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*The Code of Conduct for Responsible Fisheries must be understood and implemented by everyone concerned with fisheries if the world's living aquatic resources are to be effectively conserved and managed. This issue of Bay of Bengal News takes the debate forward. The Tamil version of the Code of Conduct was released in Chennai by the Director General of FAO (page 2 & page 23). The content and the meaning of the Code of Conduct are discussed on pages 23-25 by a leading fisheries researcher. A senior Indian fisheries official discusses recent developments in India concerning implementation of the Code (Pages 26-27).*





# FAO Director-General in Chennai

*What Dr Jacques Diouf saw, said and did in Chennai on April 29, 1999.*

In his event-packed one-day visit to Chennai, India (on April 29, 1999), FAO Director-General Jacques Diouf launched the women's eco-aquaculture movement in Tainil Nadu, released two important books, addressed a press conference, triggered off a Rotary Club initiative, delivered a major lecture and visited an FAO project near the Meenambakkam airport in Chennai. He flew back to Rome via Delhi the same night.

Dr Diouf's Chennai trip was in response to an invitation from Dr M S Swaminathan, much-decorated agricultural scientist, who is a Ramon Magsaysay and Blue Planet award winner, a former Secretary for Agriculture in India, a former Director-General of IRRI Manila, and founder and chairman of the M S Swaminathan Research Foundation (MSSRF) at Taramani, Chennai. Since its start 10 years ago, the MSSRF has attracted to Chennai a galaxy of scientists from all over the world.

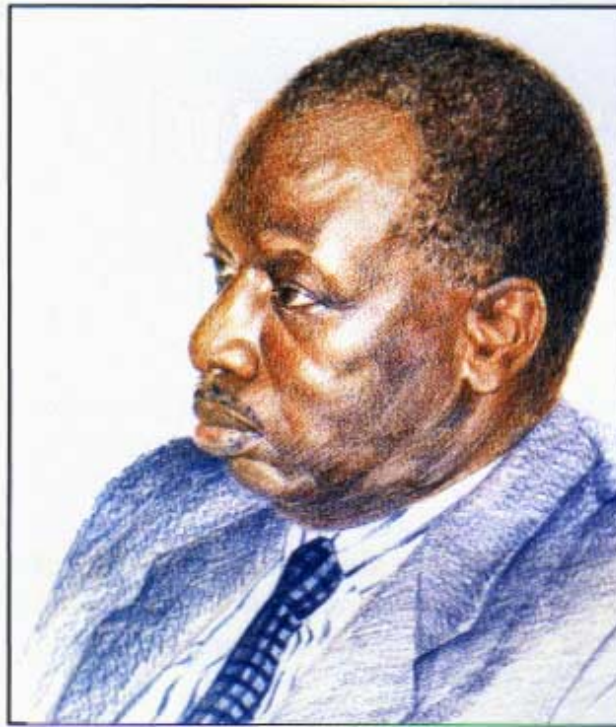
Dr Diouf was received at the Chennai airport on the night of April 28 by Dr Swaminathan, Mr Peter Roscnegger, FAO Representative for India and Rhutan, and Dr Kee-Chai Chong, Director of BOBP.

Dr Diouf arrived at MSSRF at 9 a.m. on April 29, accompanied by Dr Swaminathan. He went round the hatchery of the J R D Tata Ecotechnology Centre, which had been opened a few months ago.

On his way to the Sambasivan Auditorium of the MSSRF, the DG viewed a photo display put up by the BOBP, and a display of select FAO and BOBP publications on nutrition and fisheries respectively. The BOBP photo display featured some 15 photographs and text blocks highlighting the BOBP's work in fisheries management.

## Launching of Women's Eco-Aquaculture Movement

At a brisk function at the MSSRF's Sambasivan Auditorium, the DG presented an aquaculture kit to a women's group from Kizha Manakudi village, Chidambaram district, Tamil Nadu,



to symbolically launch the women's eco-aquaculture movement in the State. Mr Rangan Dutta, Director-General of CAPART, presented a feed pelletizer to another representative of the group. A Tamil version of the FAO publication "Code of Conduct for Responsible Fisheries" was released by the DG and received by Mr Mohan Verghese Chunkath, Secretary of Fisheries, Tamil Nadu. An FAO-MSSRF book on "Maldivian gender roles in bio-resource management" was released by Dr Swaminathan, and received by Mr Rangan Dutta.

There were brief speeches. Dr K Balasubramanian, Director of MSSRF's J R D Tata Echo-technology Centre, briefed the audience about the Foundation's

efforts in Kizha Manakudi village to develop a sustainable aquaculture model that would benefit poor women. It would also improve the livelihood opportunities of poor families around the water spread area of the village through capacity-building and social mobilization.

Dr Kee-Chai Chong, ("Code of Conduct for Responsible Fisheries") and Dr K Alagaraswami, Distinguished Fellow, MSSRF ("Code of Conduct for Responsible Aquaculture"), spoke about the evolution and meaning of the two Codes.

Dr Chong said that a Code of Conduct was needed to arrest the decline in fishery resources caused by reckless over-exploitation. Several countries had already signed the Code, but 75 countries had to sign it to bring the Code into effect. Greater awareness, followed by action, was needed worldwide about the provisions of the Code.

