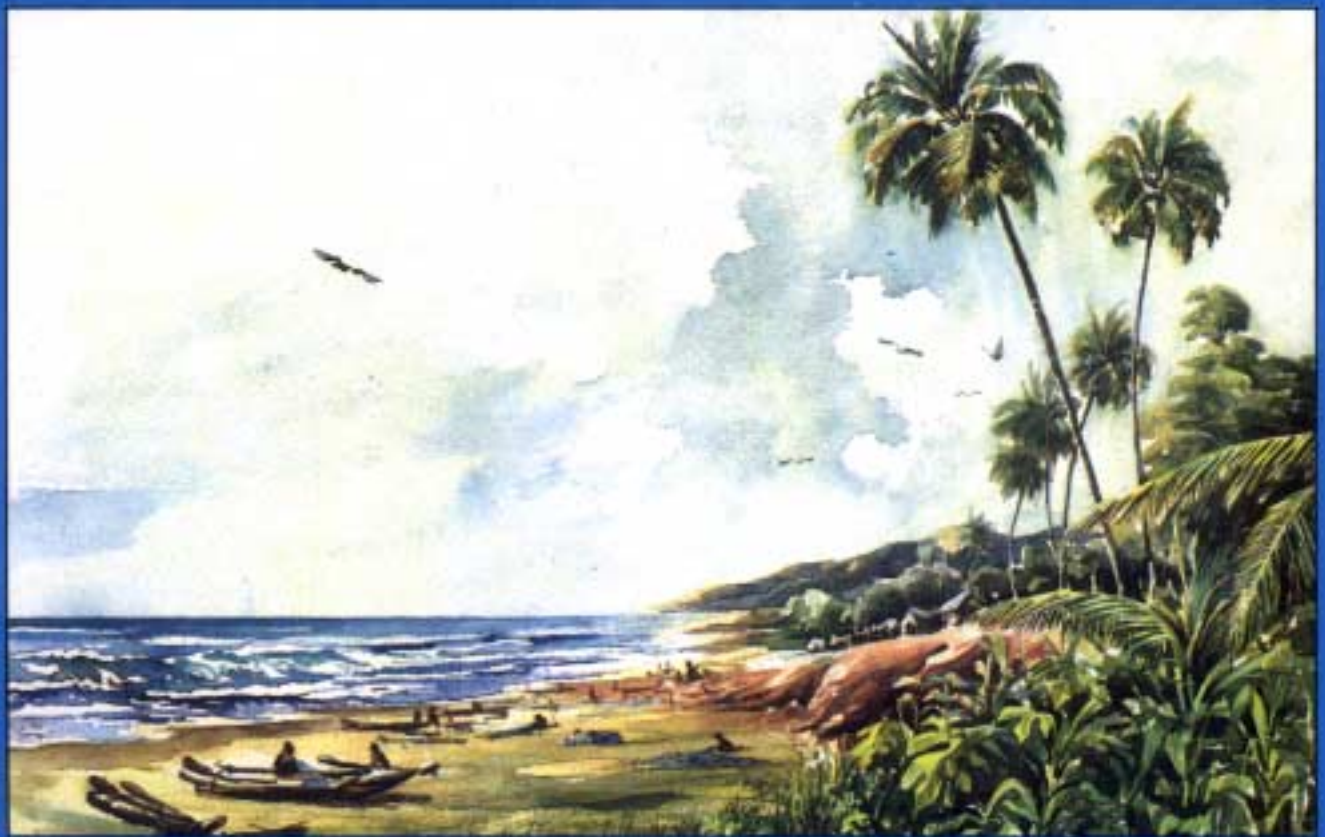


Report of the 22nd Meeting of the Advisory Committee



INTEGRATED COASTAL FISHERIES MANAGEMENT

**REPORT OF THE TWENTY-SECOND MEETING
OF THE ADVISORY COMMITTEE**

23-24 September, 1997
New Delhi, India

**BAY OF BENGAL PROGRAMME
Madras, India
1998**

This document records the recommendations of the 22nd Meeting of the Advisory Committee of the Bay of Bengal Programme (BOBP). The meeting was held on 23-24 September 1997, in New Delhi, India, in conjunction with the meeting of the 10th session of the Bay of Bengal Committee (the Indian Ocean Fishery Commission's Committee for the Development and Management of Fisheries in the Bay of Bengal).

The document contains an Interim Progress Report for 1997 (February - August 1997) of the BOBP, and a regional workplan for 1997 - 1999. It also contains Project Factsheets that describe the progress of activities carried out in each country under the Coastal Fisheries Management Project during the Programme's third phase (1995, 1996 and 1997).

The Advisory Committee is composed of member-countries, agencies funding BOBP Projects, and the FAO. The Committee usually meets once a year by rotation in member-countries.

The Bay of Bengal Programme (BOBP) is a multi-agency regional fisheries programme that covers seven countries around the Bay of Bengal — Bangladesh, India, Indonesia, Malaysia, Maldives, Sri Lanka, Thailand. The Programme plays a catalytic and consultative role in developing coastal fisheries management in the Bay of Bengal, thereby helping improve the conditions of small-scale fisherfolk in member-countries.

The BOBP is sponsored by the Governments of Denmark and Japan. The executing agency is the FAO (Food and Agriculture Organization of the United Nations).

CONTENTS

Report of the 22nd Meeting of the Advisory Committee

Appendices

A.	List of Participants	5
B.	Opening Statement by Mr. Bhagat Singh (Additional Secretary, Ministry of Agriculture, Government of India)	8
C.	Agenda	10
D.	List of Documents	11
E.	Interim State of the Programme and Progress Report 1997 (February - August 1997) by Kee-Chai Chong (Programme Coordinator, BOBP)	12
F.	Proposed BOBP Regional Workplan for 1997 - 1999: Coastal Fisheries Management in the Bay of Bengal	16
G.	Project Factsheets : Coastal Fisheries Management in the Bay of Bengal	18
	Bangladesh	18
	India	22
	Indonesia	27
	Malaysia	30
	Maldives	32
	Sri Lanka	35
	Thailand	39
H.	Project Inputs and their Utilization	42
I.	Post-Harvest Fisheries (DFID - DHFP)	49

REPORT OF THE 22ND MEETING OF THE ADVISORY COMMITTEE

Opening of the Meeting

1. The Advisory Committee of the Bay of Bengal Programme (BOBP) held its twenty-second meeting on 23-24 September 1997, at the Hotel Kanishka, New Delhi, India. A list of participants and observers is given in Appendix A.
2. The Meeting was formally inaugurated by MJ Bhagat Singh, IAS, Additional Secretary to the Government of India, Ministry of Agriculture. Mr K M Chadha, IAS, Joint Secretary (Fisheries), Ministry of Agriculture, also addressed the gathering.
3. The meeting was chaired by the outgoing Chairperson, Dr Y S Yadava, Development Commissioner (Fisheries), Department of Agriculture and Co-operation, Ministry of Agriculture, Government of India.

Election of Chairperson

4. The Advisory Committee unanimously re-elected Dr Y S Yadava as its Chairperson to hold office until the beginning of the next Meeting.

Adoption of the Agenda

5. The Advisory Committee adopted the Agenda for the meeting (Appendix B). The documents made available to the Committee are listed in Appendix C.

Coastal Fisheries Management¹

6. Fishery agencies in the region, faced with constraints of trained manpower, find it difficult to cope with the needs of facilitating and enabling fisheries management. The Committee stated that there was a need to pay adequate attention to building the capacity of fishery and other concerned agencies through training, particularly at the implementation levels. It suggested that, to ensure cost effectiveness and sustainability, training efforts in fisheries management should focus on training of trainers and should, where possible, be undertaken in sub-regional and regional groupings, and in collaboration with the other regional agencies such as SEAFDEC, NACA and INFOFISH.

¹ *The Coastal Fisheries Management Project is executed by the Food and Agriculture Organization (FAO) through its Bay of Bengal Programme (BOBP) and supported by the Governments of Denmark, Japan and the Member-Countries of BOBP*

7. Representatives of NACA and SEAFDEC offered to cooperate and collaborate with the BOBP and its Member Countries by providing technical assistance and undertaking, where possible, joint training efforts which would also facilitate the dissemination and sharing of learnings.
8. Non-Governmental Organizations (NGOs) are often important stakeholders in the management of fisheries and can play an important role in BOBP-assisted activities by bringing in their skills and capabilities. In this context, Bangladesh and India suggested that there was, however, a need to integrate the involvement of NGOs into fisheries management efforts through appropriate procedural channels of government fishery agencies.
9. Indonesia re-iterated the importance of the BOBP-assisted pilot effort in Tapian Nauli Bay area and suggested that accelerated efforts be made during the remaining period of the project to meet the project's objectives. In particular, it was emphasized that priority needs to be given to development and dissemination of awareness materials and to the extension of the stakeholder approach to fisheries management, through the production of guidelines.
10. Bangladesh, in the context of the training input in the design and management of exploratory fishing trials, stated that there was a need to identify and assess the large pelagic resources of the country to enable it to develop its offshore fisheries.
11. Malaysia, in the context of its commitment to introduce Community-Based Fisheries Management at the state level, expressed the need for assistance to facilitate pilot efforts through training and technical assistance inputs.
12. Malaysia is interested in developing its national fisheries management plan, in the context of the learnings being generated in the region and elsewhere, and expressed the need for assistance in facilitating and enabling the formulation of the fisheries plan.
13. The Committee stated that there is an urgent need to address the issue of security and safety of fishers who often drift into the territorial waters of neighbouring countries. The Committee, while agreeing that this issue needed to be addressed at political and senior government levels, felt that the FAO should play a facilitative role if the concerned governments chose to address the issue through consultations with a view to evolve a convention.
14. Given the stagnation and even the decline in some cases of coastal capture fisheries production, the Committee felt that there is an urgent need for a concerted thrust to develop sustainable and equitable mariculture and coastal aquaculture options to provide food and livelihood security in coastal communities.
15. The Committee reaffirmed that the success of fisheries management will depend on the timely availability of adequate information to enable decisions, and there is an urgent need to review statistics and fisheries management information systems in the region, with a view to harmonize them, evolve databases to address transboundary fisheries management needs and to strengthen management information systems.
16. The Committee agreed that there is an urgent need to look at coastal fisheries in an environmental context to ensure its sustainability. Efforts need to be taken to incorporate fisheries into integrated coastal area management and environment protection approaches.

17. Given the vulnerable nature of shark resources and its increasing exploitation in the region the Committee stated that there is an urgent need to promote and enable management of shark resources in a concerted manner.

Mid-Term Evaluation and Future Directions for BOBP

18. This agenda item was discussed on the basis of the Report of the Joint-Mid-Term Evaluation Mission.
19. The Committee agreed that there is a need to share the learnings and experiences of BOBP's pilot efforts, supplemented by learnings of other efforts, through documentation and dissemination of learnings and guidelines for fisheries management and development in the Bay of Bengal region.
20. The Committee urged that BOBP, in addition to progressing the national pilot projects, should make special efforts to focus on regional issues and concerns using co-operative and cost-effective modalities with other regional mechanisms.

Post-Harvest Fisheries²

(Impact Assessment of the Project and Future Directions)

21. Bangladesh and India stated that post-harvest issues were becoming crucial in the region, proposed that there was a need for technical assistance in establishing HACCP and ISO 9000 quality assurance programmes and urged that this should be considered in future project formulation exercises.
22. Sri Lanka expressed their satisfaction with the implementation and the impact of the PHF Project. The delegate of Sri Lanka stated that the government would look favourably on the continuation of the project beyond its present term, to address much needed and vital post-harvest fisheries concerns.
23. The FAO reaffirmed the integral and important role of post-harvest fisheries in fisheries management and welcomed continued collaboration and participation in any future project formulation of DFID in the PHF sector.
24. In referring to the report on the impact assessment of the PHF Project, India opined that while the overall impact of the project so far has been small, it has created the conditions for very large impact in the future if the lessons learnt at the micro-level can be replicated on a large enough scale in a sustainable manner.
25. The DFID urged that post-harvest fisheries efforts should be viewed in a holistic manner, embracing issues affecting the food and livelihood security of fisherfolk. Given the complexity and the enormity of the task they encouraged closer coordination and co-operation amongst development partners in supporting such efforts.

² *The Post-Harvest Fisheries Project (PHF) is funded by the Department for International Development (DFID) of the United Kingdom in Bangladesh, India and Sri Lanka. The DFID was formerly known as the Overseas Development Administration (00.4).*

26. The DFID informed the Committee that DFID was willing to consider future support for the continuation of the PHF Project, subject to the expression of interest from the respective governments.

