting factor, and staff shortage affected the Project. It would be very good i the programme were to continue, However, local budgeting would be difficult to come by due to the financial crisis in the country. It would have been better if there was a local representative or a national consultant to assist the project in day-to-day management. In future, the project should include a national expert.

DGF identified mariculture as an important programme to be promoted in Indonesia . Corals are being destroyed for ornamental fisheries and mariculture can he a suitable alternative avocation for preventing the corals from destruction. A combination of public awareness, CBFM and enforcement can be useful in this direction. Mariculture isjust beginning in Indonesia and it would be advisable to have some demonstration or pilot projects undertaken. It was informed that Indonesia is also looking for donors for an Integrated Mariculture Programme (Integrated Coastal Area Management).

The new law in Indonesia empowers the local Government to manage the resources. Certain areas are already managed by the community. A legal framework for aquaculture is also being prepared. Concurrently, regulations for sea farming are required, and a master plan for sea farming could be spelt out. Seaweed supports small-scale fishermen and this activity could be extended. With zonation and better planning and provision ofbackward and forward linkages, fisheries management and production can be improved in the country.

The DGF strongly recommended the continuation of BOBP as a regional concept. "BOBP can be a short-cut to us for learning from other countries like Thailand, Sri Lanka, etc. BOBP is very much needed in the future, although the priorities can be discussed."

The Mission visited the Ministry of Agriculture! ADB Project on Coastal Community Development and Fisheries Resource Management in Jakarta and held discussions with the Project Director and other officials. This is a joint project (1998-2003) between the Government of Indonesia and the Asian Development Bank. The primary objective of the project is environment, the secondary objective is poverty reduction. It is a non-revenue project; the entire assistance received from ADB is in the form of loan. The inspiration for this Project has come from the BOBP. The Project co-operates closely with the Coral Reef Management Programme.

The Project seeks to tackle the problem of depletion of coastal fisheries resources, in the context of the pervasive poverty of coastal communities. The Project consists of two phases: a first phase of 1-2 years, a second phase of2-5 years. The Project has networked with universities and NGOs. Major activities under the Project are resource assessment, socio-economic survey and market analysis. Local Project Advisory Committees have been set up. Post-harvest activities like use of ice, etc. are being strengthened to optimise fish production. The Mission suggests that activities under BOBP3 and the DGF/ADB should have strong linkages and the activities be dovetailed so as to avoid duplication of effort.

The Mission met Dr. Mohammed Prakosa, acting Head of the FAQ Mission in Indonesia. According to Dr. Prakosa, the BOBP activities in Indonesia have been very promising and in future it may be necessary to draw more stakeholders, such as universities, into the Programme. He was of the view that there are distinct advantages in a Project being regional, since the work done in other countries can be shared. BOBP could also involve itself in a more upstream policy issue. It could consider assisting the National Government in preparing the Deep Sea Policy. With more autonomy being given to the Provinces now, they would need more assistance in preparing their policies and development programmes, and the expertise of agencies like BOBP would be useful.

Dr. Prakosa suggested that FAO should be informed of developments at all stages. FAO is sometimes not aware of BOBP activities, since communication with the concerned departments is mostly direct. The Project in future should aim at strengthening national capacities and give more authority to the National Government in carrying out its activities.

National Governments too should be stimulated to participate in the TORs to be prepared for any future programme. There should be an MOU between the BOBP and the National Government in the beginning to spell out more clearly what is to be done by each side. FAO will support further continuation of the Project.

In conclusion, the Mission is of the view that notwithstanding delays due to the political situation and difficulties in identifying and assigning consultants, considerable groundwork has been done, which has given DGF and BOBP a better understanding of the problems. The DGF is interested in the progress of activities, and has given high priority to solving the problems ofmariculture, anchovy lift-net fishery and small-scale fisheries. Training activities have generated much interest. Stakeholders are aware of this Programme.

Linkages between DOF and the Provincial Government were felt to be "soft" in spirit as well as in the budget. The Fisheries Department in the Provincial Administration needs to be strengthened. The financial crisis the country has to pass through has also contributed to the project's low performance in Indonesia. The Department could not handle the Programme in a better manner due to logistics problems. Involving NGOs could have helped project implementation. The Mission was informed that BOBP did try to involve some NGOs, but the effort did not fructify. The field level activities were affected by the economic and socio-political situation in Indonesia and discussions are under way to figure means of accelerating efforts to make up for lost time. However, the success of these efforts depend on circumstances beyond the control of DGF and BOBP.

List of persons consulted - Indonesia

Directorate General of Fisheries, Ministry ofAgricullure

Bpk. Untung Wahyono, Director General of Fisheries

Mr. H. Muhammad Ichtiadi, Head, Sub-Directorate of Mariculture Development

Ms. Rina E. Hadinni, Directorate of Production Development

Mr. Reza S. Pahlevi, Directorate of Programming

Ms. Enni Soetopo, Head, Sub-Directorate of Programme Cooperation

Dr. Purwanto, Chief, Directorate of Fisheries Resources Management

Ms. Elpita Nizon, Chief, Mariculture

Mr. Sihar Siregar (Retd.), Former BOBP Coordinator

FAO, Indonesia

Mr. Muhammad Prakosa, National Programme Officer and Acting Head of Mission

Ministry ofAgriculture/ADB Project on coastal community Developmentand Fisheries Resource Management

Dr. Suseno, Project Director

Ms. Erni Wijajanti, Deputy Director (Project Administration and Finance)

Mr. Budi Haloman, Deputy Director (Project Operations)

Ms. Sayoko Setyowibi, Project Management Assistant of Planning

West Java-Jakarta En vironmental Management Project, Jakarta

Mr. Charles Greenwald, Team Leader

Appendix 7: Country summary - Malaysia

Malaysia is a federation of 13 States andthe Federal Territories ofKuala Lumpur and Labuan. The States havejurisdiction over all land up to three miles foreshore, riverine waters, mineral and fishery resources therein, while the Federal Government has jurisdiction beyond three miles foreshore up to the continental shelf limit including living and non-living resources. The Government of Malaysia recognises fisheries to be an important source of'food supply, employment and revenue from export earnings.

Malaysia has a coastline of approximately 3 400 km. bordering the straits of Malacca, the South China Sea and the Sulu sea and an exclusive economic zone of about 256 000 sq. km. Marine fisheries comprise inshore and deep sea fisheries. The inshore fisheries engages small-scale and commercial fishing vessels of less than 70 gross tonnes operating different types of fishing gear. The deep-sea fishing vessels are of more than 70 gross tonnes and employ trawl and purse seine nets, hooks amid lines, and drift/gill nets and fish beyond 30 nautical miles from shore.

Marine fisheries in Malaysia, as in the rest of the south and south-eastern Asian region, is a multi-species, multi-gear fishery. The inshore fisheries sector supports about 80 per cent of the total fishing force. More than 90 per cent of the marine fisheries are operated within 12 nautical miles territorial limits. However, the Government is now giving priority to the development of deep sea fisheries (offshore waters beyond 30 nautical miles from shore line) and aquaculture (freshwater, brackish water and mariculture).

The Department of Fisheries Malaysia (DOFM), under the Ministry of Agriculture, is entrusted with the responsibility of developing and managingthe fisheries. Besides DOFM, several other agencies at both Federal and State levels have jurisdiction oil fisheries and aquaculture activities. The Malaysian Fisheries Development Board (LKIM), and the State Economic Planning Unit (EPU) are responsible for fisheries development planning and programmes and the Harbour Master oversees the approval of fisheries programmes/operations in waterways to ensure that navigation is not obstructed. In the area of monitoring, control and surveillance of fisheries, the Royal Malaysian Navy, the Royal Malaysian Air Force, (lie Royal Malaysian Marine Police and the Customs Department are also involved along with the DOFM.

The Mission visited Malaysia during the period 11-17 July, 1999— covering Penang and Kuala Kedah during the period l 1-14 July, 1999 and Kuala Lumpur during the period 15-17 July, 1999. During the visit, the Mission had detailed discussions with the officials of DOFM at Alor Setar (Kuala Kedah) and Kuala Lumpur and representatives of fishermen associations at Alor Setar and tour operators at Pulau Payar Marine Park (PPMP). A day-long field visit to PPMP was also undertaken. A list of individuals consulted and places visited in Malaysia is shown in Appendix **5.**

To implement BOBP's Third Phase in Malaysia, a Situation Analysis was undertaken in 1994. The Analysis identified a variety of developmental efforts that have contributed to degradation of coastal resources, including destruction of mangroves for various uses, siltation, sedimentation, agriculture development, rapid expansion oftourism and destruction ofseagrass beds and coral reefs. The Analysis recommended a sustainable resource management approach to emphasize the importance of marine parks as productive ecosystems contributing to fisheries and biodiversity.