Dr Diouf in brief remarks highlighted the FAO's commitment to the role of women in agriculture, and complimented the MSSRF on its innovative eco-aquaculture project for the benefit of women. He also spoke warmly about his regard for Dr Swaminathan whom he described as one of the world's foremost agricultural scientists.

A representative of the women's group said their movement had been honoured beyond words through its launch by the Director-General of FAO himself.

## Press Conference

Several journalists from the print and electronic media attended a press conference addressed by Dr Diouf at the MSSRF's Committee Room. Initially, Mr Rosenegger briefed the press about the UN system and the FAO. Dr Swaminathan introduced Dr Diouf to the press.

Dr Diouf said that India, once a major importer of food, was now a net exporter despite a significant increase in population. The FAO was proud to be a partner in India's endeavours. FAO had promoted India's scientific capabilities in hybrid rice production and helped improve wheat and maize production. It had strengthened quality control and pre-shipment inspection of exports. It had helped setup quarantine facilities at five major ports in the country. It had assisted fisheries and aquaculture and forestry development.

One of the journalists expressed regret that FAO had wound up its informative *Ceres* magazine, and asked whether it would be revived. The DG said the FAO continues to maintain an active information programme. It publishes some 15,000 documents annually. The FAO's website was recently rated one of the world's 100 best websites. It records about three million hits per month.

Dr Diouf agreed with another questioner that the decline in availability of funds for development assistance caused grave concern. It had widened the gap between the rich and the poor. "After the end of the cold war, we expected that the dividends of peace would go toward agricultural development," but unfortunately this had not happened.

Asked about Indian agriculture, he said India had made rapid strides in food production through the Green Revolution, the White Revolution and the Yellow Revolution. But the rate of growth of population in India was a problem. Salinity and water

logging could cause serious problems in future if not properly managed. But India had both research institutions and qualified personnel to tackle such problems.

A correspondent asked about FAO's stand on the controversial "terminator" technology, which will force farmers to buy seeds for every sowing rather than obtain them from the previous crop. Dr Diouf said the FAO's position was one of balance. Technology could accelerate progress, it also entailed risks. Governments should try to benefit from the technology but should use it wisely, with caution. An ethics committee of leading world scientists should take up and discuss such problems with the active co-operation of all member-countries.

Responding to another question about the excessive use of toxic insecticides, Dr Diouf said the FAO had adopted a code of conduct on the use of such toxic chemicals. "We are systematically promoting integrated pest management strategies in different countries. Indonesia, for example, has cut down 50% of the insecticides used, and still maintained the productivity level, and more."

## Millennium Fair

After lunch, Dr Diouf was Chief Guest at the launch of the "millennium fair" of the Rotary Club of Madras East, held at the Sambasivan Auditorium. Mr C Subramaniam, elder statesman and former Governor of Maharashtra State, inaugurated the fair. A highlight of the function was a well-made 15-minute multi-media presentation that traced the evolution of man and discussed India's progress since independence. The millennium fair proposes to outline a charter for the country's future through a series of seminars, exhibitions and talks. Mr R M Srinivasan, president of the Rotary Club, Dr M S Ravi, secretary, and Mr V V Sundaram of Complete Business Solutions India (one of the sponsors of the fair) spoke on the occasion. Dr Diouf recalled his own association with the

*Left: The FAO Director-General, Dr Jacques Diouf with Mr Peter Rosenegger, FAO Representative in India, Dr Kee-Qzai Chong of BOBP and other officials. Right: Dr MS Swaminathan briefs Dr Diouf about the layout and activities of the MSSRF*







*Dr Kee-Chai Chong, Director of BOBP, shows Dr Diouf around a photo display on small-scale fisheries put up by the Programme.*

Rotary movement and congratulated the Rotary Club on its initiative.

#### Millennium Lecture by **Dr Diouf**

The next function, at the same auditorium, was a "Millennium Lecture" by Dr Diouf, on "The challenge of sustainable food security in the 21<sup>st</sup> century," held under the auspices of the Hindu Media Resource Centre for Ecotechnology and Sustainable Development.

Mr N Ravi, Editor of the *Hindu*, South India's foremost daily newspaper, said his organization was happy to be associated with MSSRF in bringing together intellectuals from science and technology and agriculture to discuss important issues. Dr Diouf's lecture was an important part of this continuous endeavour, as it addressed the critical issue of food security.

Dr Diouf expressed his conviction that a hunger-free world was possible some time in the next century. But deliberate action was needed at all levels. Otherwise, chances were that hunger and malnutrition would continue.

The FAO Director-General said that the 1996 World Food Summit had agreed on a plan of action that, if implemented, could reduce the numbers of under-nourished in the world at least by a half no later than 2015. "We cannot make hunger disappear overnight. The key issue is what we must do in order to make the vision of a hunger-free century come true as soon as possible."

Dr Diouf pointed out that more food was a necessary condition to eliminate hunger but not a sufficient one. Improving the access of the poor to food was important too.