Cleaner Fishery Harbours³

27. The Committee reaffirmed the importance of promoting and facilitating cleaner fishery harbours in the region, particularly in the context of the rigorous requirements of various quality assurance programmes in force and suggested that BOBP should distribute the video film produced by it to build awareness on the need for, the benefits of and the methods of ensuring cleaner fishery harbours to Member Countries, to enable them to widely disseminate it.

Next Meeting

28. The Committee gratefully acknowledged the invitation of the Government of Sri Lanka to host the next meeting of the Advisory Committee in Sri Lanka, subject to government clearance, early in 1998.

Adoption of Report.

29. This report was adopted by the Committee on 24 September 1997.

³

The Cleaner Fishery Harbours Project is funded by the International Maritime Organization (IMO) and executed by the BOBP of FAO.

Appendix A

LIST OF PARTICIPANTS

Bangladesh

Md. Masudur Rahman
Director (Marine)
Department of Fisheries
Dhaka

FAO

Blessich, Dora
Project Operations Officer
FAO - RAP, Bangkok

Cooney, Barbara
Agricultural Economist
Investment Centre Division,
FAO, Rome

Hongskul, Veravat
Senior Regional Fishery Officer and Secretary, BOBC/IOFC
FAO - RAP, Bangkok

Martosubroto, Purwito
Fishery Resources Officer
Fishery Resources Division
Fisheries Department
FAO, Rome

Rosenegger, Peter
FAO Representative in India and Bhutan
New Delhi

Satia, Benedict P
Chief, International Institutions and Liaison Services (FIPL)
Fisheries Department
FAO, Rome

Stein, Richard
Consultant (Legal Affairs)

India

Chadha, K M
Joint Secretary (Fisheries)
Department of Agriculture and Co-operation, Ministry of Agriculture
Government of India, New Delhi

Yadava, Y S
Fisheries Development Commissioner (Fisheries)
Department of Agriculture & Co-operation, Ministry of Agriculture
Government of India, New Delhi

Ayyar, N P
Additional Economic Adviser (Fisheries)
Department of Agriculture and Co-operation, Ministry of Agriculture
Government of India, New Delhi

Indonesia

Siregar, Sihar

Chief, Sub Directorate of Mariculture Development
Directorate of Production
Directorate General of Fisheries
Jakarta

Malaysia

Abdul Hamid Bin Yasin

Fisheries Officer
Department of Fisheries,
Kuala Lumpur

Maldives

Hafiz, Ahmed

Deputy Director
Marine Research Section
Ministry of Fisheries and Agriculture
Male

Sri Lanka

Piyasena, G

Deputy Director
Planning and Development
Ministry of Fisheries and Aquatic Resources
Development, Colombo

Thailand

Chullasorn, Somsak

Director
Marine Fisheries Division
Department of Fisheries, Bangkok

OBSERVERS

DOD/GOI

Sampath, V

Director
Department of Ocean Development
Government of India
New Delhi, India

Myanmar

U Kyaw Win

First Secretary
Myanmar Embassy
New Delhi, India

NACA

Selvakumar, Alfred R

Asst. Director General
Indian Council of Agricultural Research
Ministry of Agriculture, Government of India
New Delhi, India

SEAFDEC

Shimomura, Masao

Deputy Secretary-General
Bangkok, Thailand

UK (DFID)

Bland, S

First Secretary (Fisheries)
British High Commission,
Dhaka, Bangladesh

World Bank

Iatsenia, Andrei

Environmental Specialist
Environment and Natural Resources Division
Asia Technical Group
World Bank
Washington DC, USA

Secretariat

Chong, Kee-Chai

Programme Coordinator, BOBP

Roy, R N

Communication Adviser, BOBP

King, Duncan

Field Project Manager, DFID

P. David

Secretary, FAO - RAP

K. Aotarayakul

Secretary, FAO - RAP

C. Saengvanich

Secretary, FAO - RAP

C. Verghese

Secretary, BOBP

Appendix B

OPENING STATEMENT BY MR. BHAGAT SINGH

Additional Secretary, Ministry of Agriculture, Government of India

FAO Representative in India and Bhutan Mr. Peter Rosenegger, Bay of Bengal Programme Coordinator Dr. Kee Chai Chong, distinguished delegates, donor countries, ladies and gentlemen:

2. On behalf of the Government of India it is my privilege to extend a warm welcome to all of you for participating in the 22nd meeting of the Advisory Committee of the Bay of Bengal Programme. We are grateful to the organisers for choosing the beautiful city of Delhi as the venue for this meeting. Ladies and Gentlemen, the 22nd Advisory Committee Meeting is being held at a very opportune time, which is the middle of Phase III of the Programme. At this stage we can look back and review the progress we have made in the third phase and plan the remaining half of the phase accordingly. This meeting also gives us an opportunity to make mid-term corrections, if considered necessary.
3. As we are aware, fish in this part of the globe is a valuable and nutritious food for large populations. It plays a significant role in the generation of employment and national economies. It is an important source of foreign exchange for developing countries, and with the sustainable development of resources, fisheries will continue to be an important contributor to global food security.
4. The total global production of fish in 1994 reached a record level of 109.6 million tonnes. The preliminary figures for 1995 indicate a new peak of total production at 112.3 million tonnes. These provisional figures which I believe may have been firmed up by now show that the increase in production from 1994 to 1995 has been entirely due to mariculture and inland aquaculture. Thus, the stagnation in marine fisheries is becoming more and more evident now.
5. Friends, the Bay of Bengal Programme was introduced in 1979 mainly to improve the living standards of small-scale fisherfolk within the region. The programme is 18 years old now and is running in its third phase. We are fully aware of the important contributions made by this programme in the first two phases which also prompted the need for a third phase. From transfer of technology to extension, the third phase is concentrating on people-centered management with the underlying concept of 'resource users as resource managers'.
6. The mid-term evaluation of the third phase took place during June and July this year and I am glad to share with you that the evaluation mission's report has been very favourable. Similarly, the Post-Harvest Fisheries Project of the Department for International Development (DFID) underwent an impact assessment study in April this year and the findings state that the project has made significant improvements in its impact on the fishing communities of the three countries since it began. This project in its present phase shall come to an end by March 1998. I am sure the 22nd meeting of the Advisory Committee will review the contributions of the Post-Harvest Fisheries Project and also identify areas where strong and supporting technology transfer is required in the post-harvest fisheries.
7. Ladies and Gentlemen, the state of world fisheries resources has been repeatedly reported by FAO and other international agencies with grave concern. The need to take appropriate action to attain sustainability is gaining momentum day by day. The adoption of the Code of Conduct on Responsible Fisheries at the

28th Session of the conference of FAO in October 1995 is a landmark global initiative and we have to strive hard to implement the provisions of the Code.

8. It is at this juncture that we in India foresee a larger role for regional programmes like BOBP. Unfortunately, like many other parts of the globe, South Asia does not have a significant presence of regional institutions to help developing nations in attaining their objectives. We would urge upon the FAO to consider this request and institutionalise the Bay of Bengal Programme as an inter-governmental organization for South Asia.
9. In the presence of important policy and decision makers from FAO, donor countries and other regional organizations, I am sure this meeting will produce important decisions and commitments for attaining the objectives. Finally, I extend my best wishes to all of you and declare this meeting open.

Thank you.

Appendix C

AGENDA

Tuesday 23 September 1997, 0900 hrs

1. Opening of the Meeting
2. Election of Chairman
3. Adoption of Agenda
4. Interim Report 1997 - Coastal Fisheries Management (BOBP)
5. Report of the Mid-Term Evaluation and Future Directions for BOBP
6. Interim Report 1997 - Post-Harvest Fisheries Project (DFID-UK)
7. Report of the Impact Assessment of PHF Project and Future Directions for PHF (DFID-UK)
8. Interim Report 1997 - Cleaner Fishery Harbours (IMO/BOBP)
9. Next Meeting

Wednesday 24 September 1997, 0800 hrs

10. Adoption of the Report

Appendix D

LIST OF DOCUMENTS

1. Provisional Agenda
2. List of documents
3. List of participants (Provisional)
4. State of the Programme and Interim Report 1997 (Coastal Fisheries Management)
5. Interim Report 1997 DFID (Post Harvest Fisheries)
6. Report of the Mid-Term Evaluation (BOBP/CFM Project)
7. Report of Impact Assessment Study of DFID-PHF Project
8. Institutionalizing Bay of Bengal Programme (BOBP) as an Inter-Governmental Organization for South Asia

operationalize or 'process' fisheries management. In this, we believe we have been quite successful – the level of awareness on fisheries management in Member Countries in general and at BOBP pilot project sites in particular is high and still growing.

For example, in Phang-Nga Bay, Thailand fisherfolk themselves chided the Department of Fisheries, saying they can now manage their fisheries themselves. The Department can stand back and let fisherfolk work and merely offer advice when needed. Other instances can be cited.

Secondly, the FAO HQ selected BOBP as one of the FAO Field Programmes to be audited. Thus, in March this year, the Programme was audited by two French auditors commissioned by FAO. This external audit found no irregularities and gave BOBP a clean bill of health. BOBP project staff would like to record its appreciation to our member governments and FAO/UN technical and operational backstopping units for contributing to BOBP's continued positive performance. Without the close cooperation of all of you, this would not have been possible.

In addition, the external auditors recommended that a computerized database for fisheries management be set up to assist Member Countries in policy analysis and formulation – affecting fisheries in general and fisheries management in particular. BOBP hopes to convene a regional training workshop on ARTFISH, a FAO software programme on data compilation for artisanal fisheries. ARTFISH will be installed in computers at BOBP and in the fisheries department of member countries. We also plan to link BOBP's regional database to the national fisheries database of member countries.

Information Service (GCP/RAS/117/MUL)

Two issues of the Newsletter *Bay of Bengal News* and two reports (of the 21st AC Mand another of the Workshop on Integrated Reef Resources Management in the Maldives) have been produced since the last meeting of the Advisory Committee. Two more posters ("Our Sea, Our Wealth" and "Ghost Fishing") were prepared as part of the process of awareness-building on fisheries management. The workshop proceedings on Community-Based Fisheries Management in Thailand are being finalized for printing.

A beginning has been made in tapping the exciting medium of street theatre to spread and strengthen management awareness among fisherfolk. A social activist was commissioned to work with a group of fisherfolk in Ennore near Chennai. After a short training session on physical and voice culture and theatre concepts, the group put up a play dramatizing the travails of a typical fisher family hit by fish resource shortage and consequent poor income. This effort was filmed on video and we hope to use it to promote and provoke discussion in fishing communities.

Post-Harvest Fisheries Project (DFID)

The DFID Project completed implementation of an impact assessment study (IAS) in April this year. The main findings of the study were presented and discussed at a workshop held in Chennai during the second week of May. The team felt that the project has made significant improvements in its impact on the fishing communities of the three countries since it began. The overall impact of the project has so far been small but it has created the conditions for very large impact in the future if the lessons learnt at the micro-level can be replicated on a large enough scale in a sustainable manner.

As a result of feedback and discussions at the workshop the results of the IAS have been presented in two parts. The first part provides an outline of the main impacts of the project, the methodology and approaches that were used in the study, the lessons learnt and the future options and issues for the project. The second part provides fairly detailed field notes on all the locations visited. This information was considered to be useful in understanding the insights of the nature of the intervention undertaken and the kind of impact achieved by the project in each of the locations studied. The two reports have been circulated internally to the project directors responsible for India, Bangladesh and Sri Lanka, the DFID Project Manager and Lead Adviser in the UK to enable them to make a decision on the future shape and direction of the project which finishes in March 1998.

operationalize or 'process' fisheries management. In this, we believe we have been quite successful – the level of awareness on fisheries management in Member Countries in general and at BOBP pilot project sites in particular is high and still growing.

For example, in Phang-Nga Bay, Thailand fisherfolk themselves chided the Department of Fisheries, saying they can now manage their fisheries themselves. The Department can stand back and let fisherfolk work and merely offer advice when needed. Other instances can be cited.

Secondly, the FAO HQ selected BOBP as one of the FAO Field Programmes to be audited. Thus, in March this year, the Programme was audited by two French auditors commissioned by FAO. This external audit found no irregularities and gave BOBP a clean bill of health. BOBP project staff would like to record its appreciation to our member governments and FAO/UN technical and operational backstopping units for contributing to BOBP's continued positive performance. Without the close cooperation of all of you, this would not have been possible.

In addition, the external auditors recommended that a computerized database for fisheries management be set up to assist Member Countries in policy analysis and formulation – affecting fisheries in general and fisheries management in particular. BOBP hopes to convene a regional training workshop on ARTFISH, a FAO software programme on data compilation for artisanal fisheries. ARTFISH will be installed in computers at BOBP and in the fisheries department of member countries. We also plan to link BOBP's regional database to the national fisheries database of member countries.