With a consensus on the functional focus referred to above, the geographical focus of the DOF/BOBP Programme in Malaysia was identified as the PPMP in the State of Kedah. Implementing agencies of the Programme include the DOFM in State of Kedah and the DOFM in Kuala Lumpur, in association with other National and State Government agencies of Kedah, representatives from EPU, Environment, Forestry, Universities (UPM and USM), fisherfolk and NGOs are the implementing agencies of the Programme. The Marine Resource and Protection Division in the DOF is responsible for implementing BOBP activities. Ms. Thalathiah Bt. Haji Saidin, Head of Resource Management Section in the DOFM is the present National Project Coordinator. However, the National Document of Learning was prepared by Mr. Raja Noordin Mohammed Raja, in the DOFM.

The Project Objectives, in the context of sustainable coastal zone management, were to facilitate and enable development and testing of methods and approaches to improve the conservation and management of marine parks, in a pilot effort in Pulau Payar, near Langkawi Island, off the coast of Kedah. The Project was initiated in 1996. Some important activities undertaken by the Project so far include:

- Identification of key stakeholders, including fisherfolk (primary targets), industry and hotel owners, dive-tour operators, divers, fish vendors and middlemen, landowners, and Langkawi Area Port Authority and developers.
- Development of awareness, to create an understanding and acceptance among key stakeholders of the need for and benefits of integrated coastal resource management, to enable their collaboration in management as stewards of the local resources.
- Development of the Special Area Management Plan (SAMP) monitoring objective to observe whether the Marine Park as managed under SAMP can increase or sustain fisheries resources in the Park waters and surrounding areas.
- Finalisation of a five-year work plan (to be regularly reviewed and revised).
- Training of 40 fisherfolk candidates for alternative livelihood skills training in ecotourism (a diving course and a eco-guide/ natural history course).
- Setting up a methodology for conducting scientific characterization studies developed along the description of activities, time frame and budget.
- Completion of a report on the visitor-carrying capacity of PPMP.
- Development of a socio-economic baseline survey instrument for the SAMP area and its translation into Bahasa Malaysia.
- Organization of two Workshops on *Precautionary Approach to Fisheries Management* and ***Stakeholder Approaches to Fisheries Management.***
- Organisation of a regional Workshop (jointly with a Canadian NGO called Institute on Governance) on *Smart Partnerships for Sustainability in the Fishing Industry.*
- Completion of a hydro-acoustic survey of the seabed and the reefs, using RoxAnn and related echo sounder apparatus, to chart the coral community structure and diversity and seabed bottom rock formation, etc.

In recent years, the Government of Malaysia has endeavoured to assess the feasibility of using integrated coastal area management as a tool to achieve sustainable coastal fisheries management. The fishery resources conservation programmes being carried out by the Government include establishment of marine parks, marine reserves and artificial reefs. Since 1987, the Government of Malaysia have notified 39 islands as marine parks and also promoted awareness of responsible fisheries through education and training by working closely with NGOs such as World Wide Fund for Nature (WWF) and with the corporate sector such as Hong Kong (M) Ltd. Bank.

The marine parks issue was chosen by the BOBP because during 1995 marine parks were a focus of national attention in Malaysia. Kuala Kedah is one of the priority development areas of the country and has also been identified as a key development area from the fisheries standpoint. The marine park at Pulau Payar was selected since the park had a considerable data base to serve as a benchmark for comprehensive investigations. On Pulau Payar, a Marine Park Centre has also been established to provide information on the islands and the surrounding waters in the form of charts, posters, maps, brochures, slides, videos, etc. for the visitors.

In PPMP there is no fishing zone up to two nautical miles. Prior to the setting up of marine parks, the DOFM was looking at the marine resources mainly in terms of fisheries. Other resources like corals were not included in their list of priorities. With the setting up of the marine parks, the resources are now being looked at in a much wider context, and the marine parks are considered centres of bio-diversity. It was felt that simple gazette notifications were not

enough, and detailed studies and investigations were necessary to achieve the objectives set for the marine parks. DOFM felt that the outcome of a pilot activity like this would have a multiplier effect.

The DOFM is approaching SAMP development through a two-tiered process: Tier I and Tier II Committees. It is proposed to have a Tier I Committee for marine parks as a whole, headed by the Chief Secretary to the Government. A Tier II Committee would be set up at the State level and would involve concerned departments such as the Town and Country Planning. The earlier experience of bringing in different Government Departments together through a Task Force and Committees has not been very successful. In Tier I, the DOF is developing a consensus-based preliminary draft SAMP. This preliminary draft will be used as a platform for discussion. In Tier II, all key agencies with jurisdiction in the coastal zone will be brought together, through consensus, to develop the detailed SAMP with consultations at each step with fisherfolk and other resource users and stakeholders. The schedules and terms of reference for the committees have been established.

The Tier I Committee was initiated in mid-1995 and worked closely with area stakeholders and State agencies to further assist in the project design, guide the scientific characterization studies and implement public outreach activities. The draft SAMP was completed in May 1997. In the First Workshop held in Malaysia, all concerned local authorities (Department of Environment, Department of Planning, Department of Tourism, NGOs) participated. Monthly seminars are being held since then to educate fishermen, school teachers and children as a part of the project. Videos and slide shows are also organised. The public awareness work under the Project is being dovetailed with WWF's ongoing programme in Malaysia.

Under the BOBP Project, mapping and preparation of coral inventories has been done for the first time. For scientific characterization of the coral reefs in the pilot project area, a hydro-acoustic survey of the seabed and the reefs, using RoxAnn and related echo sounders apparatus was undertaken for the first time in Malaysia. The activity is intended to assess the status of coral reefs in PPMP and provide a classification system based on coral growth forms, and bench mark data so that changes can be documented and measured over the years. The survey has been completed, and the data is being processed and analysed.

The Mission did interviews with tour operators, representatives of the Anchovy Fishermen Association of Pulau Langkawi and the Fishermen Association of Kuala Kedah to assess their perception of the Project. The tour operators engaged since 1976 operate licensed boats to bring in tourists. No other boats are allowed to bring in tourists. The tour operators have not been directly involved with the BOBP, although the Project staff have been meeting them now and then. Even these sporadic meetings appear to have had a positive impact on the tour operators; they were found to be aware of the Project's goals and objectives, and in their own little way helped educate tourists through video tapes and posters before they arrived at the park. However, the operators could not specifically comment on the carrying capacity of the Park. They were of the view that more tourists would mean more business. The tour operators opined that activities on land exert greater impact on marine fisheries, and the wastes coming from the mainland through currents and tides are responsible for degradation of the water quality.

Representatives of Fishermen Associations were of the view that ever since the Park has been set up, the fish population has gone up, so has catch consistency. There are 35 units of anchovy fishermen operating from Pulau Langkawi and annual landings are 200-300 kg (dry) per unit (wet:dry; 4:1). Small purse seines are used for anchovy fishing in waters surrounding the islands and the catch is dried. Dried anchovies are popular in the area and sold for about RM 6-8/kg (US $ 1= Malaysian Ringitts 3.76). During the last 10 years fishing effort has been constant. The Association felt that more boats at this stage would mean a drop in the CPUE. However, if marine parks are managed better, they can sustain more entrants: but the optimum effort that can be deployed will also depend on the supply and demand position. The representatives said that issues such as marketing of anchovies to enable the fishermen to get better returns should be taken up under programmes run by agencies like BOBP.

In Kedah State, about 60% of the fishermen are members of the Association. Small fishing communities are not members of the Association. Some of them join. but do not pay the membership fee. Members of the Association are mainly involved in trawl fisheries. The association is of the view that development of marine parks is valuable and in the long run would benefit future generations. They also opined that trawl fisheries should be restricted or even banned since it would destroy the resources. This view was supported by the anchovy fishermen. The Kedah Fisheries Association opined that future programmes of BOBP should concentrate on issues such as regulating fisheries activities (e.g. reducing trawl fisheries or better managing it, closed seasons, more closed areas, etc.).

There are no serious conflicts between different groups of fishermen in the region. In fact, issues are often resolved by the fishermen themselves, many of the fishermen being closely related to one another. The Mission is of the view that implementation of Community-Based Fisheries Management (CBFM) would be much easier in such closely knit coniniunities ifthe issues to be managed are properly identified, prioritised and discussed with the community prior to their implementation.