Secondly, hunger was not just a question of calorie deficits. The nutritional quality of the food was vital as well. Signatories to the World Food Summit had recognized this fact, and

committed themselves to improving year-round access by all "to sufficient, nutritionally adequate and safe food ...."

Dr Diouf said that the world's population had crossed the six-billion mark, twice the 1960 figure. It was a remarkable achievement of the global food and agriculture system that this huge increase in world population in a short period went hand-in-hand with significant progress in food security for most parts of the world. India, for example, had managed to raise average per caput food availability by 17 per cent without resorting to food imports, a gigantic achievement given that its population during this period doubled to 930 million.

Dr Diouf regretted the fact that undernutrition continues to be widespread, though it has declined as a percentage of the population. Progress in reducing numbers has been painfully slow, with reductions in East Asia being offset to a large extent by increases in Sub-Saharan Africa. Overall, chronic nutrition still affects some 800 million people.

During the 1970s, several countries depended on rising food imports to increase food availability. China and India were exceptions. India became virtually self-sufficient and even a net exporter occasionally. The Swaminathan Foundation was a fitting reminder of the importance of policies to promote local production.

Dr Diouf said the widely held view that the persistence of food insecurity and under-nutrition is not a problem of production but one of distribution can be both true and false at the same time. It is largely true if it refers to the world as a whole. It can be grossly misleading if one ignores the fact that it is failure to develop agricultural production and increase food production locally that lies at the heart of the food insecurity problem.

Discussing future population growth, Dr Diouf said that the fertility rates in developing countries are declining faster than what demographers had anticipated only a few years ago. The

projection of a population of 8.5 billion people by 2025 has been revised to 7.8 billion. This figure will increase to 8.9 billion by 2050. We are moving from a population increase of 140 per cent during the preceding 50 years to an increase of only 48 per cent during the next 50 years. The demand-supply balance in food will consequently be easier to achieve. But for a few decades more, there will be no respite from the need to increase world food output by substantial absolute amounts every year.

However, the rate of poverty reduction in developing countries will be slower, compared to the past. In East Asia, the growth rate during the decade 1998-2007 may be only 2.9 per cent per annum, compared to the 7.2 per cent per annum during the previous decade. South Asia might maintain a respectable growth rate of 5.4 per cent. At the other extreme, in Sub-Saharan Africa, the growth rate of per person income may not exceed 1 per cent per annum.

These overall economic and demographic perspectives form the background against which we must assess the prospects for future progress in food, agriculture and food security. Under-nutrition might decline in absolute and relative terms. But the progress will be both uneven and insufficient. Under-nutrition might increase in Sub-Saharan Africa. The economic crisis of East and Southeast Asia may also take its toll. South Asia starts with a large backlog of poverty. It will take a long time for this to reduce significantly, even with optimistic assumptions of economic growth.

Discussing land, Dr Diouf said that one question frequently asked is how much unused land the world has that could be used to produce food. While there is plenty, it is unevenly distributed, and much of it suffers from low fertility, toxicity, ecological fragility, lack of infrastructure etc. Besides, the land has a high opportunity cost – it can be used for other services as well. Trade-offs between more food and other services of land must always be an integral part of any decision-making calculus.

Turning to needed action for the future, Dr Diouf said that poverty-reducing economic growth and everything that can make it happen, such as debt relief, is a must. But growth is not enough. Policies are needed to enhance jobs and income-earning opportunities for the poor – such as access to land, credit, education and health services. And a social policy that ensures a minimum safety net for the under-privileged.

Neglect of agriculture is often responsible for failure to achieve high rates of poverty-reducing growth. Reversing such neglect and promoting broader rural development can yield rich dividends in terms of reduced poverty and enhanced food security.

### **FAO Activities**

To help policy-makers formulate and implement policies dealing with chronic food insecurity, accurate and timely information about the who, where and why of food-insecure and vulnerable persons is essential, Dr Diouf said. The FAO, together with 20 other agencies and organizations, is developing a Food Insecurity and Vulnerability Information and Mapping System (FIVIMS). This is meant to be a framework within which, at both national and international levels, required information can be gathered and updated.

In most poor, food-insecure countries, the two greatest potential resources to address the problems of hunger and malnutrition are the local people and the agricultural productivity of the land and waters. Investments are needed in both these resources. Investing in people means ensuring better education, clean water and sanitation, health and social services, and direct food and nutrition support. Such investments are essential if investments in agriculture and productive sub-sectors are to pay off. A hungry and malnourished population can neither work, learn nor prosper. People must be helped to help themselves.

Self-help is the main guiding principle of the FAO's advisory and technical assistance activities. Its Special Programme for Food Security is active in 39 low-income food-deficit countries, and is being formulated for 34 more countries. The objective of this Special Programme is to increase agricultural production and improve access to food through a multi-disciplinary and participatory approach, preserving the environment and ensuring social equity.

The Special Programme consists of an initial 3-year phase to be implemented in a number of demonstration sites. It will focus on four inter-related components: small-scale water harvesting, irrigation and drainage systems to protect against the vagaries of the climate; intensification of sustainable plant production systems; and analysis of socio-economic constraints. At least three or four demonstration sites will be selected in urban and peri-urban agricultural areas. A second phase will implement a food security and agriculture sector policy programme to lift macro-level socio-economic constraints and provide an environment favourable to agricultural production, processing, marketing, trade and access to food.