Information Service (GCP/RAS/117/MUL)

Two issues of the Newsletter Bay *of Bengal* News and two reports (of the 21st ACM and another of the Workshop on Integrated Reef Resources Management in the Maldives) have been produced since the last meeting of the Advisory Committee. Two more posters ("Our Sea, Our Wealth" and "Ghost Fishing") were prepared as part of the process of awareness-building on fisheries management. The workshop proceedings on Community-Based Fisheries Management in Thailand are being finalized for printing.

A beginning has been made in tapping the exciting medium of street theatre to spread and strengthen management awareness among fisherfolk. A social activist was commissioned to work with a group of fisherfolk in Ennore near Chennai. After a short training session on physical and voice culture and theatre concepts, the group put up a play dramatizing the travails of a typical fisher family hit by fish resource shortage and consequent poor income. **This** effort was filmed on video and we hope to use it to promote and provoke discussion in fishing communities.

Post-Harvest Fisheries Project (DFID)

The DFID Project completed implementation of an impact assessment study (IAS) in April this year. The main findings of the study were presented and discussed at a workshop held in Chennai during the second week of May. The team felt that the project has made significant improvements in its impact on the fishing communities of the three countries since it began. The overall impact of the project has so far been small but it has created the conditions for very large impact in the future if the lessons learnt at the micro-level can be replicated on a large enough scale in a sustainable manner.

As a result of feedback and discussions at the workshop the results of the IAS have been presented in two parts. The first part provides an outline of the main impacts of the project, the methodology and approaches that were used in the study, the lessons learnt and the future options and issues for the project. The second part provides fairly detailed field notes on all the locations visited. This information was considered to be useful in understanding the insights of the nature of the intervention undertaken and the kind of impact achieved by the project in each of the locations studied. The two reports have been circulated internally to the project directors responsible for India, Bangladesh and Sri Lanka, the DFID Project Manager and Lead Adviser in the UK to enable them to make a decision on the future shape and direction of the project which finishes in March 1998.

Thus, fisherfolk's ability to relate to fisheries management would remain abstract until they experience it. In short, give fisherfolk management experience and let them see for themselves what it is really like. Make them feel excited and important. Departments of Fisheries (DOFs) can enhance the management experiences of fisherfolk in a number of ways:

- ❖ let fisherfolk ceremoniously release fingerlings in open waters
- ❖ involve them in constructing spawning cages in strategic locations. Fishers can return spawners or gravid females they have accidentally caught to these cages, let them lay their eggs, sell the spent crabs and deposit this income in a community fund for community projects.
- ❖ hold competitions for fishing villages. The one with the highest number of large mesh nets would be the winner,

The possibilities are numerous.

We suggest that DOFs offer fisherfolk such positive experiences instead of cramping them with only don'ts. Authorities everywhere forever seem to be telling fisherfolk not to do this or that. For example, fisherfolk who directly participate in the release of fingerlings in open water stocking programmes invariably will take possession of the fish and guard them closely as if it is theirs. Until now, it is politicians and government officials who have been releasing such fingerlings. Thailand has taken the lead by giving fisherfolk pride of place at such ceremonies, with the politicians and government officers watching from the sidelines.

Concluding Remarks

The use and value of the stakeholder approach to fisheries management is now well understood and appreciated, so much so that requests have been received to socialize and sensitize politicians and senior policy-makers to its applications and benefits. Both in Bangladesh and Malaysia, BOBP will assist in convening such stakeholder consultations and analyse them with Members of Parliaments from coastal areas. Such high profile and visible stakeholder consultations and analysis can bring the economic plight of fishing communities to the attention of the country's leadership.

Finally, in closing, I would like to point out once more that any BOBP achievement is the achievement of Member Countries. Without your continued support, assistance and cooperation, we could not have secured the positive performance evaluation from the Mission. Other details of the Mission findings and recommendations will be taken up following this presentation.

Appendix G

PROJECT FACTSHEETS

The “Factsheets” that follow describe the progress of activities carried out in each member-country by the Coastal Fisheries Management project of the BOBP.

Every factsheet sets out the aims of project activities in that country in the context of the problems there. It chronologically lists activities undertaken in 1995, 1996 and 1997 under the project’s third phase.

BANGLADESH: DOF-BOBP Coastal Fisheries Management Project

Functional Focus: Management of Estuarine Set-Bag Net (ESBN) and Push-Net (PN) Fisheries,

Geographical Focus: Coastal Districts of Bangladesh; Pilot efforts in Chittagong and Cox’s Bazaar Districts.

Implementing Agencies: Marine Wing of the Department of Fisheries (DOF); Marine Fisheries Survey. Development and Management Project (MSDMP) of the DOF; and Fisheries Research Institute (FRI). (Approximately 43 staff)

National Project Coordinator: Mr Harun-or Rashid, Deputy Director in-charge, Marine Wing, DOF.

Project Objective: In the context of conserving coastal fish resources and ensuring the sustainability of coastal fisheries, to facilitate and enable improved management of the ESBN and PN fisheries in selected coastal areas of Bangladesh, through awareness building, strengthening the institutional capacity of concerned agencies and provision of technical assistance.

Background Note: A situation analysis undertaken by the DOF in 1994 identified the ESBN and PN fisheries as problem fisheries whose management needed immediate improvement. Their analysis was based on a very thorough bio-socio-economic analysis of the *P. Monodon* fishery undertaken in a UNDP- supported activity during the 2nd Phase of BOBP.

The Problem: The ESBN is a traditional fishery which not only provides livelihood to a large population of mostly poor rural inhabitants, but also provides a sizable proportion of the marine and brackishwater capture fisheries production. The fishery provides most of the animal protein consumed by the rural poor. The ESBN fishery which interacts with at least seven other fisheries has been shown to be destructive, and could lead to growth and recruitment overfishing of several important marine and brackishwater species.

The PN fishery is of more recent origin having evolved to supply Bangladesh’s rapidly growing coastal aquaculture industry with *P. Monodon* and *M. Rosenbergii* fingerlings. The fishery is very destructive, because over 90% of its catch consists of by-catch, made up of commercially important species of marine and brackish-water organisms, which are discarded and left to die on the beach. The fishery not only provides over 95% of the seed requirement of the coastal aquaculture industry, which happens to be the second largest foreign exchange earner of Bangladesh, but also provides seasonal livelihood to several thousand poor people most of whom are women and children. The Government of Bangladesh is under considerable pressure from trawler owners to ban the ESBN and PN fisheries as they feel the fisheries are destroying their potential yields.

Chronological List of Activities Undertaken: 199s:

1. MOFL assigned the Marine Wing of DOF; MSDMP (Marine Survey Development and Management Project) of DOF; and FRI as implementing agencies; initiated development of Technical Assistance Plan Proforma (TAPP) to clear the activity; and, allocated staff and Taka 300 000 to help staff travel/subsistence, in anticipation of clearance of TAPP.
2. 35 staff of DOF/FRI were given orientation to BOBP project and approaches; and provided training in undertaking stakeholder identification, stakeholder analysis and stakeholder communications and perception analysis using participatory rapid appraisal methods. Staff designed and planned field work to undertake stakeholder studies.
3. DOF/FRI staff undertook stakeholder studies in six sample locations, chosen as representative locations of ESNB and PN fisheries of coastal Bangladesh, over a two-month period, and documented their findings.
4. DOF/FRI staff used findings of stakeholder studies, and in a workshop, undertook problem analysis and stakeholder problem perception analysis, to evolve a strategy and workplan to address the problems and concerns of the stakeholders of the ESNB and PN fisheries. The workplan for 1996 was approved by DOF and MOFL and agreed to, in anticipation of clearance of the TAPP by Government.
5. BOBP in collaboration with the FAO (Japanese Trust Fund - RAS/138/JPN) and ODA (UK) supported MOFL and DOF to hold a National Workshop on Fisheries Resources Development and Management, which discussed the status and trends in fisheries in Bangladesh and recommended directions for the future.

Project Strategy: In the ESNB fishery the only available options to improve the management of the fishery are to reduce the fishing effort and attempt modification of the gear to make it less destructive. The possibility of achieving the latter seems difficult and more analysis is needed. The possibility of reducing effort, through closed seasons or closed areas not only depends on ESNB fishers and other stakeholders being aware of the need for, the benefits of and methods of management, but, more importantly, on having alternative sources of income generation to ensure livelihood and food security. The project will focus on awareness building of stakeholders at all levels, promoting consultation and collective, negotiated decision making, on building the capacity of the DOF/FRI to undertake such efforts, and on undertaking a few pilot efforts of seasonal and area closures to test the feasibility of the idea and to gauge the social and economic implications of such initiatives.

The ideal management option for the PN fishery would be to ban it. This option is impossible given the coastal aquaculture sector's dependence on it and given the number of poor men, women and children who make a living from it. The project hopes to influence policy through awareness building and consultation amongst stakeholders to work towards sustainable aquaculture, based on hatchery-produced seeds. Meanwhile, the project will focus on working with the seed collectors and other stakeholders to reduce by-catch mortality and to reduce mortality in handling and transport of the target seeds.

Fishing is only one part of the lives of the coastal people's of Bangladesh. A variety of factors and actors, often far removed from fisheries, affect their food and livelihood security. The solutions to the fisheries management problems may well lie outside of the fisheries sector. A key strategy of the project will be to promote a more holistic and comprehensive policy perception that looks at the food and livelihood security of coastal peoples as a whole in determining options.

1996:

1. 36 DOF/FRI staff were trained in communications and in mediating consultations and negotiations.
2. Two one-day consultations were held with ESNB fishing communities to discuss problems and solution options.
3. 15 DOF/FRI staff undertook fieldwork to hold consultations with ESNB and PN stakeholders to evolve messages that need to be communicated to facilitate the DOF's management initiatives in the ESNB and PN sectors.
4. NGO/private sector groups were identified to develop media and awareness materials to facilitate the management initiatives of the DOF and FRI in the ESNB and PN fisheries. SAVE, a private sector group, was shortlisted and a contractual service agreement was developed for the task.
5. MSDM project staff undertook a study to recommend locations and seasons where and when closures of the ESNB fishery can be tested in pilot efforts in the Chittagong and Cox's Bazaar Districts.
6. A study was planned to identify alternative non-fisheries income generation options for ESNB fishers, to determine preliminary social and economic feasibility of the options and to evolve a strategy to promote such ventures. Discussions were held with NGOs capable of undertaking such a study and the study was designed.
7. IO DOF staff and 2 staff of the fisherfolk NGO, CODEC, were trained in the design, planning and management of participatory exploratory fishing trials, by international consultant Dr Marcel Giudicelli. The trained staff started to develop a project proposal to undertake a series of participatory exploratory fishing trials to identify alternative fishing income generating options for ESNB fishers, which DOF and MOFL hope to put up to donors for support.
8. DOF with support from FRI initiated a review to document feasible technologies and methods to reduce by-catch mortality and to reduce mortality of target species through improved handling and transport techniques for extension to PN collectors.
9. BOBP made a special presentation to the Local Consultative Group of Donors in Fisheries in Bangladesh on the issues and concerns of marine and coastal fisheries sectors in Bangladesh.
10. A study to assess skill gaps and training needs in agencies concerned with the management of fisheries was discussed, the Terms of Reference were agreed to, and efforts were initiated to identify an institution or a group of consultants to undertake the study.

1997:

1. SAVE, a private sector organization working in extension and media, contracted to produce awareness materials and media to support and facilitate management initiatives of DOF/FRI staff. Materials include poster exhibitions, audio tapes, comic books and radio programmes to be broadcast on Radio Bangladesh.
2. CODEC, a fisherfolk NGO, contracted to conduct study to identify non-fisheries income generating options for ESNB communities, to determine their preliminary feasibility and propose a strategy to promote such ventures.

3. *BOBP, ODA (UK) and MOFL preparing to hold a senior decision makers' consultation in August which will bring together Members of Parliament from coastal constituencies, Ministers and Senior Administrators and Technical Staff of ministries concerned with coastal development to discuss coastal people's food and livelihood security issues and concerns.*
4. *BOBP and DOF in collaboration with other agencies are preparing to organize a national consultation to help evolve a policy and strategy for sustainable coastal aquaculture.*
5. *DOF and FRI staff will be trained in designing strategy and campaigns for implementation of management initiatives for ESNB and PN fisheries.*
6. *DOF and FRI hope to initiate a few management initiatives amongst ESNB and PN fisherfolk, and learn from their experience, which will give direction to future efforts during 1998 and 1999.*

Assessment: The activities in Bangladesh are reasonably on schedule, progressing well in spite of delays in some components. The level of performance of the junior and middle level staff is high, and they are quite enthused about the project. The organizational culture of the department and the managerial environment are often not conducive to supporting innovative and creative efforts such as fisheries management. Fund shortages are a major constraint, which not only makes national execution difficult but raises the question of post-project sustainability. The Marine Wing, responsible for implementation, does not have a presence at the implementation level, namely the district and thana levels, and this will 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; initial indications are not very promising. 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 BOBP and DOF to justice to this task.