The Mission visited the Fisheries Research Institute (FRI) at Pulau Penang to solicit the views of the research fraternity about the Project and also the areas in which future thrust is required. FRI takes up research programmes relating to fisheries resources, ecology, aquaculture, extension and post-harvest fisheries. The Director of the Institute pointed out that activities like oyster farming and hatchery management implemented by BOBP in earlier phases have been highly successful in Malaysia. In the present phase, there are no quantitative proofs as yet, but qualitative evidence is available about the abundance of fry (such as that of groupers) due to the setting up of marine parks. He also felt that coastal waters are optimally exploited and nothing much can be done. To increase marine fish production we would have to go to deeper waters.

The Mission had detailed discussions with the Director-General Fisheries, Malaysia, Dato' Mazlan Jusoh, and his officers in Kuala Lumpur. The DG very clearly articulated a switch in the policy of DOFM from a strict enforcement-based top-down approach to a more participatory approach. In Malaysia, the thrust has so far been on enforcement which requires heavy expenditure on operation of patrol boats, crew, etc. The enforcement staff is on the high side, and the DOFM is thinking of reducing the cost of management and passing it on at least partly to the stakeholders – thereby switching from enforcement-based management to CBFM.

The DOFM was of the view that BOBP activities have been good and have provided the required technical backstopping. They have also been very flexible in their implementation. During the Third Phase, while the Programme's operation in other BOBP countries has related mainly to fishing activities, in Malaysia, it has been concerned with conservation, productivity and better economic viability for fishermen. The fishermen community in Malaysia has itself been appreciative of the problem. Awareness is growing among all stakeholders – creating awareness is one of the Project's most important achievements. Though there are problems with illegal fishermen, destructive forms of fishing like dynamite, cod-end mesh size, and fishing methods using light, etc, such practices can be reduced through CBFM. The Project has also set up a mechanism for linking Federal and State agencies. Training has been a very productive exercise, and BOBP has succeeded in communicating the message of CBFM and the process of getting across to the community. Effective implementation of CBFM will reduce the cost of monitoring and surveillance (e.g. operation of patrol boats). Awareness creation is one of the Project's important achievements.

On the issue of regional projects versus nationally executed projects, the DOFM was of the view that external funding has a catalytic effect in generating local funding. Decision- makers are aware of the needs of sustainable development; though this awareness is not tangibly manifest, the impact is. The Project's documentation in the form of newsletters is good and sufficient copies are available for distribution. The training conducted and the meetings attended have been useful and beneficial. There is a flexibility in the Programme and its implementation which makes it better than the nationally executed programmes. BOBP's informal style has been beneficial to the Project. The oyster project implemented by BOBP in the earlier phase was a clear contribution of the aquaculture industry to Malaysia. Crab

fishery management has picked up. It began with discussions initiated by BOBP, and was then taken forward by DOFM. The Project provides good exposure to work done elsewhere in the region, thus highlighting the advantages of a regional mechanism.

The DOFM laid stress on organisation of study tours to sites where CBFM has been successfully implemented. The success of BOBP elsewhere in the region can contribute to the CBFM initiatives in Malaysia. The training courses conducted for 25 fishermen in crab fattening at Phang-Nga Bay would be useful. In future, some work on mangroves would also he ideal. Downstream activities are not as well developed as in Thailand. About 40 % of the catch is either fully or partially lost due to bad handling.

The activity chosen by BOBP in the Third Phase requires long-term developmental effort. DOFM would like to continue it and make CBFM a nation-wide programme. The Seventh Five Year Plan of Malaysia concludes in 2000 A.D. and the Eighth Plan starts in 2001. A big and ambitious CBFM project is being planned for the Eighth Plan. It is proposed to undertake studies on the carrying capacity ofmarine parks and aquaculture systems (ponds, cages or pen culture) as a follow-up to BOBP activities. Guidelines are being formulated for lake and coastal area planning. The Project has also led to the concept being propagated at the grassroot level, especially to school children. National execution and cost-sharing are working in Malaysia, and funds from the Treasury are being made available to top up the BOBP budget to implement the work plan. Interest in fisheries management, particularly in consultative and participatory management (read CBFM), is high.

The Mission observed that the start of the Project was delayed and it actually took off only in 1996. However, a duration of4-5 years for such projects is not enough for good results. Project implementation has been slow because of manpower constraints. Full- time attachment of staff on a contract basis would have been useful, since the DOFM has manpower limitations. Financial arrangements under the Programme were also to some extent a bottleneck. Funds should have been made available at the operating level and not routed through the headquarters – a procedure that often resulted in delays. Interaction with the stakeholders appeared to be less than desired. Time allotted to the resource persons sent by BOBP on different occasions was too short and there was no follow up after the visit. Too frequent changes/dislocations in the DOFM staffallocated to the Project disrupted smooth conduct ofthe activities. Further, too many activities were taken up by the BOBP in a short period, and allocation of time by the DOFM staff became a constraint. The socio-economic survey component could not be carried out successfully.

On the whole, the Marine Park development programme in Malaysia seems to be well organised and easily manageable and with few problems at this stage. However, the conservation ofmarine parks cannot be viewed in isolation. Activities on land have considerable impact on coastal ecology and consequently on marine fisheries. The Mission felt that Malaysia has a complicated legal system, with several States, Federal Agencies and powerful statutory bodies enforcing, independently of each other, several sets of laws and regulations. There are more than 10 parent acts and numerous subsidiary laws which are relevant to the management and sustainable development of fishery resources and environmental protection. There are many proposals concerning coastal management plans, but no legal documents to back them up. There is no coastal regulation zone either. For regulation ofaquaculture, a draft document is ready, but not yet fully approved. Effluent discharges are monitored as per the standards of the Department of Environment, but not applied very rigorously. To effectively address the goals of sustainable development and management of natural resources, it would be essential to strengthen or amend these laws and regulations.

List of persons consulted - Malaysia

AlorSetar, **Kedah**

Mr. Gulamsarwar bin Jan Moharnad, State Director, Kedah / Perlls

Mr. Raja Mohammad Noordin, Senior Researcher, DOF, Kuala Lumpur

Mr. Zainuddin Bin Ilias, Research Officer, Fisheries Research Institute, Penang

Mr. Suhairny Sutong, Head of Marine Park Unit, Kedah/ Perlis

Mr. Zakaria Haji Tayib, Senior Fisheries Assistant

Mr. Gob Hiang Aun, Facilities Manager, Sriwani Tours & Travels Sdn. Bhd., Langkawi Coral, Langkawi

Mr. Li Peng Chew, Secretary. Anchovy Fishermen Society of Pulau Langkawi

Mr. U. Chang Teik, Anchovy Fishermen Society of Pulau Langkawi

Mr. Boo Nim, Boon Anchovy Fishermen Society of Pulau Langkawi

Mr. Boo Khong Kee, Anchovy Fishermen Society of Pulau Langkawi

Mr. Tan Soo Kooi, Anchovy Fishermen Society of Pulau Langkawi

Mr. OngJin Choon, Anchovy Fishermen Society of Pulau Langkawi

Mr. Jusoh Haji Awang, Secretary, Kedah Fisheries Society

Penang

Dr. Ismail Bin Awang Kechik. Director, Fisheries Research Institute

Mr. Zainuddin Bin Ilias, Research Officer, Fisheries Research Institute

Kuala Lumpur

Dato' Mohd. Mazian Jusoh, Director-General

Dr. Kamaruzaman Haji Salim, Fisheries Officer& Head of Planning

Mr. Mohammed Zin Saad, Fisheries Officer, Marine Extension Unit

Ms. Rodiah Idris, Head of Licensing Section

Mr. Mohd. Sufian Sulaiman, Fisheries Officer, Marine Enforcement Unit

Ms. Thalathiah Bt. Haji Saidin, Head of Resource Management Section

Mr. Rala Mohammad Noordin Raja Omar, Senior Researcher

Mr. George Chong, Head of Extension & Training Section, Marine Fisheries Department, Kuching, Sarawak, P.O. Box 1375

INFOFISH, Kuala Lumpur

Dr. K. P. P. Nambiar, Director

Appendix 8: Country summary - Maldives

The environment in which BOBP has operated in Maldives is quite different from that in the other countries of the region. In fact, Maldives is riot actually located in the Bay of Bengal; it was not one of the original members of BOBP and joined the Programme officially only in 1988, during the Second Phase (BOBP2). The fishery management problems being faced in Maldives are unique among countries of the region. Being an atoll country, Maldives has few land-based resources, and the country's reefs and lagoons are vitally important. Unlike other BOB countries, where fishery management can he seen as a separate discipline from, say, land management, in Maldives the entire country is essentially littoral, and fishery management needs to take place in the broader context of integrated coastal zone management.