As part of the World Food Summit follow-up, the FAO has assisted some 150 countries in preparing draft strategies for agricultural development. These will provide the background for formulating sound policies and programmes.

The FAO also promotes technical and economic co-operation among developing countries. It has launched a new form of south-south co-operation in support of the Special Programme for Food Security.

The FAO accords priority to prevention and preparedness activities to help nations cope with natural disasters and man-made emergencies. When an emergency occurs, the FAO assists in assessing the food supply situation, evaluating food aid requirements, and identifying emergency requirements to rehabilitate agricultural productive capacity.

Dr Diouf concluded by affirming that the next century will not be hunger-free “unless we do something to achieve the objective of access to food by all as early as possible in the century.” The Plan of Action of the World Food Summit provides the necessary guidelines. “Its objective of halving under-nutrition no later than 2015, must be pursued vigorously and given operational expression in the policies and programmes of all: governments, the international community and the organizations of civil society.”

After his lecture, which was accorded tumultuous applause, Dr Diouf presented a silver medal to Dr A M S Swaminathan on behalf of the FAO in recognition of his work in highlighting the role of women in agriculture.

- S.R. Madhu



# Fisheries Management Foresight, not Hindsight

Hindsight can be deceptive. Viewed through the prism of hindsight, even intractable problems look different. Solutions to vexing problems suddenly appear attractively simple and straightforward. But hindsight is a luxury we cannot afford in fisheries management, because the damage has already been done. What's needed is precaution and foresight, rather than hindsight.

Today's environmental problems, such as overfishing and degradation of the aquatic resources ecosystem, are the direct result of the lack of foresight on the part of producers and consumers. Though we know that uncontrolled or unregulated fishing will lead to overfishing, not enough care is taken to prevent overfishing. Management is either non-existent or inactive. Caution is thrown to the winds. Recall the Minamata disease in the 1950s and the social and economic ruin wrought through human carelessness in the Minamata Bay?

Foresight is nothing but everyday precaution, which must be exercised not only by producers and consumers but also by professionals everywhere, including those concerned with leisure and recreation.

Business management has been a professional buzzword for years, but fisheries management is a recent phenomenon. Its applications have been relatively recent. Let's take fishing technology, which aims at the biggest catch at the lowest cost. Only recently has the technology been modified, with some limited precautionary devices such as By-catch Excluder Device (BED) or Turtle Excluder Device (TED).

## Fisheries Management – How Vital?

Fish accounts for 70% of the animal protein in the diet of many people from developing countries. But unless the

fishery resources are managed, fish may soon be unavailable to the population. The per capita consumption of fish has already declined steadily over the years. There is no dearth of policies for fisheries and fisheries management in these countries, what is lacking is implementation.

Fisheries management is easy to talk about but difficult to implement. In this respect, it is similar to natural resources management in general and common property resources management in particular. Example: fisherfolk seldom heed advice about the use of large-mesh sizes to exclude juveniles. Rule-making by government is an old tradition, but so is rule-breaking and rule-bending in the field. Rules are also bent for the privileged and under pressure. Lack of enforcement by the authorities is as conspicuous as lack of compliance by the citizenry.

That is why successes in fisheries management have been few and far between. However, lack of past success must not deter future effort. Lessons must be learned from past mistakes. New and innovative approaches must be taken to manage fisheries at any cost. Fisheries is too valuable to be left to its own devices, because of the insatiable worldwide demand for fish caused by its health and nutrition benefits.

## People Participation Essential for Management

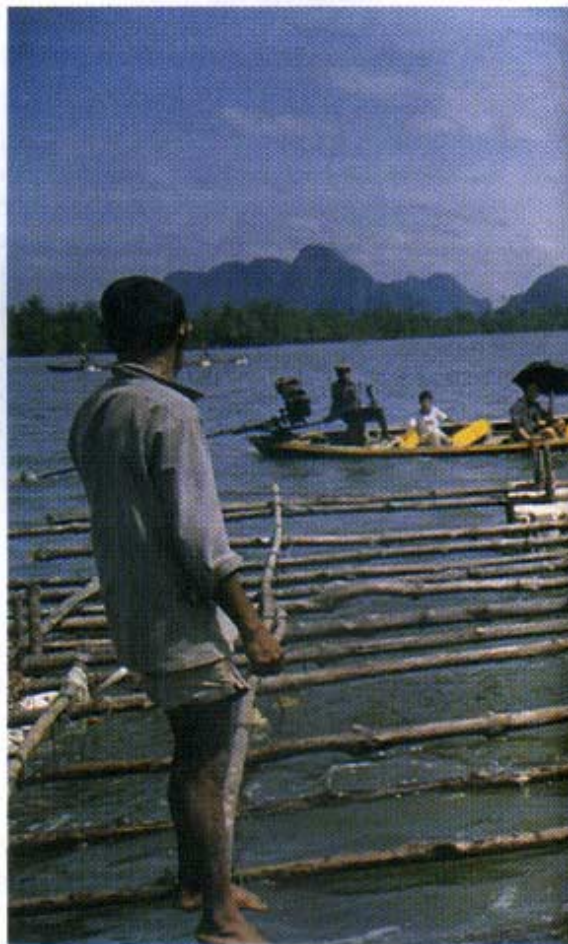
Many countries already have the basic legal, institutional and social organisational framework to manage their fisheries. If it is to work, people must be brought into the management process. Top-down centrally-driven management systems have not worked.