- I. In spite of all these constraints and problems a lot has been achieved in Bangladesh. Bangladesh is the only member country of BOBP, wherein BOBP's Coastal Fisheries Management Project and the ODA's Post-Harvest Fisheries Project are working closely together, addressing the needs of the ESNB fisherfolk.

INDIA: DOF/BOBP Coastal Fisheries and Aquaculture Management Projects

Functional Area: in Tamil Nadu: coastal fisheries management/management of trawl fishery
 in Andhra Pradesh: coastal aquaculture management
 in Orissa: coastal fisheries management
 in West Bengal: coastal aquaculture management

Geographical Area: in Tamil Nadu: Kanniya Kumari and Chennai Districts
 in Andhra Pradesh: East Godavari, West Godavari & Krishna Districts
 in Orissa: Baleshwar and Cuttack Districts
 in West Bengal: North 24 Parganas. South 24 Parganas & Midnapore Districts

Implementing Agencies: Departments of Fisheries of the states of Tamil Nadu, Andhra Pradesh, Orissa and West Bengal, in co-operation with Central Marine Fisheries Research Institute and the Central Institute of Brackishwater Aquaculture.

Project Objective:

1. To enable and facilitate improved management of coastal fisheries in selected districts of the **states of Tamil Nadu and Orissa**, through awareness building, strengthening institutional capacity of concerned agencies, and provision of technical assistance.
2. To enable and facilitate improved coastal aquaculture management in selected districts of the **states of Andhra Pradesh and West Bengal**, through awareness building, strengthening institutional capacity of concerned agencies, and provision of technical assistance.

Background Note: In 1994 the Central Marine Fisheries Research Institute (CMFRI), at the request of the Government of India (GOI), undertook a situation analysis of coastal fisheries along the east coast of India, identified and prioritised the problems, and proposed that the Governments of the States of Tamil Nadu and Andhra Pradesh improve the management of coastal & trawl fisheries and coastal aquaculture with assistance from BOBP. Early in 1995, after the 19th Meeting of BOBP's Advisory Committee had agreed to and endorsed the proposal of the Situation Analysis, the GOI suggested that the geographical scope of BOBP-assisted activities along the east coast of India be expanded to include the states of Orissa and West Bengal. At a workshop, which brought together representatives of GOI and the four east coast states, it was agreed that BOBP-assisted activities would focus on coastal fisheries management in the states of Tamil Nadu and Orissa and on coastal aquaculture management in the states of Andhra Pradesh and West Bengal.

The Problem: Small-scale fisherfolk dominate the fisheries along the east coast of India not only in terms of their numbers but also in terms of their contribution to the total catch. The larger scale trawl fishery has expanded considerably in the last two decades, and there have been several instances of social conflict with small-scale fisherfolk, into whose area of operation the trawl fishery often intrudes. While production and catch rates of the trawl fishery have shown no signs of decline, there are other indications, such as the reduction in average sizes of species in the catch and changing species composition in catches, which suggest the need for management. There is also the concern of by-catch discards in the trawl fishery which is sizeable. Amongst the small-scale fisherfolk the picture is not very good. Catches have been declining, and with it earnings, in spite of increased prices of fish. The resource scarcity, combined with lack of alternative options for income generation, has affected the quality of life of small-scale fishing communities adversely, creating a climate wherein conflicts often arise.

Coastal aquaculture, primarily for the culture of P Monodon developed rapidly along the east coast of India causing a variety of problems both environmental and social. Salinization of soil and groundwater, pollution due to water and soil disposal, disease problems, damage to mangroves, destruction of by-catch and destruction of wetlands during collection of wild seed for culture, indiscriminate conversion of agricultural lands, and land use conflicts are some of the concerns that have arisen.

The state governments and the GOI, concerned with the status and trends in coastal fisheries and aquaculture, are committed to improving the management of the sectors to ensure the sustainability of the resources and conservation of the ecosystem, and in improving the quality of lives of coastal poor fisherfolk and fish farmers. Realising the complexity of the problems, and given the constraints they face in terms of manpower and resources, the governments are interested in addressing the problems comprehensively with the participation of stakeholders.

Chronological List of Activities Undertaken:

1995:

1. National Workshop of representatives of GOI, states of Tamil Nadu, Andhra Pradesh, Orissa and West Bengal, and BOBP decided the scope and modalities of BOBP-assisted activities in India. Execution of the projects by the States, implementation modalities such as staff allocation, pilot area locations and project foci were discussed and agreed to.
2. GOI communicated the proceedings of the Workshop and the decisions taken to the four east coast states seeking their formal support and commitment and requesting them to incorporate the proposed projects into state plans and appropriate budget allocations into state budgets to facilitate execution by the states.
3. BOBP staff visited all four east coast states and had discussions with counterparts, visited pilot areas and had detailed discussions with selected stakeholders of the fisheries and aquaculture sectors. These visits and discussions generated a better understanding of the problems faced by the stakeholders and their causes.
4. On the basis of the discussions with counterparts and stakeholders, and in anticipation of positive responses from the states, workplans for 1996 were drawn up and agreed.

Project Strategy: The strategy in all four states was to identify the stakeholders, get to know them and about them, understand their perceptions of problems and solution options and based on the findings to determine and design awareness-building campaigns where necessary, and evolve workplans in consultation with the stakeholders to improve the management of fisheries and aquaculture. The strategy would also determine technical assistance needs, if any, and address them through training and technical inputs. In a sense the strategy was process-oriented rather than goal-oriented, with participation as its foundation.

1996:

In Tamil Nadu

1. 15 DOF staff from Chennai and Kanniya Kumari Districts and 4 Catholic Priests of Kottar Diocese were given orientation to the BOBP project and its approaches; and provided training in undertaking stakeholder identification, stakeholder analysis and stakeholder communications and perceptions analysis using participatory rapid appraisal methods. The staff designed and planned field work to undertake the stakeholder studies.

2. A one-day consultation was held with representatives of stakeholders of coastal fisheries in Kanniyar District to discuss their problems and solution options.
3. The participating DOF staff and the Catholic Priests undertook six weeks of fieldwork in their respective districts to do the stakeholder studies. The final reporting and a planned workshop to discuss the findings of the stakeholder studies and to evolve a strategy and workplan for the future was delayed because of the deployment of staff to relief operations subsequent to the tropical cyclonic storm that affected Tamil Nadu.
4. A training programme for selected DOF staff on the design, planning and management of participatory exploratory fishing trials, by international consultant Dr Marcel Giudicelli, was cancelled because of delays in GOI clearance for the Consultant.

In Orissa,

- 1.2 6 DOF staff from Cuttack and Baleshwar districts and two staff from DOF HQs were given orientation to the BOBP project and its approaches; and provided training in undertaking stakeholder identification, stakeholder analysis and stakeholder communications and perceptions analysis using participatory rapid appraisal methods. The staff designed and planned field work to undertake the stakeholder studies.
2. 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.
3. The participating DOF staff undertook six weeks of fieldwork in their respective districts to do the stakeholder studies. The follow-up Workshop to discuss the findings of the stakeholder studies and to evolve a workplan for the future was delayed because of scheduling problems and other pre-occupations of the staff.
4. 10 DOF staff were trained in the design, planning and management of participatory exploratory fishing trials, by international consultant, Dr Marcel Giudicelli.

In Andhra Pradesh,

1. 30 DOF staff from East Godavari, West Godavari, Krishna, Prakasam and Nellore districts were provided orientation to the BOBP project, its approaches and to management of aquaculture to ensure sustainability; and provided training in undertaking stakeholder identification, stakeholder analysis and stakeholder communications and perceptions analysis using participatory rapid appraisal methods. The staff designed and planned field work to undertake the stakeholder studies.
2. 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.
3. The fieldwork to undertake stakeholder studies had to be indefinitely postponed because of all DOF staff being deployed for relief and rehabilitation work following the two severe cyclonic storms that devastated the Andhra Pradesh coast during a period of two weeks.

In West Bengal,

- 1 29 DOF staff from Midnapore, South 24-Parganas and North 24-Parganas districts were provided orientation to the BOBP project, its approaches and to management of aquaculture to ensure sustainability; and provided training in undertaking stakeholder identification, stakeholder analysis and stakeholder communications

and perceptions analysis using participatory rapid appraisal methods. The staff designed and planned field work to undertake the stakeholder studies.

2. A one-day consultation was held with representatives of stakeholders of coastal aquaculture in North 24-Parganas and South 24-Parganas Districts to discuss their problems and solution options.
3. The DOF staff of North 24-Parganas undertook six weeks of fieldwork to do the stakeholder studies. The staff in the other two districts could not undertake the studies due to delays in receiving government orders, and had to postpone the studies to a later period.
4. A follow-up workshop for 27 DOF staff was held to discuss the findings of the stakeholder studies of North 24 Parganas district, and to evolve a strategy and workplan based on the findings. All three district's staff agreed to complete their stakeholder studies and develop district-wise workplans and budgets and submit them to DOF and BOBP for their consideration and support.
5. Staff in all three districts undertook a series of stakeholder meetings to determine the awareness and communications needs of the stakeholders, which could be used to evolve materials to assist the staff in implementation of selected management initiatives.

In consultation with counterpart staff in the four east coast states and based on the preliminary findings of the stakeholder studies conducted, workplans for 1997 were evolved.

1997:

In Tamil Nadu,

1. A follow-up workshop was held for DOF staff of Chennai and Kanniyakumari District to discuss the findings of the stakeholder studies. The staff evolved a strategy and workplan for their future efforts with budgets which were presented to BOBP and DOE
2. The DOF and the Government of Tamil Nadu have allocated Indian Rupees 1 million to supplement the efforts of BOBP-assisted activities in Tamil Nadu for the financial year 1997-1998.
3. A series of stakeholder meetings is being held in the two districts by DOF staff to involve the stakeholders in a planning exercise to determine joint action to be taken for selected management initiatives.

In Andhra Pradesh,

1. A follow-up workshop was held for DOF staff of East Godavari, Krishna and West Godavari Districts to discuss the findings of the stakeholder studies. The staff, on the basis of the findings, evolved workplans for future actions, which included identifying one cluster of aquaculturists in each district who they can work closely with and help in working towards sustainable aquaculture.

In West Bengal,

1. A seven-day training programme was organised at the Ramkrishna Mission Krishi Vigyan Kendra for 29 DOF staff to train them in improved participatory training and extension methods.

At BOBP's headquarters in Chennai, the opportunity of FAO staff visiting from HQs in Rome was used to organise a series of seminars on a variety of subjects, in co-operation with local research and NGO institutions. These included seminars on:

- 4 Emerging needs for Information Services in Fisheries
- 4 GIS as a Tool for Management of Fisheries and Aquaculture
- 4 Prevention of Disease and Health Management in Aquaculture
- 4 Safety at Sea
- 4 Changing Technologies and Reaching Rural Women
- 4 Quality Assurance Approaches in the Fisheries Sector

Assessment: In spite of delays in implementation, partly due to natural calamities and partly due to delays in issue of government orders and other pre-occupations, it can be said with confidence that the staff are by and large committed to and interested in their work. Their performance has been good. In fact the quality of the work in some states has been outstanding, particularly because junior officers took the initiative and persuaded their senior staff to find ways around bureaucratic hurdles. National execution of the projects proceeded less smoothly. The states face severe financial constraints and have had problems even in providing travel and subsistence support to their staff. With the operational stage of the project fast approaching, this situation may prove difficult. Tamil Nadu has taken the lead by generously allocating funds for BOBP-assisted activities and one hopes this will help in persuading the other states to follow suit. The other states feel that the government of India and BOBP will have to carry the bulk of the financial responsibility for the activities, unless the GOI takes the lead and comes up with alternative options to enable national execution.

INDONESIA: DGF/PFS/BOBP Coastal Fisheries Management Project

Functional Focus: Community-based management of fisheries and mariculture.

Geographical Focus: Tapian Nauli Bay area in North Sumatra Province of Indonesia.

Implementing Agencies: Directorate General of Fisheries (DGF), Provincial Fisheries Service of North Sumatra Province (PFS), and concerned District Fisheries Services (DFS) in Tapian Nauli Bay area. (1 DGF, 6 PFS and 10 DFS staff)

National Project Coordinator: Mr Sihar Siregar, Chief, Sub-Directorate of Mariculture, Production Division, DGF supported by Mr Nasiruddin Siregar, PFS, North Sumatra at provincial level.

Project Objective: In the context of evolving model fishing villages to undertake community-based fisheries management, to facilitate and enable improved management of mariculture, anchovy lift-net fishery and small-scale fisheries in the Tapian Nauli Bay area of North Sumatra Province, Indonesia, through awareness building, strengthening institutional capacity of concerned agencies and provision of technical assistance.