In fact, it is only in recent times that inshore fish have come to be exploited substantially in the Maldives. Traditionally. the mainstay of fishing activity has been tuna, an offshore resource so extensive that it would be virtually impossible for Maldivian fishermen alone to make any noticeable impact on abundance. Nowadays, however, the far more fragile inshore resources are being increasingly exploited, with some components (live groupers, aquarium fish, beche-de-mer) being used exclusively for export, and others (fish and shellfish) being used for subsistence consumption or to supply the large and still -growing, tourist industry. In addition, the practice of mining coral and lagoon sand for construction purposes has increased, with potentially negative consequences for marine resources and the marine environment.

This latter factor is becoming more critical due to the growth of the Maldivian tourist industry, especially in the last decade. Tourism has introduced a new set ofmarine resource users into the Maldivian system: recreational divers who visit the country in order to experience its 'pristine' reefs. Coral and sand mining, as well as fishing activity, both impinge on this non-extractive form of resource use by making the reefs less attractive to tourists, whose spending is now a key component of the Maldivian economy. Even the practice by tuna pole-and-line boats of catching live bait using lift nets in the lagoon or over the reef is now becoming a management issue. Previously there was little concern over this type of fishing. since harvesting was done mainly on an artisanal scale, and baitfish were not used for other purposes. However, the recent expansion ofthe tuna fishery. which is using improved technology (night-time fishing with above-water lights to attract the fish). more and larger fishing boats, and collector vessels located in different parts of the country, raises fears about resource depletion. In addition, baitfish often aggregate in reef channels which happen to he good dive sites and are thus frequented by tourists. A thinner baitfish population would have a negative effect on the tourist business. So would any damage to live corals by fishing gear.

Many of the management challenges being faced in Maldives are thus not really fishery-related; they are more in the nature ofeffectively managing multiple uses ofan essentially limited resource to provide the country with the greatest economic, social and environmental benefits. The term that has come into use in the Maldives for this approach is Integrated Reef Resource Management, or IRRM, and this is the area in which BOBP3 has been providing support. Although it is recognised that IRRM requires the active participation of many stakeholders, including several different Government Departments, BOBP3 has worked through the Ministry of Fisheries, Agriculture and Marine Resources (MOFAMR), and specifically through MOFAMR's Marine Research Centre (MRC) which was designated as the agency responsible for liaison with BOBP.

In fact, BOBP involvement with IRRM began during the second phase, which was mainly concerned with extension activities. In most of its member-countries, BOBP2 concentrated on using extension as a tool to increase fishery production, but in Maldives the approach was different. As noted above, Maldives actually joined BOBP only during phase 2, and it was apparent at the time that the approach taken in other countries would be unlikely to work in Maldives because of its unique nature and its limited resource base (apart from tuna). In addition, the multiple-use nature of resource management problems in the Maldives was already becoming apparent. So the extension inputs of BOBP2 were used partly to help gear up the MOFAMR to deal with management issues. Although some more 'classical'

BOBP2 activities were carried out, including the introduction of boat-hauling devices and a study on the bio-economics of fish aggregation devices. Programme activities also resulted in the establishment of an Extension Unit within the Ministry, the development of marine resource teaching materials for schools, preparation of a handbook on fisheries data collection, and several resource assessments which were used by the Government as a basis for developing management regulations. By the time BOBP2 concluded, the conceptual basis for the IRRM programme in the Maldives was well-developed. Unlike in other member countries, therefore, BOBP3 was not starting from scratch in Maldives. Even if management policies and strategies were poorly defined, the Programme was able to bu lid on a strong foundation of management consciousness and enthusiasm within MOFAMR, in the private sector, and among coastal communities.

Activities undertaken by BOBP3 have built on this foundation in order to further the IRRM process. As a first step, MOFAMR designated the MRC as the agency responsible for the implementation of the BOBP-assisted activity. A team from MRC and MOFAMR was assigned to undertake the project work and firm fund allocations were made in MOFAMR's budget to enable national execution ofthe project. Four MRC staffwere trained in undertaking stakeholder identification. stakeholder analysis. and stakeholder communications and perceptions analysis.

Subsequently, a wide range of BOBP3-supported activities have been undertaken, including the following:

- Field trips were made to four atolls selected as possible IRRM pilot sites. Discussions were held with stakeholders about the orientation of the project and the needs and concerns of the communities in regard to IRRM;
- A five-day National Workshop on Integrated Reef Resources Management was held in Male, which brought together MOFAMR and MRC staff, senior representatives of all concerned government departments, representatives of stakeholder groups, and selected experts from all over the world. The workshop evolved recommendations and a draft IRRM strategy;
- MOFAMR and MRC used the recommendations of the workshop to develop a work plan for the high priority actions necessary to follow-up on the recommendations, a draft management plan, and a draft IRRM implementation framework. These materials were forwarded to the Fishery Advisory Board (the highest ministerial level authority which guides fisheries policy and action in the Maldives) and were approved with minor changes;
- Further field work was undertaken in the four pilot atolls. Discussions were held with Atoll Chiefs and Atoll Development Committees to determine the priorities of each atoll and to evolve implementation modalities and mechanisms. Atoll Chiefs and Atoll Development Committees agreed to initiate the collection of geographically-referenced data on resource use to facilitate future decisions. These data are being maintained at the Atoll level and communicated regularly to MOFAMR and MRC.;
- *Fishes of the Ma/dives,* an identification catalogue of economically useful species found in Maldivian waters, was designed and developed by MRC and published by BOBP and MOFAMR. MRC and BOBP also published a poster on 'Life on a Coral Reef as an awareness building tool to be introduced into every classroom in the Maidives;
- Based on information collected at the atoll level during the previous field work, MOFAMR and MRC developed sector-by-sector management plans for the pilot areas. A workshop to present these plans was held in February 1998. The workshop brought together technical staff from all concerned departments, Atoll Chiefs, Atoll Development Committee representatives and MOFAMRJ MRC staff. The workshop came up with an agreed plan of implementation for IRRM and proposed co-ordination and co-operation mechanisms to facilitate implementation.
- A one-day orientation workshop on the Precautionary Approach to Fisheries Management and the Code of Conduct for Responsible Fisheries was held in February 1998 in Male. The workshop brought together technical staffffrom all concerned departments, Atoll Chiefs, Atoll Development Committee representatives and MOFAMRI

MRC staff. The meeting focused on operationalising the Code in the context of the Maldives and proposed strategies and actions to achieve such integration;

- A three-day workshop brought together a dozen staff from MOFAMR and MRC to evolve a logframe for the IRRM programme and initiate discussion on a monitoring and evaluation system for the IRRM programme in general and the BOBP-assisted activity in particular. The workshop provided an opportunity for the MOFAMR/ MRC staff to identify the particular activities that BOBP could best undertake. The IRRM programme was broadly broken down into three programme areas with BOBP involvement focussing on one of the units, namely that which dealt with promoting participatory stakeholder management and building managerial capacity of the MOFAMRI MRC staff.
- A field trip was undertaken to Meemu and Vaavu atolls to initiate the IRRM programme in these two pilot areas. Discussions were held with the Atoll Chiefs and members of the Atoll Development Committees to identify the priority areas where work could begin. These were determined as the establishment of marine parks, management of bait fishing and management of coral mining.
- Arrangements for a study of traditional management of reef resources by counterpart staff of MOFMAR were set in motion;
- Equipment was supplied to the Meemu Atoll to support the establishment of a Community Learning Centre, intended to facilitate dialogue and communication amongst stakeholders and to further management practices.Despite this seemingly long list of inputs, discussions in the Maldives indicated a feeling that BOBP3 had not contributed as much as it should have, and that the Programme could have done a lot more if it had had access to more extensive resources. In addition, while BOBP3 was praised for its in-house skills in communication and facilitation, there was some dissatisfaction about the programme's inability to provides support in a number of technical areas, including establishment of Geographic Information Systems (GIS), planning for and setting up marine protected areas, etc. There was a feeling that the Programme could have done more to encourage direct information-sharing between member countries, for instance through TCDC activities or study visits. As an example, there was a potential linkage between BOBP's work in Maldives and that in Malaysia, but little advantage appears to have been taken of the possibilities for information exchange. In addition, the possibility of Maldives being able to draw on the expertise of CMFRI in India, or NARA in Sri Lanka, was mentioned as something that **BOBP3** could usefully have facilitated.