To promote the practice of people-focused management, this issue of *Bay of Bengal News* discusses the stakeholder approach to management (pages 8-13)

and the Code of Conduct for Responsible Fisheries (CCRF, pages 23-27). Past shortcomings are highlighted, also lessons for future action.

## Operationalising Fisheries Management

How do we operationalise fisheries management? Especially in a fisheries long used to free and open resource exploitation, and with little control on entry of new fishing effort or regulation of existing effort? The government has long recognized the need for fisheries management and its benefits. But there is a limit to what governments can do. It is up to the people, the stakeholders, to take the management process forward to its logical conclusion.



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In operationalising fisheries management, a distinction has to be made between the hard or punitive approach to management, and the soft or non-punitive approach. Under the hard approach, management violations are punished with severe penalties. In some parts of Indonesia, management offenders have to publicly *admit* to wrong-doing on occasions such as the Friday prayers.

A soft approach means that fishing communities are persuaded to manage their fisheries voluntarily. Enforcement is self-imposed. The community is relied on to ensure compliance, with little outside interference and help. People manage once more.

#### Who is Minding Fisheries Managers?

Everyone, notably the government, has been minding fisherfolk, but who will mind the managers of fisheries? So far, nobody has done so. In *fact*, fisheries managers are largely unseen or invisible in the eyes of the fisherfolk. This fundamental question has to be answered. The Code of Conduct for Responsible

Fisheries provides guidelines and criteria to oversee the work of these managers.

#### Resource Users as Resource Managers

Empowering the people is the hottest development message today. Making resource users the resource managers is another message on the same lines, in BOBP, this is referred to as the stakeholder approach to fisheries management. It means that management is no longer the sole responsibility of government alone; the people or the community should be enjoined to act responsibly in tapping, marketing and distributing fisheries and its products. Information and awareness empower them and inspire action. Action doesn't just happen. The climate for it has to be created. The people have to be empowered.

#### The Value of Foresight

Holding regular public hearings or stakeholder consultations among a wide spectrum of stakeholders is an excellent way to mobilise people and evolve a

consensus on fisheries management. First they decide on areas of agreement, then they negotiate areas of disagreement. The benefits of management are now well-recognized, but the methods are still not well understood or appreciated. The **CCRF and PA2FM (Precautionary Approach to Fisheries Management)** can be taken to the people through the use of travelling road shows and exhibitions and mass media. The article "BOBP's experiences in applying the stakeholder approach to fisheries management" (pages 12- 13) provides examples from BOBP member-countries of people empowerment through the stakeholder approach.

No fishing is sustainable unless the fisheries stock and its ecosystem and habitats are managed. Fisheries management is the end product of many stakeholder and participatory processes. When fisheries are managed, they can contribute more to export earnings and to the GDP. Fisheries will regain its role as an engine of prosperity. It will be a testament to the value of foresight. Hindsight will then be redundant.

**Kee-Chai CHONG**

*Culture-based activities in Phang-Nga Bay, Thailand, reduce the pressure on capture fisheries and help management.*



# Coming Together to Manage Fisheries

## Answers to Frequently Asked Questions on the Stakeholder Approach to Fisheries Management<sup>1</sup>

*What exactly is the Stakeholder Approach to Fisheries Management?*

Fisheries Management has traditionally been seen as something that Governments or Departments of Fisheries do. Rules and Regulations are issued and enforced by law. The problem is that enforcing rules is costly, especially when fishers are scattered along long coastlines and out at sea. And, fishers do not like to follow rules and regulations unless they believe in them. The Stakeholder Approach to Management (SHM) of Fisheries tries to overcome these problems and attempts to bring together all the stakeholders into the management process. What does this mean? **Groups concerned with fisheries, such as fishers of different types, traders, money-lenders, wholesalers, retailers, consumers, government agencies, fishery agencies, and non-governmental organizations are brought together to identify the problems facing the fisheries from different points of view, to come up with mutually acceptable solution options and management plans, to implement and monitor the management measures and to help enforce the law.**

*Who are the stakeholders? I can see the logic of including several of the groups mentioned but how do you justify including consumers and non-governmental organizations?*

**A stakeholder is broadly defined as anyone who is either involved in a fishery or one who influences the behavior of the fishery.** For example, fishers concentrate on fishing for what consumers of fish want. If consumers want a particular type of fish and are willing to pay a good price for it then

fishers will catch it irrespective of whether it is good or bad from the point of view of management. Non-governmental organisations (NGOs) concerned about the environment or about the quality of life of fishers may support or object to certain fishery-related activities. It makes no sense to ignore them as they can mobilize public awareness and concern and put obstacles in the path of the fishery sector. Involving concerned NGOs in the process of management rather than treating them as adversaries therefore becomes important.