Background Note: The PFS, with support from the DGF, undertook in 1994 a situation analysis which proposed that Indonesia with the assistance of BOBP would like to develop model management schemes for coastal fisheries and mariculture using participatory, community-based approaches to conserve and sustain coastal fisheries resources and improve the livelihood of fisherfolk. The government proposed a pilot exercise in the Tapian Nauli Bay area of North Sumatra Province, with the hope that the learnings of the exercise could be extended to other parts of Indonesia.

The Problem: Inadequate management measures and inappropriate enforcement mechanisms have resulted in conflicts between groups of fisherfolk. Fisheries stocks in coastal areas are being stressed. Coastal areas often face conflict situations due to several users targeting the same resource. The recent development of mariculture has created problems such as wild seed collection using destructive fishing practices, unmanaged development of fisheries to generate feed for the mariculture sector, and pollution. Further, pollution of coastal areas from various land and sea based sources is stressing coastal ecosystems. Fisherfolk incomes are low and there is concern about the quality of fish and fish products. The government, realizing the complexity of such problems and given the constraints it faces in terms of manpower and resources, is interested in addressing the problems comprehensively through participatory approaches at the community level.

Chronological List of Activities Undertaken:

1995:

1. DGF designated the PFS of North Sumatra and the DFS of Sibolga and Tapian Nauli districts as the agencies responsible for the implementation of the BOBP-assisted activity. DGF incorporated fund allocations into their annual budget to cover necessary expenses beyond the assistance available from BOBP sources.
2. BOBP assisted the DGF in designing and developing a project proposal for submission to UNDP, which would supplement the limited resources of BOBP and DGF and support and complement the BOBP-assisted efforts. UNDP, however, was unable to support the project under its current funding cycle, and suggested that it be considered in its next cycle.
3. Selected DGF, PFS and DFS staff were trained in the conduct of stakeholder identification, stakeholder analysis and stakeholder communications and perceptions analysis. The staff designed and developed a study design to undertake stakeholder analysis.

4. A stakeholder consultation was organized by the DGF/PFS/DFS staff which brought together representatives of stakeholders of all three target fisheries for discussions about their problems and concerns and their suggestions for solution options.
5. The PFS/DFS staff who had been trained undertook field work for a month to hold discussions with stakeholders and to conduct stakeholder analysis.
6. A workshop was held in Medan, North Sumatra, early in 1996, to discuss the findings of the stakeholder analysis and on the basis of the analysis to evolve a project strategy and workplan for the project. The project workplan was endorsed by DGF, PFS and DFS and commitments were made regarding responsibility and resource allocations to facilitate the project.

Project Strategy: A multi-pronged strategy was evolved on the basis of the stakeholder analysis. At the national level it was proposed that efforts had to be taken to build awareness and promote the concepts of community-based fisheries management and stakeholder approaches. At the local level the approach was to build awareness on the need for, the benefits of and the methods of management amongst all stakeholders; promote and encourage consultation and negotiation amongst and between stakeholders to arrive at management plans; and to provide technical inputs to enable more sustainable practices in the fisheries. The overall approach was to take the participatory consultative route wherein the solutions and strategies would emerge from consultations amongst stakeholders. Central to the strategy was the idea of generating viable technical solutions to promote sustainability in fisheries and mariculture.

1996:

1. The National Workshop on Community-based Fisheries Management had to be postponed. BOBP had hoped the Japanese Trust Fund in FAO (RAS/138/JPN) would support the effort as it had in Bangladesh, Thailand and Sri Lanka. DGF and BOBP are committed to the activity and will jointly organize it early in 1998.
2. Preparatory efforts were undertaken to design a study to review institutions, legislation and regulations in the Tapan Nauli Bay area level, with a view to recommend necessary changes to facilitate participatory community-based management efforts. TORs were developed and candidates identified to undertake the study.
3. The activities relating to improving the management of mariculture, anchovy lift-net fishery and small-scale fisheries were dependent on BOBP identifying and assigning consultants to study the problems of the sectors and evolving technical inputs based on technology extension, training and fisherfolk manuals. The activities had to be postponed as appropriate consultants could not be identified and assigned. DGF and BOBP agreed that the related awareness building and consultative approaches should be postponed in order to have on hand the technical inputs to give direction to the efforts.
4. Selected staff of PFS and DFS were trained in the conduct of the regional study on values, perceptions and attitudes of fisherfolk and other stakeholders towards fisheries resources, fishing practices, and fisheries management. The questionnaire was translated into Bahasa Indonesia and the staff planned their fieldwork to be conducted in the Tapan Nauli Bay area.

1997:

- I. A study to review institutional and regulatory frameworks to facilitate participatory community-based fisheries management was assigned to a group of national consultants and the report of the study is expected later in the year when it will be discussed at a national workshop.

2. A technical consultant for providing technical assistance to the anchovy lift-net fishery in terms of improving the quality of processed anchovy on-board the fishing craft and on land has been identified with the help of DOF, Malaysia and the consultant's assignment is expected in the near future.

The fieldwork for the study of values, perceptions and attitudes of fisherfolk and other stakeholders was initiated and is expected to be completed and reported on later in 1997.

Assessment: While the activities in the project have been delayed due to 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 very interested in the progress of the activities and has given high priority to solving the problems of mariculture, anchovy lift-net fishery and small-scale fisheries.

MALAYSIA: DOF-BOBP Coastal Fisheries Management Project

Functional Focus: The promotion of sustainable coastal zone management approaches for marine parks as productive ecosystems contributing to fisheries production.

Geographical Focus: Pulau Payar Marine Park, Kedah

Implementing Agencies: DOF in State of Kedah/Perlis and the DOF in Kuala Lumpur in association with other National and State government agencies of Kedah and Perlis; as well as representatives from EPU; Environment; Forestry; Universities (UPM and USM); fisherfolk; NGOs and WWF.

National Project Coordinator: Mr. George C.M. Chong

Project Objective: As a pilot exercise in developing and testing methodologies and approaches, the Malaysian Government intends to focus on the marine park that has been established in the Langkawi Island off the coast of Kedah and Perlis and enable and facilitate sustainable coastal zone management.

Background Note: In 1994 Malaysia also undertook a situation analysis of their fisheries and coastal resources. The analysis recommended a sustainable resource management approach to emphasize the importance of marine parks as productive ecosystems contributing to fisheries and biodiversity.

The problem: A variety of development effort has contributed to the degradation of coastal resources, including destruction of mangroves for land reclamation and conversion into brackishwater aquaculture, agriculture development, rapid expansion of tourism, and destruction of seagrass beds and coral reefs.

Chronological List of Activities Undertaken:

1995:

1. Key stakeholders have been identified. They include fisherfolk (primary targets), industry and hotel owners, fish vendors and middlemen, landowners, and Langkawi Area Port Authority and developers.
2. The awareness activity objective has been developed; to create an understanding of 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.
3. The Special Area Management Plan (SAMP) monitoring objective was developed; to observe whether the Marine Park and areas managed under the SAMP can increase or sustain fisheries resources in the Park waters and surrounding areas.
4. A five year Workplan was developed which will be regularly reviewed and revised.

Project Strategy:

During the first year it was decided to experiment with local-level integrated coastal area management through the implementation of a so-called SAMP. The DOF is approaching SAMP development through a two-tiered process: Tier I and II committees. During the first tier, the DOF is developing a consensus-based preliminary draft SAMP. This preliminary draft will be used as a platform for discussion during the second tier when all the key agencies with jurisdiction in the coastal zone will be brought together, through consensus, to develop the detailed SAMP with consultations at each step in the process with fisherfolk and other resource users and stakeholders. The schedules and terms of reference for the committees were established. The Tier I Committee consists of the DOFM Aquatic Ecology Branch, Marine

Parks Branch, Sector Planning Branch and Resource Management Branch. The Tier I Committee was initiated in mid-1995 and worked closely with the area stakeholders and State agencies to further assist in the project design, guide the scientific characterization studies, public outreach activities, and institutional review, and draft a skeleton SAMP. The draft SAMP is completed in May 1997.

1996:

1. The SAMP is currently being developed by the Tier I Committee together with advisory inputs from BOBP.
2. DOFM arranged for key staff in SAMP development and implementation to undergo training in Integrated Coastal Zone Management (ICZM) in Rhode Island (RI), and visits to several ICZM field projects in RI during the training.
3. Forty fisherfolk candidates have been identified for alternative livelihood skills training in ecotourism (a diving course and a ecoguide/ natural history course). A purpose of the training is to enable small-scale fisherfolk to start their own businesses. The programme for the first training has been completed.
4. Preparations for a local ICZM Workshop for Tier II are under way. The Workshop will be held in the second part of 1997 and is to present an overview of the ICZM SAMP process and build consensus among the Tier II Committee representatives on the objectives and issues of management. The draft Tier I SAMP will be presented to the Tier II Committee.
5. The methodology for conducting the scientific characterization studies was developed along with the description of activities, time frame and budget. The interactive approach to develop the study was a useful SAMP planning tool.
6. Five DOF staff from the IPP are conducting the scientific characterization work. The early findings will be presented at the ICZM Workshop in 1997. The ongoing results of this work, together with the results from the socio-economic survey, will form the information base used for SAMP decision-making.
7. A report on the visitor-carrying capacity of Pulau Payar Marine Park has been completed.
8. A socio-economic baseline survey for the SAMP area was developed and translated into Bahasa Malaysia.

1997:

1. Survey orientation and training of DOFM/ Kedah staff (fieldwork orientation, training in the survey objectives, interview techniques and sampling methodology/frames) undertaking the socio-economic baseline study which complements the scientific study by providing measurements of change in area communities with SAMP implementation.
2. Survey orientation and training of DOFM/ Kedah staff undertaking the VPA study of fishermen in Kedah as part of the regional assessment of Values, Perceptions and Attitudes of fisheries stakeholders.
3. ICZM Workshop prospectus has been drafted and circulated for comments.

Assessment: National execution is proving to work in Malaysia. Funds from the Malaysian Treasury are being made available to top up BOBP budget to implement workplan activities. Interest in fisheries management is high, in particular consultative and participating management (read CBFM). Even so, some delay is experienced in scheduling of activities due to other pressing government work

MALDIVES: MOFA-BOBP Coastal Fisheries Management Project

Functional Focus: Integrated Reef Resources Management

Geographical Focus: Maldives, with particular focus on Vaavu, Meemu, Faafu and Dhaalu Atolls.

Implementing Agencies: The Ministry of Fisheries and Agriculture (MOFA) and the Marine Research Section of MOFA, in close cooperation with other concerned government agencies. (Approximately 8 staff members.)

National Project Coordinator: Mr Ahmed Hafiz, Deputy Director, Marine Research Section, MOFA

Project Objective: Enable and facilitate the development of a model for participatory, atoll and island community-based, integrated reef resources management, in a pilot exercise focusing on Vaavu, Meemu, Faafu and Dhaalu Atolls, through awareness-building and consultation, strengthening the institutional capacity of concerned agencies and provision of technical assistance.

Background Note: In 1994 the Ministry of Fisheries and Agriculture (MOFA) determined that the third phase effort of BOBP should assist MOFA in developing a economic-ecological model for island and atoll community-based integrated reef resources management, that could then be extended to the rest of the country, in the context of the National Integrated Reef Resources Management Programme. This decision grew out of BOBP's 2nd phase extension activity in the Maldives which, working in the same pilot area as chosen for the third phase, had evolved into a participatory resource management effort. The efforts of MOFA during the 2nd phase BOBP activity and subsequent to it had also helped to identify the major issues that needed to be addressed:

- ❖ reef fishery (particularly the grouper fishery for export in live form and the collection of aquarium fish, also for export)
- ❖ live bait fishery in the reef area, for the tuna pole and line fishery
- ❖ the mining of coral and sand for construction purposes
- ❖ the interaction between the tourism and fishery sectors.

The Problem: Reefs are central to the people of the Maldives for their very security from the forces of nature. Reefs are also an important factor in the livelihoods of island peoples as they provide natural resources for construction and trade. In the recent past, without the benefit of formal management processes, the people have seen their reef resources being stressed and even depleted, particularly in the cases of the giant clam and beche-de-mer fisheries and through extraction of coral and sand for construction purposes. **The** government and the people are very concerned about these developments and about possible conflicts that may emerge amongst users of reef resources. The people have expressed their interest in participating in efforts to sustainably manage their resources, and this interest helped evolve a BOBP 2nd phase extension activity into a participatory reef resources management activity. In the cases of new and developing fisheries, such as the grouper fishery for live-fish export and the fishery targeting aquarium fish, the private sector and the government are keen about addressing the need for management and a shift to more sustainable options such as mariculture, provided such efforts are preceded by environmental impact assessments and accompanied by sound management. The pole and line tuna fishery is the mainstay of the fisheries of the Maldives, and there is concern that its growth and development will be affected by live bait availability in the reefs. The tourism sector in the Maldives is the major earner of revenue and foreign exchange and the government and the tourism sector are very aware that tourists are drawn by the beautiful reefs of the country; problematic interactions between fisheries and tourism activities and any degradation of the reef resources can jeopardize the sector's development. In this context the government has developed a National Integrated Reef Resources Management Plan to address these concerns.