Any criticism nevertheless focussed only on the magnitude of BOBP's inputs, not on its quality. The high standards and professionalism of BOBP's staff were regularly alluded to, and the value of the Programme's inputs was emphasised. In addition, the flexible nature of the Programme, which made it more responsive than many other technical assistance agencies, was commended, although the negative aspects of this approach (sidetracking of official procedures, and the increased dependence on the personalities involved to 'do the right thing') were also mentioned as something to be wary of.

It was felt that Maldives would probably have followed the same approach towards IRRM in the absence of BOBP3, but that progress would have been considerably slower without the Programme's inputs. In addition, the advantages of participation in a regional activity such as BOBP were underlined. These included the usefulness of being able to attend international gatherings of fishery managers in order to learn about problems and solutions in other countries, and the motivational effect that arose from being 'on show' to other countries. There was strong support for the idea of a continued regional mechanism for collaboration and technical assistance in fisheries and coastal resource management.

Future plans in the Maldives involve further development of model IRRM projects on Vaavu and Meemu atolls, with the aim that these models will ultimately be extended to other parts of the country. As part of the overall management plan it is hoped to establish a national marine resource GIS, based in Male but with nodes on each participating island linked by telephone, so that fishery data (which, as mentioned above, is already being collected in some locations) can

be entered locally. A study oftraditional fishery practices, which has been planned for some time, was just commencing at the time of the present study, and is expected to provide additional material that can be used to develop the model IRRM arrangements.

Management ofmarine resources in Maldives thus makes progress in an apparently satisfactory manner. The Government has adopted the approach that its role is to provide guidance to communities, but that to be effective, management has to take place at the local level, since enforcement of centralised fishery management laws is costly. difficult and inconsistent with current practices and authorities in the country. Many island communities have become more aware ofthe need for and benefits of management, and have taken positive action in this regard, for instance in beginning to develop zones where fishing is prohibited in order to conserve the resource for divers. Although there is still a great deal of progress to be made, there is widespread confidence (including in BOBP3) that MOFMAR's various technical and management goals can be achieved and that they will be sustainable.

The Republic of Maldives is a small country compared to others in the BOBP. Because of its smallness there are fewer bureaucratic layers, and management decisions are quicker. In addition, management boundaries are much clearer than in other countries: there are 20 Atoll administrations, each one of which has a cabinet-level Atoll Chief, and essentially no contiguity with any other atoll. Within the atolls, there is an island chief for each separate island, who is responsible for management decisions affecting, on average, about 200 persons. The communities themselves tend to be vocal and, being small, are relatively coherent without too many internal factions. In general, therefore, the decision-making process is flat, without too many hierarchical levels, and strongly community driven. This may be part of the reason why Maldives has been able to make such good progress with the actual implementation of management arrangements at community level.

List of persons consulted - Maldives

Fisheries Division, Ministry of Fisheries, Agriculture and Marine Resources, Male

Mr. Maizan Hassan Maniku, Director-General of Fisheries Research & Development (Retd.)

Mr. All Waheed, Research Officer, Marine Research Center

Mr. Hassan Shakeel, Senior Researcher, Marine Research Center

Ms. Shuayya Rasheed, Researcher, Marine Research Center

Directorate ofAgriculture

Mr. Jaadullah Jameel, Executive Director, MOFAMR

Mr. Mohammed Fais, Assistant Director, MOFAMR

Appendix 9: Country summary - Sri Lanka

BOBP3 's work in Sri Lanka has focussed on establishing management arrangements for the expanding aquarium fish fishery in the country. with a particular focus on the southwest coast from Puttalam to Hambantota. The objective of the project is to facilitate and enable improved management of the ornamental fish sector through awareness building, strengthening the institutional capacity of concerned agencies and provision of technical assistance. Although focussed on aquarium fish, BOBP's work is intended to take place in the broader context of conservation of critical aquatic habitats such as coral reefs, lagoons. mangroves, sea grass beds, estuarine and riverine systems, and to promote sustainable resources utilisation from such habitats.

Aquarium fish collection is not a new activity in Sri Lanka, which was a pioneer in the industry. Between 1930 and 1960 the country had a thriving trade in the export of ornamental freshwater fish, which were sent mainly to Europe by ocean steamer. However, the industry declined due to a combination of factors, including competition from other countries, a failure to keep up with technology, and an unfavourable business environment created by protectionist Government economic policy.

In more recent times the industry has revived again, thanks to the opening up of the economic system and the growth of the tourist and air travel industry, which has provided direct air cargo connections to numerous destinations in Europe, the Middle East, Asia and Japan. The current phase of ornamental fish industry development began around 1991, when live fish exports were valued at Rs. 41, or about ***5%*** of the total fish export value. In the subsequent seven years there was a 13-fold increase in the value of exports (compared to an eight-fold increase in the value of total fish exports) which resulted in aquarium fish accounting for about 8% of the total. About 60% of the ornamental fish exported are marines, with the rest being brackish water or freshwater species. Although there are numerous companies registered as live fish exporters, only about 20 are actually doing any exporting at present.

Despite its rapidly growing economic importance, not much information exists about the ornamental fish sector in Sri Lanka and there are no data to suggest that any of the stocks are under stress or in danger. However, Sri Lanka's BOBP3 situation analysis, conducted by the Department of Fisheries and Aquatic Resources (DFAR) in 1994, identified the ornamental fish sector as a problem fishery whose management was considered a high priority need for the following reasons:

- Ornamental fish are collected from some of Sri Lanka's most vulnerable environments, including coral reefs, mangroves, lagoons, estuaries and sea grass beds. There was therefore concern about the future sustainability of the country's rich aquatic resources. Several NGOs had expressed concern that activities such as collection of ornamental fish were destroying Sri Lanka's biodiversity and putting the environment and the people at risk;
- Several government agencies have mandates that oversee wildlife, environment and natural resources utilisation. Legislation, rules and regulations in regard to some of them were in conflict with one another. The government felt the need to rationalise the process to promote a more coordinated multi-disciplinary approach;
- DFAR was of the opinion that the lessons learnt from improving the management of the ornamental fish sector would guide and give direction to processes to improve the management of larger and perhaps less organised fisheries that target food fish.

To this list should perhaps be added a national-level fisheries management programme that was already operating in Sri Lanka at the time BOBP3's work programme was being planned. This five-year initiative, funded by the United Nations Development Programme and executed by FAO, aimed at improving the management of all types of marine food fisheries throughout the country. In addition to the reasons cited above, it seems only natural that DFAR should have selected an area for BOBP3 attention that was riot already being addressed by another Programme.

Little is known about the populations or the biology of many of the ornamental fish species being collected. Some are rare or endemic to Sri Lanka, and there is a concern that the rapid growth of the industry or indiscriminate collection could lead to overfishing. Management of the fishery thus relies on improving knowledge of the biology and ecology of the species concerned.

There is also the question of how the fish are collected. So far toxic poisons or narcotics do not seem to be used as collecting tools, as they are in many other countries, and Sri Lankan aquarium fish have an enviable reputation of being 'drug-free'. The Government has also placed a ban on some fishing gears which are not eco-friendly, such as 'moxy' nets (a type of surrounding net which touches onto the coral and which may be used in conjunction with coral smashing). Management arrangements for the fishery will need to ensure that there is no movement towards the use of harmful or destructive collection methods.

Equally important is the impact that human activities in the coastal zone -- and beyond -- may have on the habitats of ornamental fish. As noted above, these include coral reefs, mangroves, lagoons, estuaries and sea grass beds. A wide range of activities including deforestation, agriculture, the mining of coral for lime and cement, food fisheries, sewage disposal, garbage dumping, industrial pollution and tourism, all of which have direct and indirect effects (mostly detrimental) on these habitats. It may therefore be futile to attempt management of ornamental fish collection by itself without also attempting to preserve the quality of the habitats which concerned. The management of the ornamental fish fishery in Sri Lanka thus quickly becomes a much larger-scale coastal zone management problem, with all the usual attçndant issues. As elsewhere, coastal zone management in Sri Lanka is complicated by the fact that several government agencies are involved in or have jurisdiction over different aspects of the zone, and need to work in concert if a rational and cohesive programme of management is to be put in place.