*Bringing a lot of different types of stakeholders into the process of fisheries management seems like a good idea but it is bound to complicate matters. Are you sure stakeholder approaches to management are really necessary?*

The main reason why SHM holds promise in fisheries is because of the very nature of the problems confronting fisheries.

Let us pause a while and look at the issues in coastal fisheries (as visualised in Figure 1). Fisher populations are increasing. This increase is multiplied several times when you consider the accelerating effect of technology: bigger boats, motorisation, more efficient fishing gear and of course a lot more gear. All this leads to over-fishing, which in turn means reduced catch per unit effort of fishing and lowered incomes. To make matters worse, pollution from industries and agriculture and sewage from coastal cities are affecting coastal marine ecosystems and the very habitat of the fish. Fishers, desperate for incomes, are using destructive fishing methods like trawls and small-mesh gear. Driven by customer need they are targeting juvenile fish and gravid fish, all of which affect fish stocks and catches. The scenario on land is no better. Fishers have little access to land or alternative income sources, making them totally dependent on

fishing. Traders, who often control informal credit, earn their profits and get back their investments by using their clout to buy fish cheap.

Before we agree on the benefits of using SHM we need to look at the nature of these problems because it is this that will suggest the nature of the solution (as visualised in Figure 2). It is obvious that there is a need to manage fisheries and their habitats if present and future generations of fishers have to make a decent living and provide food for others.