Chronological List of Activities Undertaken:

1995:

1. MOFA designated the MRS as the agency responsible for the implementation of the BOBP-assisted activity. A team of staff from MRS and MOFA was assigned to undertake the project work and firm fund allocations were made in MOFA's budget to enable national execution of the project.
2. Four MRS staff were trained in undertaking stakeholder identification, stakeholder analysis, and stakeholder communications and perceptions analysis.
3. An extended field trip was undertaken to the four pilot atolls for discussions with stakeholders about the orientation of the project and to ascertain the needs and concerns of the communities in the context of IRRM.
4. Preparatory activities were undertaken to hold a National Workshop on Integrated Reef Resources Management to build awareness, seek cooperation amongst stakeholders and give direction to the process of IRRM.

Project Strategy: The primary strategy of MOFA was to hold a National Workshop on Integrated Reef Resources Management early in 1996, which would bring together MOFA and MRS staff, senior representatives of all concerned government departments, representatives of stakeholder groups, and selected experts from all over the world, to deliberate and come up with a strategy and with methods and approaches by which the country and the project could evolve the IRRM programme. Further, given the geographic remoteness of the islands, and their tradition of autonomy, the government is committed to a consultative and participatory approach to IRRM. MOFA hopes that the pilot effort in the four atolls will provide valuable learnings to give direction to an all-country effort.

1996:

1. A five-day National Workshop on Integrated Reef Resources Management was held in Male, which brought together MOFA and MRS staff, senior representatives of all concerned government departments, representatives of stakeholder groups, and selected experts from all over the world, and evolved recommendations and a draft strategy.
2. MOFA and MRS used the recommendations of the workshop to develop a workplan for the high priority actions necessary to follow-up on the recommendations, a draft management plan, and a draft IRRM implementation framework.
3. The draft plan and framework was forwarded to the Fishery Advisory Board, the highest ministerial level authority to guide fisheries policy and action in the Maldives, for approval and the Fisheries Advisory Board approved of the documents with minor changes.
4. The plan and framework documents were translated into the Dhivehi to facilitate the initiation of the implementation process.

1997:

1. BOBP and MOFA/MRS staff undertook an extended field trip to four pilot atolls for discussions with Atoll Chiefs and Atoll Development Committees to determine the priorities of each atoll and to evolve implementation modalities and mechanisms.

2. Atoll Chiefs and Atoll Development Committees, based on formats suggested by MOFA and MRS., agreed to initiate data collection in a geographical format to facilitate future decisions. These data will be maintained at Atoll level and communicated regularly to MOFA and MRS.
3. MOFA and MRS on the basis of the field trip discussions are developing sector by sector management plans based on the best available information and on information collected at Atoll level, and these plans will be presented to a workshop which will bring together technical staff from all concerned departments, Atoll Chiefs, Atoll Development Committee representatives and MOFA/MRS staff to come up with a agreed-to plan of implementation for IRRM and proposed coordination and co-operation mechanisms to facilitate implementation.
4. Preparations are underway to produce a comprehensive Fishes of the Maldives, identification catalogue, to be published later in the year jointly by BOBP and MOFA.
5. Preparatory efforts are under way to design a study to document traditional and local knowledge on fisheries and natural resources management, which could give direction to the IRRM efforts. A researcher to undertake the study has been identified and the TOR and workplan are being developed to facilitate issue of a contractual service agreement.
6. A proposal is being developed for the establishment of a GIS database to facilitate the implementation of the IRRM programme, which MOFA and MRS are keen to set up.
7. *Preparatory efforts are under way to establish an Atoll Learning Centre in Meemu Atoll to facilitate awareness building. As apart of this exercise the awareness materials development capacity of MRS will be upgraded Plans and budgets are being evolved for action later in the year*

Assessment: MOFA and MRS in collaboration with BOBP have embarked on a process that is complex and difficult on the one hand and politically sensitive on the other. Natural resources management involves ownership and use-rights issues that will have to be evolved in the context of tradition and present political practice, and this is necessarily a slow process. MOFA and MRS have limited staff and resources and this may pose a problem for the project's implementation. MOFA and MRS are committed to the activity and are evolving strategy through a participatory and consultative process that does not lend itself to quick and easy solutions. There is visible progress in change of attitude and in the perceptions of stakeholders. Mechanisms and modalities are being slowly but surely developed. The project stands a good chance of setting in motion a process that may well have considerable and important impact, though one may not see the establishment of a clear-cut management regime within the lifespan of the project.

SRILANKA: DFAR-BOBP Coastal Fisheries Management Project

Functional Focus: Management of ornamental fish sector.

Geographical Focus: Sri Lanka, with particular focus on south-west coast, from Puttalam to Hambantotta.

Implementing Agencies: Department of Fisheries and Aquatic Resources (DFAR) (Fisheries Management Division) in cooperation with National Aquatic Resources Agency (NARA). (Approximately 4 staff supported by district level DFAR staff, as required.)

National Project Coordinator: Mr H. V. C. Fernando, Deputy Director of Fisheries, DFAR

Project Objective: In the context of conservation of critical aquatic habitats such as coral reefs, lagoons, mangroves, sea grass beds, estuarine and riverine systems and sustainable resources utilization from such habitats, to facilitate and enable improved management of the ornamental fish sector of Sri Lanka, through awareness building, strengthening the institutional capacity of concerned agencies and provision of technical assistance.

Background Note: A situation analysis conducted by DFAR in 1994 identified the ornamental fish sector as a problem fishery whose management was considered a high priority need. Not much information exists about the ornamental fish sector and there are no data to suggest that any of the stocks are under stress or in danger. However, the government set a high priority to the management of the sector because:

- ❖ Given that ornamental fish live in and are collected from some of the most vulnerable environments such as coral reefs, mangroves, lagoons, estuaries and sea grass beds, there is concern in Sri Lanka about the future sustainability of its rich aquatic resources. Several NGOs express concern that activities such as collection of ornamental fish are destroying the country's biodiversity and putting the environment and the people to risk.
- ❖ Several government agencies have mandates that oversee wildlife, environment and natural resources utilization, and there have been conflicting legislation, rules and regulations evolving out of different agencies to address the same concern. The government felt the need to rationalize the process to promote a more coordinated approach to the multi-disciplinary problem.
- ❖ 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 organized fisheries that target food fish.

The Problem: The problem in the ornamental fish sector needs to be looked at on two levels. First, given that little is known about the populations or the biology of the species, some of which are endemic to Sri Lanka and rare, there is a genuine concern that indiscriminate collection would stress the populations and eventually push them towards extinction. There is also the related question of how these delicate creatures are collected; luckily toxic substances and explosives do not seem to be used in Sri Lanka, though some of the gear and methods used to collect fish, such as 'moxy' nets, are not eco-friendly. Secondly, and less well known, is the problem of human activities and the impact they have on habitats of ornamental fish. A wide range of activities including deforestation, agriculture, the mining of coral for lime and cement, food fisheries, sewage and garbage dumping, industrial pollution and tourism have direct and indirect effects on the habitats, most of which are detrimental. Given this scenario, only managing the collection of ornamental fish may prove futile, even if successfully implemented, if no attention is paid to the quality of the habitats which recruit and provide a home for the creatures concerned. In practical terms the management of the ornamental fish sector is complicated by the fact that several government agencies are involved and they would need to work in concert to come up with a rational and cohesive programme of management.

Chronological List of Activities Undertaken:

1995:

1. MFARD designated DFAR and NARA as the primary agencies responsible for implementation of the BOBP-assisted effort. The activity was incorporated into the National Fisheries Development Plan of Sri Lanka 1995-2000, and the government earmarked a budget of 0.5 million SRL Rupees into the Fisheries Plan to facilitate national execution of the project.
2. Four staff of NARA were trained in undertaking stakeholder identification, stakeholder analysis and stakeholder communications and perceptions analysis. The studies could not be undertaken partly due to the situation prevailing in the country and partly due to manpower shortages which resulted in staff being preoccupied with other priorities.
3. Preparatory work initiated to develop identification catalogues in the form of laminated cards, posters and ring-bound catalogues of ornamental fish whose export is either banned or restricted, to facilitate enforcement and to build awareness.
4. One-day stakeholder consultation held with selected NGOs interested in and concerned with the ornamental fish sector. NGOs agreed in principle to participate actively in the management process.
5. The Project developed a working relationship with a NARA-implemented project, supported by the Marine Conservation Society (MCS) of UK and funded by the Darwin Initiative, which also addresses the management needs of the marine ornamental fish sector. BOBP and Project staff participated in a National Workshop on Management of Marine Aquarium Fisheries and Conservation of Coral Reef Biodiversity of Sri Lanka, organized by NARA and MCS.
6. BOBP assisted FAO in developing a project proposal, "Development of Integrated Fisheries Resources Management in Sri Lanka", as a follow up to a National Workshop on Community-Based Fisheries Management held in Colombo in 1994.
7. A workshop on "Prioritization of Research in Fisheries" was organized for MFARD, DFAR and NARA staff around a presentation made by the Programme Coordinator of BOBP.
8. 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 stakeholder analysis findings gave direction to the development of a project strategy and detailed workplans for the year 1996.

Project Strategy: The stakeholder analysis suggests that while a lot of differences exist in terms of perceptions of problems and solution options there is a clear commonality, in that all parties feel that they stand to benefit in the long term from a programme that ensures the sustainability of the resources and the habitat. The central aim of the project will be to promote consultations and negotiations amongst and between stakeholder groups in order to arrive at a negotiated management plan. Such a participatory development of a management plan will hopefully lead to participatory implementation, monitoring and enforcement of the agreed plan. To aid and assist the consultation process two parallel activities are planned. One, to add to the knowledge of the sector in terms of the status and trends of the resources and the habitats to provide the stakeholders with the "best available" scientific information to help them in their decisions, and, two, awareness building on the need for, the benefits of and the methods of management amongst all stakeholders.

1996:

1. A study to review and document existing data and literature and to acquire local and expert knowledge of the status and trends of resources and habitats in the ornamental fish sector of Sri Lanka was planned, and potential candidates to undertake the study were identified and shortlisted.
2. Based on regulations issued by MFARD which specify species of ornamental fish whose export is either banned or restricted, a local artist/diver was contracted to illustrate all the species, NARA and DFAR undertook the task of putting together information about each of the species, including notes on identification, local names, biology and population and habitat characteristics, The first priority was given to producing identification catalogues in the form of loose leaf binders for the use of Customs officers.
3. BOBP made available the “Fishbase”, a database on CD-ROM produced by FAO and ICLARM, to DFAR to facilitate their identification and management efforts.
4. 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
5. A study to assess the skill gaps and training needs of agencies concerned with fisheries management was planned. Discussions were held with the UNDP-FAO National Project on Fisheries Management and a joint exercise was agreed to. Suitable institutions and consultants to undertake the study are in the process of being identified.

1997:

1. 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** co-operation in the sector’s management.
2. Study on Status and Trends of Ornamental Fish Resources and Habitats was commissioned to be undertaken by a senior staff member of the University of Colombo.
3. The Live Fish Exporters Association of Sri Lanka have established a fund to support research and development efforts in aid of improved management of the ornamental fish sector, and hope to build up the fund by charging a cess of US 50 cents on each box of ornamental fish exported. The fund already has approximately US\$3000.
4. Preliminary discussions were held with the Live Fish Exporters Association of Sri Lanka about the need for and the modalities of undertaking a SWOT study of the industry to guide its development into the future.
5. 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. The staff *with support from BOBP will undertake the study later in the year.*
6. DFAR mounted a multimedia campaign to invite collectors and divers in ornamental fish sector to register themselves with their local fisheries offices, to enable DFAR to hold district-wise stakeholder consultations with the divers and collectors. *The first consultation is planned for June 1997.*
7. *DFAR is finalizing the identification catalogue of ornamental fish for use by the Customs and the ring-bound volumes are expected to be ready by end June 1997.*

8. *The various stakeholder consultations are expected to culminate in a national stakeholder meeting later in 1997, when the concept of a management advisory committee could be raised for consideration.*

Assessment: The prevailing situation in Sri Lanka has not only resulted in disruptions of work and delays but has also drastically affected fund availability to BOBP's counterpart agencies. This has resulted in delays in the implementation of the project. The other concern is an acute shortage of trained manpower in fishery agencies, particularly in sections concerned with fisheries management. While efforts at building capacity are on-going, the very act of training often deprives the agency of necessary staff during the periods of training. However, 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 is fair to expect that concern will translate into policy and action, even if it takes more time. Further, given the need for a multiplicity of agencies to work in concert to address the needs of the sector, progress may well be slow.