Against this background, BOBP began a process of stakeholder identification, problem identification, and awareness-raising. MFARD designated DFAR and NARA as the primary agencies responsible for implementation of the BOBP-assisted effort, and the activity was incorporated into Sri Lanka's 1995-2000 National Development Plan, The Government committed a budget of Rs. 500,000 into the fisheries plan to facilitate national execution of the project. Four staff of NARA were trained in undertaking stakeholder identification, stakeholder analysis and stakeholder communications and perceptions analysis. A one-day stakeholder consultation was held with selected NGOs interested in and concerned with the ornamental fish sector, which resulted in the concerned NGOs agreeing in principle to participate in the management process. BOBP and Project staff undertook stakeholder analysis by meeting representatives of concerned government agencies, the Live Fish Exporters' Association and the Ornamental Fish Breeders' Association.

The findings of the stakeholder analysis gave direction to the development of a project strategy and detailed work plans for the year 1996 and beyond. The analysis suggested that while a lot of differences existed in the perceptions of problems and solution options by the various stakeholders, there was a clear commonality, in that all parties feel that they stood to benefit in the long term from a programme that would ensure the sustainability of the resources and the habitat.

The central aim of the BOBP-assisted work was thus determined as being to promote consultations and negotiations amongst and between stakeholder groups in order to arrive at a negotiated management plan. To aid and assist the consultation process two parallel activities were planned. One was to add to knowledge of the status and trends of resources and habitats to provide the stakeholders with the best available scientific information on which to base their decisions. The second was awareness building on the need for, benefits of and the methods of management amongst all stakeholders. Once the broad approaches had been agreed, BOBP provided support to a wide range of activities, including the following:

- BOBP and DFAR conducted a two-day Orientation Workshop on Fisheries Management for all middle and senior level staff of MFARD and its associated agencies, including District Fisheries Extension Officers;

- BOBP and MFARD conducted a stakeholder consultation to bring together senior administrators and technical staff of 15 government agencies. interested in and concerned with the management of the ornamental fish sector to discuss the issues and concerns and to invite suggestions on how to improve coordination and cooperation in the sector's management;
- 12 staff of DFAR were trained in the conduct of a regional values, perceptions and attitudes study of fisherfolk and other stakeholders towards fisheries resources, fishing practices and fisheries management;
- DFAR and BOBP conducted a one-day meeting with ornamental fish divers and collectors in the Colombo and Negombo areas so as to better understand their problems and elicit their views on solution options. An important issue that came was the mobilization of the divers into an association or a union to represent their interests;
- DFAR and BOBP had discussions with leading insurance companies regarding the possibility of developing custom-designed insurance schemes for accident and life coverage ofdivers. With theco-operation ofMFARD, insurance schemes have been initiated for fisherfolk and divers;
- MFARD organized a meeting of the stakeholders of the ornamental fish sector. The meeting resulted in a recommendation to the Minister for Fisheries and Aquatic Resources Development to request the Cabinet to establish a high-level, inter-ministerial task force on policy and strategy for the conservation and management of critical aquatic resources and habitats, which would coordinate and oversee conservation and management efforts;
- BOBP co-sponsored a trade fair and a seminar to promote the development and management of the ornamental fish sector with MFARD and the Live Fish Exporters Association of Sri Lanka;
- DFAR, NARA and a locally-commissioned artist! diver prepared identification catalogues of ornamental fish species whose export is either banned or restricted. The catalogues, intended for use by the Flora and Fauna Task Force of Sri Lanka Customs, were prepared in the form of loose-leaf binders and were handed over to Sri Lanka Customs by DFAR;
- Water-resistant ornamental fish identification cards, illustrating the species whose export is either prohibited or restricted, were designed and produced for exporters, breeders, collectors, divers and customs staff;
- A study on the Status and Trends of Ornamental Fish Resources and Habitats was commissioned. A senior staff member of University of Colombo was assigned to conduct the study. MFARD and DFAR organized a workshop to review and discuss the report, which was subsequently modified in the light of feedback received from the workshop;
- A diagnostic study of the monitoring and evaluation system ofMFARD by the Ministry of Plan Implementation and independent consultants was set in motion. When completed, the study is expected to give direction to the Ministry's efforts to strengthen its monitoring and evaluation system;
- In direct response to requests from divers, preparatory activities were undertaken to design and develop a comic book on diver safety and conservation.

Some of the BOBP-assisted activities, such as the conduct of stakeholder studies, were impeded or prevented by the security situation in Sri Lanka. This has also affected funding of BOBP's counterpart agencies, which has in turn resulted in delays in project implementation. Another concern in regard to national implementation is the acute shortage of trained manpower in fishery agencies, particularly in sections concerned with fisheries management. In the case of the BOBP-assisted activities, this has resulted in some of the agreed activities not being followed up by the counterpart agencies.

During discussions with concerned parties in Sri Lanka, the study team found a high degree of satisfaction with the activities of BOBP. This was particularly so on the part of the aquarium fish collectors themselves, who attributed many of the positive developments that have occurred -- such as formal recognition of their profession, issuance of

identity cards (to assist relations with security forces patrolling the Colombo Harbour security zone) and organisation of fishermen's groups--to BOBP-generated activities. At a higher level, senior Government officers consulted recognised that the organisation of the industry at all levels had been assisted by BOBP, whose activities may even have further accelerated the rate of growth of an already rapidly-expanding industry.

MFARD is keen on further improving management of the ornamental fish sector by developing a precautionary plan of management, which will involve all the key stakeholders. The Ministry is in the process of amending the Fisheries Act and establishing a working group to evolve the precautionary plan. Given the government's concerns with fisheries resources and development and the enthusiasm of the stakeholders to ensure some sort of a sustainable future, it seems reasonable to expect that these concerns will translate into policy and action. MFARD has taken an important step at the request of the stakeholders, and proposed the establishment of a high-level task force to oversee and coordinate the conservation and management of critical aquatic resources and habitats. However, given the multi-sectoral nature of the problem, progress may be slow and will need facilitation and support. With adequate capacity building inputs to DFAR and technical assistance to the task force, a lasting national effort towards conservation and management or ornamental fish resources and habitats should be possible.

List of persons consulted - Sri Lanka

Ministry of Fisheries and Aquatic Resources Development

Mr. H. V. C. Fernando, Deputy Director, DFAR & BOBP Project Coordinator

Dr. D. S. Jayakody, Director, National Aquatic Research Agency, Crow Island, Sri Lanka

Mr. H. Gunawardena, Senior Adviser, MFARD

Dr. H. Epasinghe, Chairman, NARA

Dr K Sivasubramaniam, Fisheries Management Consultant, Colombo.

Other

Mr. N. A. M. Pathirana, Chairman, Aquarnarines International Pvt. Ltd., Ratmalana, Colombo

Mr. Darryl Fryer, private ornamental fish collector

Group of four fish collectors - member of Mr. Fryer's collecting group.

Group of 16 fish collectors at DFEO office, South Colombo

Appendix 10: Country summary - Thailand

Since the launching of the First Five Year National Economic and Social Development Plan in 1961, fisheries development has been an integral part of the social and economic development of Thailand. The fisheries sector now contributes significantly to the economy, food and employment generation in the country. Under the Seventh National Economic and Social Development Plan (1992-1996), increased attention was given to the rehabilitation of the fishery resources and fish habitats in the Thai marine waters through more effective fisheries and environmental management measures. The same strategy has been adopted with renewed vigour by the Thai Department of Fisheries in the current Eighth National Economic and Social Development Plan (1997-2001).

The Gulf of Thailand (FAO Statistical Area 71) and the Andaman Sea off the west coast of Thailand (FAO Statistical Area 57) comprise the major fishing areas of Thailand. The Andaman Sea, with an area of about 126 000 sq. km and a coastline of about 740 km. is deeper than the Gulf of Thailand. In the Andaman Sea, from Phuket Province to Ranong Province, the continental shelf is narrow and the sea bottom mainly comprises muddy sand and coral remnants.

Small-scale fishermen are important constituents of the fishing industry in Thailand and account for nearly three-quarters of the total fishermen population. As in other countries of South and Southeast Asia, marine fisheries in fliailandis a multi-gear. multi-species fisheries, conducted by a large number of small-scale fishermen. Trawl netters of various sizes, followed by gill netters, dominate the marine fisheries.

Several factors such as improved economy, imported fish capturing devices, fishing technologies and methodologies and rapidly increasing demand in the domestic and foreign markets for fish and fish products have induced rapid marine fisheries development during the last 3-4 decades in Thailand. This has, in turn, resulted in a drastic decline in the abundance of coastal fishery resources, both in the Gulf of Thailand and the Andaman Sea. As a consequence of depleting stocks, conflicts between small-scale and commercial fishermen have been rising.