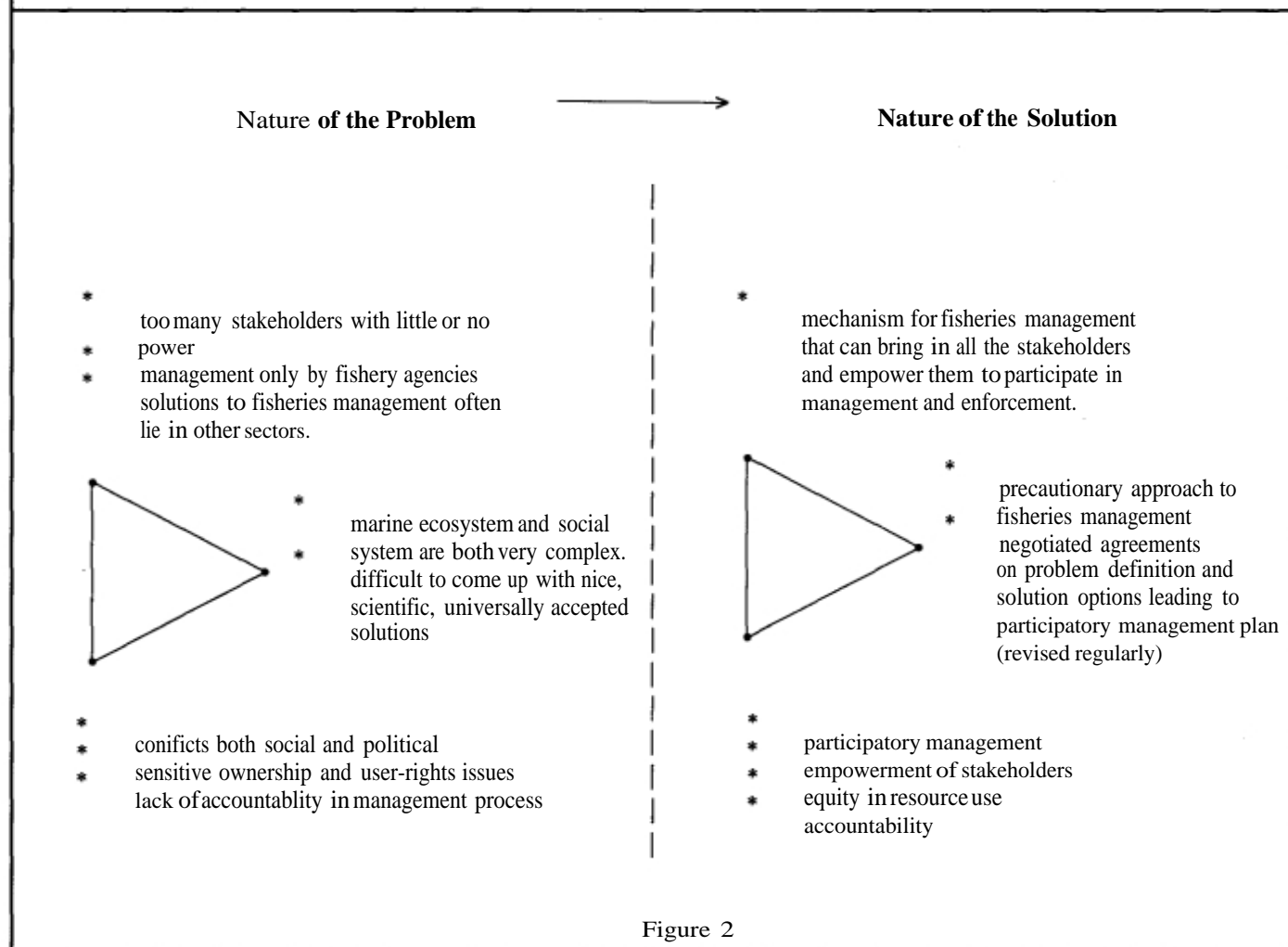
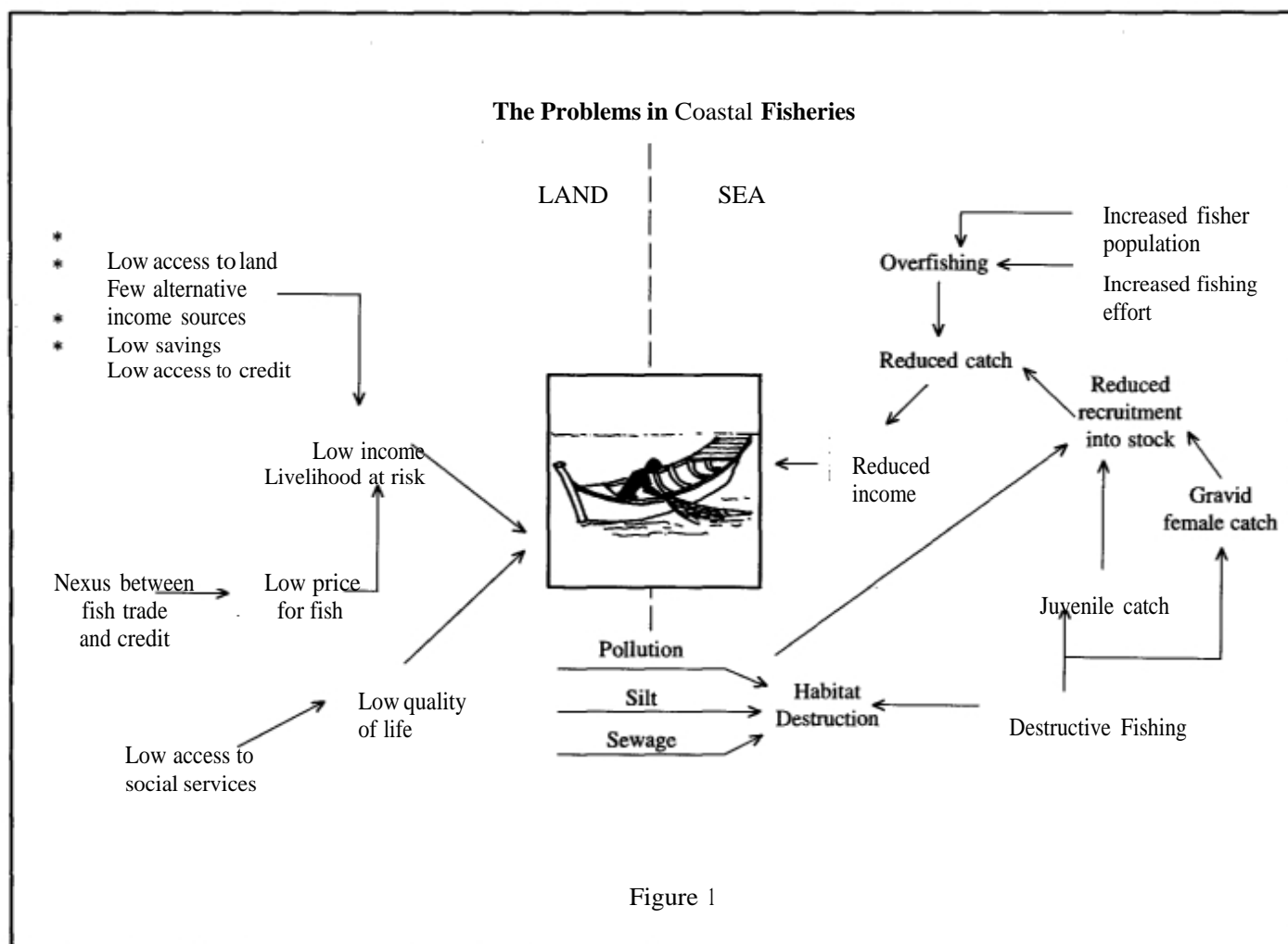
### The Nature of the Problem

**First, there are too many stakeholders (with little or no power to make a difference),** each with their own perceptions of what the problems are. Even one unhappy or dissatisfied group can block the process of solving problems affecting the majority. Implementation and enforcement of management regulations is almost impossible, not to say prohibitively expensive, unless all the stakeholders agree to the regulations and help in enforcing them. Community-based management, otherwise an excellent approach, often breaks down because the fish stocks to be managed do not respect community and political boundaries. The learning here is that **we need a mechanism of management that can bring in all the stakeholders to agree on problems and solutions and participate in management and enforcement.**

**Secondly, the marine ecosystem and the social ecosystem of the concerned people are both very complex. We lack good data, information and knowledge.** Everything seems to be connected to everything else, and any action taken has delayed and often unpredictable results. It is very difficult to pin down precise causes for problems. The learning here is that **it is difficult to come up with**

<sup>1</sup>See Bay of Bengal News, Vol H, No. 6, June 1997, for another article on stakeholder analysis.





nice, clean, universally acceptable solutions to fisheries problems. The only way out may be to become precautionary and come to negotiated agreements not only on problems but also on solutions. This again will require the involvement of all stakeholders.