Thailand: DOF-BOBP Coastal Fisheries Management Project

Functional Focus: The development of community-based participatory approaches to the management of fisheries and aquaculture, in a coastal zone context.

Geographical Focus: Phang Nga Bay along the Andaman Sea coast of Thailand

Implementing Agencies: DOF, NGO, University,

National Project Coordinator: Mr. Jate Pimoljinda, Director, Andaman Sea Fisheries Development Center, Phuket.

Project Objective: As a microcosm of Thai fisheries, Phang Nga Bay displays almost all the problems encountered in the country. The Government is keen on developing management approaches facilitated by establishment of marine parks; deployment of village-based artificial reefs, and better enforcement through improving people's awareness and participation.

Background Note: Thailand's situation analysis identified the following issues both within and outside of the fisheries sector in Phang Nga Bay: utilization of harmful fishing methodologies, reduction in demersal catch, overexploitation of both pelagic and demersal fisheries, changes in species composition, enforcement, degradation of fisheries habitat, pollution caused by sedimentation, increased nutrients and industrial sources, conflicts between small-scale and large-scale fisherfolk.

The problem : The rapid and dramatic development of the fisheries industry in Thailand over the last few decades has resulted in several problems, including stressed pelagic and demersal stocks, deterioration of fisheries resources and their habitats, conflicts between fisherfolk, between various gear and between capture and culture fisheries, and environmental degradation of fisheries habitats due to waste discharge from aquaculture, industry and tourism.

The government has taken various steps to address some of these problems by limiting entry to the trawl fishery, licensing, etc.

Chronological List of Activities Undertaken:

1995:

1. The first year of the DOF/BOBP Third Phase saw development of objectives design and early implementation of a Community-Based Fisheries Management (CBFM) Project in Phang Nga Bay as to the issues identified by the situation analysis.
2. The following activities listed in the 3-year Workplan were completed
 - (1) Define Initial Area
 - (2) Obtain Consensus on Management Objectives
 - (3) Identify and Obtain Consensus on Village Fishery/ Coastal Resource Problems, and
 - (4) BOBP/DOF CBFM Workshop.

Project Strategy:

Site visits identified key fisherfolk leaders for representation and participation in the CBFM, initial geographic areas and issues for management. The initial area for management was defined as 11 villages on the eastern side of the Bay. However, the DOF/BOBP CBFM Workshop conducted in February 1996 generated enthusiasm among neighboring villages in the Bay and the project area was expanded to include the CBFM of the entire Bay .

1996:

1. The DOF/BOBP CBFM Workshop was held in February. Fifteen technical papers were presented at the Workshop, and fisherfolk experiences in management initiatives were presented and discussed at several sessions. Participants included fisherfolk, village leaders, government officials, NGOs, Universities, BOBP and FAO. It was the first time that the fisherfolk met with government officials to plan fisheries management.
2. The Workshop report and proceedings have been edited and sent to the printers.
3. Five individuals who have key roles in implementing CBFM completed a two-week training in ecosystem management at the international workshop 'Creative Approaches to Managing Bays and Estuaries' in Sarasota, Florida, US. Reports of the experience were drafted by the study tour participants and sent to BOBP and the donors.
4. Building fisherfolk groups as the local-level CBFM management structure was identified at the Workshop as an important activity for early implementation. CBFM fisherfolk groups or working committees were established in over 10 villages in the Bay.
5. Further strengthening the livelihood of fisherfolk within the villages was another activity identified at the Workshop to strengthen fisherfolk groups. Training in boat engine maintenance and repair was given to 20 fisherfolk in Ban Bang Can, one of the 10 villages with an established working committee.
6. Early action for CBFM implementation during the remainder of 1996 were identified during the CBFM meetings every two months (i.e. bi-monthly) with DOF, NGO, and the village CBFM working committees of Phang Nga Bay. These include:
 - (a) resource management and rehabilitation; and
 - (b) the development of approaches for enforcement of the push net and trawl ban,
7. Actions included releasing *Penaeus spp.* in five villages of the Bay. This activity is ongoing and is being rotated between Bay villages.
8. Mangrove and seagrass area rehabilitation implemented. Seagrass beds and mangrove areas under rehabilitation and protection have been identified by placing notification boards to inform area residents of the activity.
9. The strategy for achieving compliance of the trawl and push net ban, and discouraging harvest of gravid female crabs has started combining awareness, enforcement and economic incentives:
 - (a) cages have been established in 4 villages to take gravid female crabs mistakenly **caught** by fisherfolk. These are being used by fisher-folk, and once the crabs release their eggs, the crabs are sold. The profits are being used for village CBFM activities.
 - (b) approximately 40 pushnets are reported to continue operations in the Bay. To encourage greater compliance of the pushnet ban, gillnets are being offered to the fisherfolk if they trade in their pushnets.
 - (c) Results of a study quantifying juvenile fish abundance in the seagrass area of the Bay before and after the pushnet ban are being compiled into awareness materials.
10. During a bi-monthly CBFM meeting, fisherfolk requested evaluations by representatives to be held every six months instead of the yearly evaluation as originally agreed upon. The first evaluation was held in October 1996. Results included a consensus on additional activities to address environmental issues and conservation.

1997:

1. Public hearings with fisherfolk.
2. Construction of billboards and spawning cages.
3. Public release of shrimp and fish seeds.
4. Rehabilitation of denuded mangrove areas and seagrass beds
5. Training and orientation on Regional Survey and Study on the Values, Perceptions and Attitudes of Fisherfolk and Coastal Stakeholders Towards Ownership of Fisheries and its Exploitation, Management and Sustainability.

Assessment : As awareness is high and still growing rapidly in the Bay communities, DOF/BOBP activities are well received. Community participation is good. Much of the groundwork has been laid by DOF and by NGOs working in the Bay. Impact of these activities is beginning to pay off - one example is that the fleet size of trawlers and pushnet boats is steadily declining.

Appendix H

PROJECT INPUTS AND THEIR UTILIZATION

1. GCP/RAS/117/MUL : Information Service
 Donors Member countries
 Budget US\$ 100,000 per year

Table 3 gives details of budget and expenditure,

2. **GCP/RAS/150/DEN, &** : Coastal Fisheries Management
GCP/RAS/151/JPN
 Donors DANIDA, Government of Japan
 Budget US\$3,000,000 from 1994 - 1999

The low project expenditure is reflected in Tables 1 and 2.

Tables 4,5 and 6 give details of BOBP publications in 1997 (post 21 st AC meeting), professional staff and consultants and support staff.

TABLE 3 : GCP/RAS/117/MUL
 Budget and Expenditure (US \$) as on 30.6.97

<i>Code</i>	<i>Object of Exp.</i>	<i>Deposits</i> 1987-96	<i>Expenditure</i> 1987-30/6/97	<i>Est. Exp.</i> <i>from</i> 1.7.97	<i>Balance</i>
10	Personnel		422,840	3,738	
20	Duty Travel		46,337	3,000	
30	Contracts		45,315	5,679	
40	Gen.Ope.Exp.		16,321	2,500	
50	Materials		11,803		
	Subtotal		542,616	14,917	
90	Servicing cost		27,131	746	
	Grand Total	* 769,693	569,747	15,663	184,283

* *The status of contributions outstanding as at 30.06.97 received from FAO, Rome, shows that arrears due from Bangladesh, India, Malaysia, Maldives, Sri Lanka. Indonesia and Thailand have not yet been cleared.*

Table 1 : GCP/FUS/151/JPN
Budget and Expenditure (US \$) as of 30 June 1997

<i>Code</i>	<i>Object of Exp.</i>	<i>Budget</i> 1994-98	<i>Est. Exp.</i> 1994- 30.6.97	<i>Est. Exp.</i> 2nd half 1997	<i>Balance</i>
10	Personnel	346,000	122,082	50,832	
30	Contracts	210,000	53,468	25,973	
40	Gen.Ope. Exp.	161,435	21,923	33,526	
50	Supplies	150,000	(45,214)	24,879	
60	Equipment	100,000	21,516	11,412	
80	Fellowship/Training	360,000	94,609	43,019	
	Subtotal	1,327,435	268,384	189,641	
90	Servicing cost	172,565	34,890	24,653	
	Grand Total	1,500,000	303,274	214,294	982,432

Table 2 : GCP/RAS/150/DEN
Budget and Expenditure (US \$) upto 30 June 1997

<i>Code</i>	<i>Object of Exp.</i>	<i>Budget</i> 1994-98	<i>Est. Exp.</i> 1994 - 30.6.97	<i>Est. Exp.</i> 2nd half 1997	<i>Balance</i>
10	Personnel	1,079,928	754,377	86,271	
20	Duty Travel	162,000	143,120	20,000	
30	Contracts	20,000	3,232	3,559	
40	Hospitality	6,000	856	652	
	Subtotal	1,267,928	901,585	110,482	
90	Servicing cost Unspecified	164,831 67,241	117,206	14,363	
	Grand Total	1,500,000	1,018,791	124,845	356,364

Table 4

List of publications issued in 1997

Newsletter, Bay of Bengal News

Vol II No. 5, March 1997

Vol II No. 6, June 1997

Reports

- 1 . BOBP/REP/75 Report of the 2 I st Meeting of the Advisory Committee
- 2 . BOBP/REP/76 Workshop on Integrated Reef Resources Management in the Maldives.

Miscellaneous

1. Posters
 - (a) Our Sea, Our Wealth
 - (b) A Brief History of World Commercial Fishing
 - (c) A Simplified Model of How Fish Stocks Can Be Managed
 - (d) Ghost Fishing
2. Postcards
 - (a) Our Sea, Our Wealth
3. Video
 - (a) “Shanmugam’s dilemma” : Street play presented by tisherwomen of Kasimedu near Chennai.

Table 5
Professional Staff - 1997
(GCP/RAS/150/DEN, GCP/RAS/151/JPN, GCP/RAS/117/MUL)

International Officers

		<i>Name of Incumbent (country)</i>	<i>Date of (month/year) Arr.</i>	<i>Dep.</i>
1.	Programme Coordinator	Chong, Kee-Chai (Malaysia)	12/94	
2.	Communication Adviser	Roy, R (India)	01/95	
3.	Fishery Resource Economist (Associate Professional Officer)	Verduijin, R J C (The Netherlands)	10/96	
4.	Geographical Information Systems (Associate Professional Officer)	Bierhuizen, B (Ms) (The Netherlands)	12/96	

international Consultants

			<i>w/m</i>
1.	Fishery Harbours	Ravikumar, R India	1.0
2.	Fishery Harbours	Sciortino, J Malta	0.25
3.	Precautionary Approach to Fisheries Management	Preston, G USA	0.25

Table 6
Supporting Staff - 1997
(GCP/RAS/150/DEN,GCP/RAS/151/JP)

Administration

Scurville, (Ms) S	Sr. Admin. Assistant
Sivashanmugam, P M	Sr. Driver

Information Service * *

Madhu, S R	Information Officer (Consultant)
Amalore E	Artist (Consultant)

Secretarial Service

Vergheese, C (MS)	Secretary
-------------------	-----------

****** *Costs covered by GCP/RAS/17/MUL*

Table 7
TRAINING

<i>No.</i>	<i>Subject Participants</i>	<i>Duration Days</i>	<i>Venue</i>	<i>No of (Country)</i>
1.	Follow up Workshop to Discuss Findings of Stakeholder Studies and to Evolve Strategy/Workplan for Action	4	Chennai India	14 (IND) Tamil Nadu
2.	Chennai District Stakeholder Consultations	5x1	Chennai India	145 (IND) Tamil Nadu
3.	Kanniya Kumari District Stakeholder Consultations	11 x 1	KK District TN, India	300 (IND) Tamil Nadu
4.	Follow up Workshop to Discuss Findings of Stakeholder Studies and to Evolve Strategies and Workplan for Action	4	Kakinada AP, India	37 (IND) Andhra Pradesh
5.	Training of DOF/BFDA Staff in Participatory Training and Extension Methods	7	Nimpith WB, India	29 (IND) West Bengal
6.	Training of PFS/DFS Staff on the Conduct of VPA Study in Sibolga	12	Medan NS. Indonesia	10 (INS) Indonesia
7.	Senior Government Stakeholder Consultation on Management of Ornamental Fish Sector	1	Colombo Sri Lanka	48(SRL) Sri Lanka
8.	DFAR Staff Training on Conduct of VPA Study in Sri Lanka	1	Colombo Sri Lanka	12 (SRL) Sri Lanka
9.	Regional Workshop on Precautionary Approach to Fisheries Management	4	Medan NS, Indonesia	26 (All Countries)
10.	GOI/BOBP Workshop to Review CFM. India activities	1	Chennai India	14 (IND) (India)
11.	Ornamental Fish Divers/Collectors Stakeholder Consultation, Colombo District Sri Lanka	1	Colombo Sri Lanka	130 (SRL) Sri Lanka
17.	Ornamental Fish Divers/Collectors Stakeholder Consultation, Negombo District Sri Lanka	1	Negombo Sri Lanka	80 (SRL) Sri Lanka