To document the learnings of the Third Phase, the Mission visited Thailand during 5-1 ! July, 1999. The Mission had detailed discussions with the officials of the Department of Fisheries at Bangkok; the Regional Office for Asia and the Pacific (RAP) of the FAO. Bangkok. and the Andaman Sea Fisheries Development Centre, Phuket. Extensive field visits were undertaken in Phang-Nga Bay to cover the Project sites. Besides officials, detailed discussions were also held with fishermen and **community** leaders in the Project area. A list of individuals consulted and places visited in Thailand is shown in Appendix 5.

The theme of the Third Phase of BOBP in Thailand prompted by the National Economic and Social Development Plan focussed on development of community-based participatory approaches to the management of fisheries and aquaculture, in a coastal zone context. Phang Nga Bay along the Andaman Sea coast of Thailand was selected as the focal site, with Department of' Fisheries (DOF) as the main implementing agency. A few Non-Governmental Organisations (NGO) and universities were also identified as implementing agencies. Presently, Mr. Jate Pimoljinda, Director, Andaman Sea Fisheries Development Centre. Phuket is the National Project Coordinator.

Phang-Nga Bay with an area of about 1960 sq. km is considered the most important bay on the Andaman coast of Thailand. covering parts of Phuket, Phang-Nga and Krabi Provinces of southern Thailand. There are 114 villages located along the Bay with a population of approximately 0.1 million. Fishing and aquaculture activities, followed by tourism, comprise major occupation of the communities residing in the Bay.

In the past, tin mining in Phuket, Ranong and Phang Nga Provinces was the main cause of marine pollution, affecting the health of coral reefs and the seagrass bed. With the decline in tin mining activities in recent years, the main cause of pollution is now effluents released from the growing number of houses, hotels, and restaurants and from tourism, especially in Phuket Province. As a microcosm of Thai fisheries, Phang- Nga Bay displays almost all the problems encountered in Thailand.

Thailand's Situation Analysis in Phang Nga Bay identified progressive use of harmful fishing practices, reduction in demersal catch, overexploitation of both pelagic and demersal fisheries, changes in species composition, difficulties in enforcement, degradation of fisheries habitat, pollution caused by sedimentation, increased nutrients from industrial sources, and conflicts between sinall-scale and large-scale fisherfolk as key issues. The Analysis also brought out the Government's keenness to develop management approaches facilitated by establishment of marine parks; deployment of village-based artificial reefs, and better enforcement through improving people's awareness and participation.

I)uring the first year of the DOF/BOBP Third Phase, the objectives, design and early implementation of a CBFM Project in Phang Nga Bay on the issues identified by the Situation Analysis were developed. Introduction of CBFM started in four villages-- Ban Hin Rom, Ban Kiong Kian, Ban Haad Sai Pleug Hoy and Ban Ao Makham. Based on the initial success of the Project in these four villages, more than 10 villages are presently involved in the programme. Some of the important activities undertaken by the Project so far include:

- DOF/BOBP CBFM Workshop in which fisherfolk, village leaders, government officials, NGOs, universities, BOBP and FAO participated. It was for the first time that the fisherfolk met with government officials to plan fisheries management.
- Release ofjuveniles of tiger prawn, blue swimming crab and sea bass in five villages of the Bay. This activity is ongoing and is being rotated between Bay villages.
- Rehabilitation of mangrove and sea grass area
- Setting up of cages in four villages to place gravid female crabs caught by fisherfolk. Once the crabs release their eggs, the crabs are sold and the profits are being used for village CBFM activities.
- Sensitizing push-net fisherfolk to give up their destructive push nets. Supply of gill nets to encourage greater compliance of the push-net ban.
- Public hearings (bi-monthly) with fisherfolk in the Bay. with more and more suggestions for resolving problems of resource degradation and pollution.
- Training of fisherfolk in data collection techniques and establishment of standard data protocols on catch, habitat conditions and bio-indicators.
- Establishment of volunteers for surveillance of illegal fishing
- Setting up of revolving funds

Representatives of the fishermen community interviewed were very supportive of the activities initiated under the Project. They were of the view that after they joined BOBP, the message of conservation has spread and the villagers now realise the importance of conservation. Protection of sea grass close to the shore is their own idea and marker buoys are placed to demarcate such zones. This demarcation has helped in conservation of juveniles of many fish species, thus enhancing the fisheries. In the sea grass area, the use of environment —friendly gear is now propagated by the fishermen. Some 60 fishermen have formed a co-operative society. and a revolving fund has been set up for uses such as village development, soft loans to fishermen, gear procurement, etc. Presently, four villages in the Bay have set up the revolving fund.

The most significant impact due to the Project's activities (like release of gravid females of crab species) has been in increase of fin and shell fish landings and the increase in catch per unit effort (CPUE) from 8 to 10 kg/boat/day. This has also led to an increase in effort in the Bay and we feel that this could impact the fisheries in the long run. However, the fishermen were of the view that in case the CPUE goes down in future, the fishermen would be advised to reduce effort in the area. This development has brought out the need for a sound sampling programme to continuously monitor the commercially important fisheries so that corrective measures can be taken as and when there is shift in the CPUE.

The Mission observed that while there has not been much impact on the use of environment-friendly gear, conservation aspects appeared to be more clear to the fishermen now. However, the DOF was of the opinion that the use of destructive gear is on the decline. One village has set a good example, other villages can also follow this example. The villagers are receptive to the idea of conservation and sustainable development. The DOF is also of the view that if the programme continues, conservation and development of the resources would be much faster since the initial difficult stage of sensitizing the fishermen is over. Whatever has been learnt by the fishermen would be continued since they are now convinced of the benefits of conservation.

Sea ranching of commercially important finfish and shellfish species has been one of the important activities pursued by the Thai Department of Fisheries during the last two decades. During 1999, to mark the 72nd birthday of the King of Thailand, the Department proposes to release 720 million juveniles of marine and freshwater species in the open waters. While no study seems to be in place to assess the impact of sea ranching in Thai waters, the DOF correlates the increased landings to sea ranching. Under the DOF/BOBP Project, juveniles of tiger prawn, blue swimming crab and sea bass have been released to not only increase the abundance of stocks of these species in the Bay, but also to inculcate the idea of conservation amongst the fishermen. We are of the view that to sustain sea ranching in the future, greater emphasis would be required on hatchery-based seed production and related aquaculture activities. Issues such as supplementary feed of animal origin, trained manpower, disease management, etc. would have to be considered more carefully while pursuing large-scale sea ranching programmes.

Many recommendations of the Workshop on Community-based Fisheries Management held during 14-16 February 1996 at Phuket (RAP Publication 1998/3; BOBP Report No. 781) enhanced the Project. Meetings with the fishermen groups at regular intervals have been a strong point of the work programme. The meetings are held at bi-monthly intervals, and have helped find solutions to many critical issues. Besides fishermen and DOF officials, district leaders, health officials and police officers have taken part in these meetings. The participation of representatives of the Fishermen Association of Phuket (representing commercial-scale fishermen) has helped foster a better understanding between the small-scale and commercial fishermen groups.

The DOF had some NGO groups participating in the Project in the beginning, but they latter withdrew from the Project. There are many strong NGO groups in Thailand dealing with coastal fisheries management. The DOF is of the view thaf it would be most appropriate for the NGOs and the villagers to handle the Projects themselves. The DOF also wanted contact with the NGOs to be established through the DOF, and not directly. The Mission, however, could not find a satisfactory reason for withdrawal of the NGOs from the scene.

The Mission observed extensive rubber plantation and shrimp aquaculture activities in the catchment area of the Bay. The run-off from such activities would be instrumental in increasing the nutrient load in the Bay, leading to higher eutrophication levels. To minimise such impacts it is essential to integrate all the stakeholders into the Programme and ensure their participation. Presently, only those fishermen who are not boat owners or who work on shrimp farms are actively participating in the programme. Participation of the boat owners and those who own shrimp farms or rubber plantations should also be ensured in the discussions to make the exercise more productive.

Gender involvement in the Programme and its sensitivity to the objectives of CBFM could not be assessed directly. However, the feedback the Mission obtained during discussions with the fishermen revealed that while the women fisherfolk in the target area are not involved directly in fishing, they play an important role in marketing and processing activities. They are also happy with the fishery conservation programme and would like the activities to make further progress.