13.	Discussion with Fisherfolk Stakeholders in Sibolga on Fisheries Management and VPA	1	Sibolga NS, Indonesia	30(INS) Indonesia
14.	Training of DOF staff on the Conduct of VPA Study	1	Phuket Thailand	6(THA) Thailand
15.	Discussion on Impact of Globalization of Fisheries with Senior Law Students of Dr Ambedkar Law College	1	Chennai India	10(IND) India
16.	Workshop on Changing Technologies and Reaching Rural Women : Women in Fisheries in Asia (Dr Revathi Balakrishnan, RAPA, FAO)	1	Chennai India	12(IND) India
17.	Workshop on Safety at Sea (Mr Jeremy Turner, FAO-HQ)	1	Chennai India	15(IND) India
18.	Training in Fisheries Management for DOF Staff from DOF-TN Staff Training College	1	Chennai India	15(MD) India
19.	National Workshop on Precautionary Approach to Fisheries Management and on the Code of Conduct for Responsible Fisheries	2	Kuala Lumpur Malaysia	44(MAL) Malaysia
20.	Training/Orientation of DOF, Malaysia staff on Stakeholder Approaches to Fisheries Management	2	Kuala Lumpur Malaysia	21(MAL) Malaysia
21.	Training of DOF staff on the Conduct of VPA study in Malaysia	2	Alor Setar, Kedah Malaysia	7(MAL) Malaysia
22.	Training of DOF staff on the Conduct of Baseline Socio Economic Study in Malaysia	2	Alor Setar, Kedah Malaysia	7(MAL) Malaysia
23.	National Workshop on Cleaner Fishery Harbours in Sri Lanka		Negombo Sri Lanka	55(SRL) Sri Lanka

Appendix I

POST-HARVEST FISHERIES PROJECT (DFID-PHFP)

Interim Report

This Interim Report focuses on the status of the project and on the specific activities that have taken place since the previous report presented at the 21st Meeting of the Advisory Committee at Thailand earlier this year. The report that **will** be presented at the 23rd Advisory Committee Meeting in Sri Lanka will give a detailed account of the project's work programme during 1997.

Background

The Post-Harvest Fisheries Project is funded by **the** newly created Department for International Development (DFID¹) of the United Kingdom and managed through the Natural Resources Institute (NRI). Phase I of the Project was initiated in August 1987 and concentrated on identification of post-harvest problems in the Bay of Bengal region. Phase II (1989-1992) focused on the development of technical interventions to address post-harvest problems. Phase III commenced in April 1993 and is working towards the adaptation of technical solutions to the realities of coastal fisherfolk communities. The first and second phases focused their efforts on India whilst Phase III also has activities in Bangladesh and Sri Lanka. It is scheduled for implementation over a five-year period and is due to finish in March 1998. Three Bay of Bengal Programme (BOBP) member countries are included in this project: Bangladesh, India and Sri Lanka. **The** purpose and outputs of the project are given in Appendix I.

The project operates from a main office in Chennai with field offices in Andhra Pradesh and Bangladesh. Implementation of project activities is carried out by local staff in all three countries often working with government departments and non-governmental organisations (NGOs). Although regional in character, **the** individual country components are covered by separate inter-governmental bilateral aid agreements.

Impact Assessment Study

A pre-review assessment of the project was carried out in May 1996² which indicated that the project had begun to move towards achieving its purpose, but that it still had some distance to go before any significant impact was made. A DFID mid-term review in July 1996 agreed that there was a need for an impact assessment study (IAS) which would aim at providing a basis for making informed decisions with regard to the future of the project. Local consultants were recruited to carry out the study in India, Bangladesh and Sri Lanka which was completed in April 1997.

The methodology used for the study was evolved after a series of regional workshops with partner organisations and **the** techniques were field-tested at fishing villages near Chennai. The teams consisted of independent external consultants, key project staff and facilitators from partner organisations. Focus group discussions, individual interviews, discussions with key informants and direct observation were some of the key methods **used** in obtaining the information.

1 Formerly known as Overseas Development Administration (ODA)

2 Pre-review Assessment by Jock Campbell, *Integrated Marine Management, May 1996*

The main findings of the study were presented and discussed at a workshop held in Chennai during the second week of May 1997. The team felt that the project has made significant improvements in its impact on the fishing communities of the three countries since it began. The overall impact of the project has so far been small, but it has created the conditions for very large impact in the future if the lessons learnt at the micro-level can be replicated on a large enough scale in a sustainable manner.

As a result of feedback and discussions at the workshop the results of the IAS have been presented in two parts. The first part provides an outline of the main impacts of the project, the methodology and approaches that were used in the study, the lessons learnt and the future options and issues for the project. The second part provides fairly detailed field notes on all the locations visited. This information was considered to be useful in providing insights into the nature of the interventions undertaken and the kind of impact achieved by the project in each of the locations studied. The two reports have been circulated within DFID to enable the key officials responsible for the country programmes to make an informed decision on the future of the project. The reports are also being widely circulated to partner organisations in India, Bangladesh and Sri Lanka.

Intervention Model

The project and key partner organisations have been developing an “intervention model” that will document the project’s approach to post-harvest fisheries development based on the experiences of working in this subsector in the region. It will take the form of a series of guidelines emphasising the need to use a broad-based approach in assessing the suitability of interventions, and that these must take into account the interrelated and interlinked issues in developing and working with fishing communities. The guidelines will draw heavily upon the project’s experiences using appropriate case studies and will be targeted at government, non-government and community-based organisations. A final workshop is scheduled for October when the draft document will be prepared.

Status of the Project

The project is working towards consolidating its activities, preparing exit strategies in consultation with partner organisations and continues to refine and consider possible lessons learnt as part of the process towards finalising and disseminating its intervention package. The key challenge is in getting the benefits across to a much wider audience on a sustainable basis. The project is actively promoting post-harvest policies and closer ties between government, NGOs and the fishing communities.

Interventions have been predominantly pilot-scale activities undertaken by the project at the village level. These activities are usually in the form of introduction of a new technology or practice developed participatively, based on the needs of the local community in association with social, economic and institutional considerations. The activities are evaluated, and those found acceptable by the community are actively promoted by interacting with and involving the co-operation of other development agencies.

India

The project plays a key role in facilitating and coordinating the activities of the Department of Fisheries with other developmental agencies who are working with coastal fishing communities. This is usually done through workshops aimed at raising the awareness of the participants on post-harvest issues and also provides an opportunity for officials from the concerned departments to interact with each other. The effectiveness of such a strategy is illustrated by the DOFs and associated development agencies of the Indian states of Andhra Pradesh, Tamil Nadu and Orissa allocating funds for post-harvest technologies. More importantly, some government agencies have started using the participative methodology adopted by the project in formulating their own interventions. Similarly the project has created interest

among private entrepreneurs to take up improved post-harvest practices, and this has resulted in entrepreneurs in Paradeep in Orissa and Kovalam in Tamil Nadu actively promoting the adoption of drying racks amongst processors. The purchase of ice boxes by fishermen directly from the private sector without a subsidy is another strong indication of the sustainability of these activities.

Linkages have also been established between NGOs and Government Organisations (GOs) through the formation of an informal marketing network and an NGO-based network in southern Tamil Nadu. Such linkages have helped to bring about greater understanding and mutual respect between NGOs and GOs. The growing enthusiasm within the government and NGOs for improved post-harvest practices, the increased demands from fishing communities, the exchange of ideas and information through the project newsletter, workshops and post-harvest forums means that the project is able to extend its potential over a large area. It is estimated that the project has been able to access more than 25,000 households. However, it is often the provision of subsidies which leads to large-scale adoption and this can make it very difficult to judge the actual extent and coverage of the impact although it is an indication of the interest by government.

Sri Lanka

The project is working in partnership with a local NGO, and has been involved in organising cycle traders who operate in and around the city of Colombo, and Negombo, into an association. The association currently has a membership of 600 individuals with another 600 associate members. The primary purpose for starting such an association was to extend the use of ice boxes amongst the members. A total of 21 boxes were distributed by the project and 10 more boxes were directly purchased by traders on their own. However, the biggest impact of the project has been that the members are able to access formal sources of credit from commercial banks and government schemes.

The project's experience in extending the use of ice boxes amongst cycle traders has also been extended to cycle traders who are members of other government-recognised co-operatives along the coast of Sri Lanka. This has made it possible for the project to extend the use of ice boxes into provincial areas of the country. Trials have been conducted in several locations along the coast and the results have been very encouraging. The results of these trials have made it possible for the project to secure the assistance of the Asian Development Bank's Fisheries Sector Community Development Project which has agreed to extend its remit to include the need of cycle traders into its wider project aims.

The use of ice boxes on board 22-foot craft is another post-harvest need addressed by the project in Sri Lanka as a result of the suggestion by the Director of Fisheries. The depletion of inshore waters resulted in the boats having to go further offshore in order to access fishing grounds. The onboard ice box was designed participatively, in collaboration with the craft operators. These were fabricated and field-tested at several locations along the coast. The results of these tests indicate that a premium is being paid for fish stored in such boxes with a reduction in the amount of ice used and quantity of fish being spoiled. More than 50 members from various co-operative societies have come forward to purchase the boxes. There are an estimated 5000 craft operators and 2000 itinerant traders (cycle and motor cycle) who are members of the government-sponsored co-operatives. The potential impact could be extended considerably through government co-operatives and fisherfolk associations.

Bangladesh

The project has been working with set bagnet (SBN) communities in Bangladesh for the past few years. One of the problems faced is the destructive nature of the fishery and the likelihood that the government will eventually place a ban on the fishery. Also, the income from the fishery is generally not sufficient to meet their subsistence requirements. The project has sought to develop alternate sources of income through other activities that can be taken up by these communities. The project, in partnership with NGOs, has organised the womenfolk into savings and credit groups and started initiating training programmes, aimed at transferring skills for managing Alternative Income Generating Activities (AIGAs). These training programmes are accompanied by assistance for starting AIGAs.

A total of 955 households located in eight villages have currently taken up AIGAs. The project is now seeking to extend its opportunity of providing alternate incomes for fishing communities in the post-harvest area or in other activities through linkages between NGOs involved in the development of coastal communities and the DOF. A coastal community network has recently been formed with 33 NGOs working inland. However, the formation of these links still has to mature, and success will also depend on NGOs being able to access funds for undertaking these interventions.

Impact to date

In spite of these constraints, the project has made significant improvements in its impact on the fishing communities of the three countries since it began. This is partly because of the change of emphasis in the third phase of the project but it is also because the momentum of the project has been built up over a long period and the efforts of previous phases are bearing fruit. In addition, the economic and environmental conditions under which fisherfolk work in the region have significantly changed over recent years to favour the uptake of improved post-harvest interventions.

The overall impact of the project has so far been small but it has created the conditions for very large impact in the future if the lessons learnt at the micro-level can be replicated on a large enough scale in a sustainable manner. The project, based on the lessons which have been learnt from the previous phases, has now evolved a good understanding of the issues facing fishing communities and workers in the post-harvest sectors.

However, there has to be a very significant increase in impact if further work is to be justified. The emphasis will have to move away from the micro-level towards a much greater interaction with government, non-government organisations and the private sector in a partnership to take the lessons learnt and translate them into a much wider and greater impact.

Discussions are currently under way regarding a possible fourth phase of the project with the emphasis shifting from a micro-level intervention towards a much greater interaction with government, NGOs and private sector to provide a strong and supportive policy environment and a strong institutional capacity to take the lessons learnt and translate them into large-scale impact.

Appendix I - Post-Harvest Fisheries Project

Purpose

Incomes of artisanal fishing communities and petty fish traders households at selected Bay of Bengal locations sustainably increased.

Outputs

1. Appropriate technologies identified and transferred to beneficiaries.
2. Capacity of institutions (local, government and non-government) to support post-harvest fisheries (PHF) strengthened.
3. Access of artisanal fishing communities (AFC) and petty fish traders (PFT) households to credit enhanced.
4. Access of AFC and PF households to markets enhanced.
5. Dissemination strategy planned and implemented.
6. Effective linkages among community-based organisations, government and non-government organisations facilitated.
7. Project management unit (PMU) established and operational.



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

Cable : Bayfish *Telex* : 41-21138 BOBP. *Fax* : +91-44-493-6102. *E-Mail* : bobpkcc@md2.vsnl.net.in