The subject of advantages of a regional project *vis-a-vis* a nationally executed programme (with or without external funding) was raised during our discussions with the DOF officials. There was strong support in favour of a regionally executed project due to various reasons. A regional project enables a country to share ideas and experiences in areas of

common interest with other countries. Regional projects have a certain flexibility, which makes them more successful than nationally executed projects. Fishermen are proud to be part of a regional project, and this feeling has contributed substantially to the success of the Project. The information contained in BOBP Newsletters was appreciated as being wide in scope and application. The DOF officials were also of the view that the results of projects carried out by BOBP in other member countries could be considered for implementation by Thailand at an appropriate stage.

Several other issues relating to CBFM surfaced in the discussions with stakeholders. It was generally felt that CBFM alone may not be the panacea of all ills plaguing the fisheries sector. It needs to be supported by technological developments and a legal framework wherever necessary. Issues such as technological back-up to check proliferation of sea grass, ways to resolve multi-user conflicts, empowerment of the coastal communities, quantification of juvenile abundance in the sea grass area, cap on effort, etc. came up in the discussions.

The Mission was informed that many activities complementary to the BOBP Project are being undertaken by the Andaman Sea Fisheries Development Centre, Phuket. These include collection of catch data (including species composition and size distribution of economic species), training for data collection, data on the value of the catch landed and some socio-economic aspects. The catch statistics from 1995 till date are available. The DOF also has an experimental project on the colonisation of seagrass beds for the Andaman Seas. The Ministry of Science and Technology have established a committee to study all types of pollution in the coastal areas.

During the course of discussions with the DOF staff and the stakeholders, some constraints in implementation of the Programme and suggestions for future consideration figured. The DOF was of the view that while the budget for implementation of the Project may not have been a constraint (about US $ 20 000 were available), the availability of capable and willing manpower was an impediment. Therefore, even if a national budget was available, there was no provision to use it. A consultant to provide regular assistance was needed.

Engagement of new employees/personnel for the Project was essential. Only short-term ad-hoc arrangements were made, which did not serve the purpose. DOF provided only a temporary biologist (Mr. Sakul Supongpan) to assist the Project. The Project should have allocated funds for hiring experienced workers. Organisation of domestic tours was also difficult at times.

The need for more ideas /technologies on post-harvest aspects (focus on value addition) was felt. There should have been greater regional exposure in this area. Depending on the availability of funds, representatives of the communities engaged in the Project could be taken on tour to observe success stories elsewhere. Villagers were of the view that an ice-plant or cold storage could improve their income, since the catch would be in a better condition for marketing. The findings and learnings of the Phang-Nga Bay should be documented and distributed to other areas in the coastal region. DOF believed that a Situation Analysis should be done at the end of the Project as was done in the beginning.

The BOBP3 has been actually implemented only during the last three years. The first two years were taken up in planning. The Department believes that the Project should be extended for at least another five years. This request takes into account the needs of the fishermen who would like the Project to be extended to pursue community-based fisheries management. The Mission feels that the delay in starting of the Project justifies the request of the DOF and of the Project fishermen for extension of the project for a reasonable period. The Project is quite essential to the Department of Fisheries (DOF) and if BOBP does not continue, the DOF will set up its own programme to continue the activities. Another CBFM project has already started in the Gulf of Thailand programme (Bang Sapan District, Prachuas Kin Khan) as a nationally executed programme.

Summing up, the Bay of Bengal Programme in its Third Phase has been highly successful in Thailand, and terminating the Project at this stage may not be worthwhile. The BOBP Project in Thailand stands out as a big success story. Work carried out in Phang Nga Bay could be replicated elsewhere in Thailand and also in the Bay of Bengal Region. While a strong national commitment to take up similar work was apparent from the discussions, it would be worthwhile to

pursue and ensure a logical conclusion to the III Phase activities, even if it means extending the Project. A vacuum left by the Third Phase for national execution would not be constructive – because project officials working at Phang-Nga Bay may lose their momentum, and the interest of the fisher community in fully integrating the objectives of the Programme in their day-to-day activities may slacken.

List of persons consulted - Thailand

Department of Fisheries, Bangkok

Dr. Kitjar Jaiyen, Deputy Director General

Dr. Wimol Jantrarotai, Director, Foreign Fisheries Affairs Division

Dr. Somsak Chullasorn, Senior Marine Fisheries Advisor

Dr. Ananth, Director, Marine Fisheries Division

Ms. Petcharin Wongkamhla, Foreign Fisheries Affairs Division

Ms. Saowaluk Winyoonuntakul, Foreign Fisheries Affairs Division

Andaman Sea Fisheries Development Centre, Department of Fisheries, Phuket

Mr. Jate Pimoljinda, Director

Mr. Sakul Supongpan, Biologist

Regional office for Asia and the Pacific, Food and Agriculture Organisation of the United Nations, Bangkok

Mr. Prem Nath, FAO Representative

Dr. Veravat Hongskul, Senior Fisheries Officer

Mr. Edward P. Hotte, Senior Operations Officer, Field Operations Branch

EU Adang Project, Andaman Sea Fisheries Development Center, Phuket

Mr. Paolo Montaldi, Senior Fisheries Expert

Representatives of fishing communities in the villages of:

Ban Haad Sai Pleug Hoi

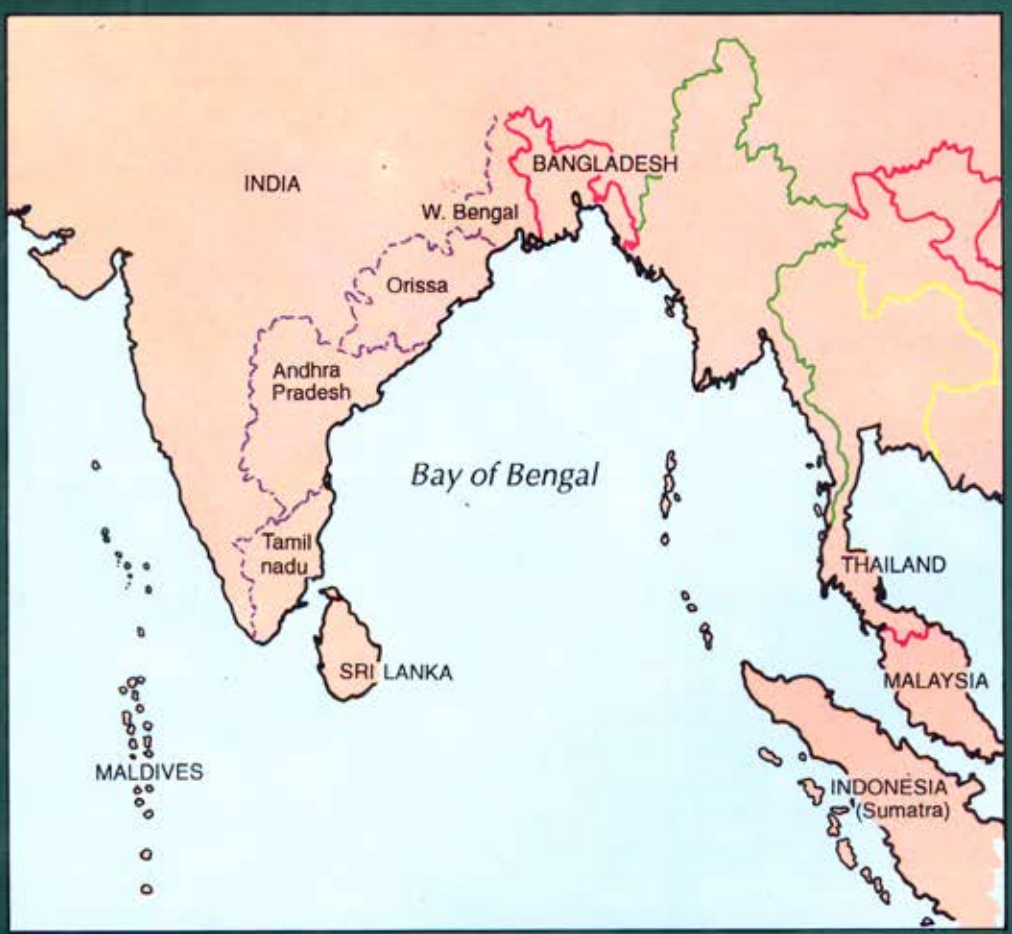
Ban Hin Rom

Ban Yan Saba

Ban Bang Chan

BOBP

REP/85



FAO FIAT PANIS

91 St. Mary's Road, Abhiramapuram, Chennai 600 018, India.
Mail : Post Bag No. 1054, Chennai 600 018, India. *Phone* : +91-44-493-6294/6096
Fax : +91-44-4936102. E-Mail : bobpkcc@md2.vsnl.net.in & bobp@satyam.net.in