**Thirdly, solutions to fisheries problems often lie in other sectors, beyond the reach of fishery agencies.** Pollution from industries, agriculture and human habitats are destroying fishery habitats, and yet, only groups outside of the fishery sector can address these. Worse, one sector's solution is often another sector's problem. Foresters log wood to profit, but the silt from unprotected hillside washes down to the sea, smothering marine habitats. Poor consumers desperate for fish see lower-priced juvenile fish as a solution, and this creates problems for fisheries. Even government agencies concerned with these diverse activities find it difficult to sit together and come up with mutually beneficial programmes. The learning here is that unless we can bring together all the stakeholders who are involved in and who affect fisheries, we may never get around to solving fishery problems.

**Finally, to cut a long story short, fishing is about ownership and user-rights of resources.** These are politically sensitive issues and people guard them jealously and are willing to fight over them. Fisheries problems in the final analysis are socio-political problems that need political solutions, and these can only be achieved by all the stakeholders coming together to manage their resources.

It is true that SHM is complex, time-consuming and often difficult but given the nature of the problems there seems to be no easy way out, except by involving stakeholders in the management process to make it socially feasible.

*The logic of why we should be considering SHM is falling together but it is still not clear how SHM actually works. Could you describe the process of SHM? How would you go about really doing it?*

Let us look at the process, step by step.

I. The first step is to broadly determine the boundary of the

problem which needs to be managed. This could be a geographical area, but in almost all cases the particular fishery determines the boundary. For example the problem could be the offshore tuna fishery in Sri Lanka, or reef resources utilization in the Maldives, or the estuarine set bag net fishery in Bangladesh. In some cases, if the geographical area coincides with the fishery area it will lend itself readily to SHM like in the case of Phang-Nga Bay in Thailand.

2. The next step is to identify the stakeholders, all those involved in the fishery, from catching to selling to consuming, including all those who influence and affect the fishery, both positively and negatively. This is not as difficult as it sounds: by tracking the activities and impacts and asking the persons involved, a good listing is possible. And as the process evolves, those missed out will emerge and can be included.
3. Having identified the stakeholders it is necessary to get to know them better, to understand what they do and don't do and why. Perhaps the most important aspect of stakeholder analysis is to determine how they see and perceive the problems and solution options. An often ignored aspect is to determine their aspirations and dreams, as these are powerful driving forces among people and will often bring people together, instead of differences and problems. Stakeholder analysis has to be done group by group and the findings consolidated for further

action. Stakeholder analysis can be done quickly using already well established participatory rapid appraisal (PRA) tools.

4. A carryover from stakeholder analysis but nevertheless a critical, distinct step is problem analysis. In problem analysis each stakeholder group is helped to separate symptoms from real problems and to determine the causes of the problems, as they perceive them. This is an important exercise, which lays the foundation for the rest of the process. It is very important at this stage to understand the group's aspirations and dreams as this often clarifies how they give meaning to problems. It also helps in bringing stakeholders together because shared aspirations attract people to co-operate better than shared problems
5. At this stage of the process, stakeholders have to be motivated and given a reason to come together – initially to share their views and concerns and later to negotiate problem definitions, solution choices, choice of approaches to management and basically what each group is willing to win or lose for the greater good. The consultations and negotiations need to be carefully mediated to avoid conflicts and to keep the process constructive.
6. Ideally the consultations and negotiations will result in a management plan which is agreed to by all the parties as the best possible deal they can get, which also answers their needs.





7. A management plan agreed to by all the stakeholders is merely a piece of paper with some hope. The next critical step is for government (one of the important stakeholders) to agree to the plan within the context of fisheries management legislation and to empower the stakeholder group to implement the plan as law. This not only requires enabling legislation but also requires that the stakeholder group is legitimised by law as a decision making group in the eyes of government and the law. Without this legitimising and empowering process, the whole process of SHM will fail.
8. With empowerment, the process of implementing the management plan will begin with regular monitoring and evaluation to ensure that things are going as planned.
9. All agreements necessarily are time bound and will need to be reviewed. The management plan should clearly specify the periodicity of review and the process of review, which in most cases will require going through the SHM process again.

This briefly is the SHM process, necessarily simplified for presentation. Many components often take place in parallel, and as in most people-oriented activities nothing ever happens by design and smoothly. But with careful management of the process, good mediation and a lot of faith, SHM can make headway in an area where successes have not been too easy to find.

*Correct me if I am wrong but I get the feeling that in SHM, fishery agencies have a lesser role. Once they empower the stakeholders they will have little or nothing to do.*

It might seem like that but it is not true. Government and fishery agencies will actually end up doing much more than at present, though they may do different things. Let us look at it in detail. Fishery resources belong to the country, and government is the mandated agency to manage it. They do it by developing policy, creating rules and regulations and enforcing them. As important stakeholders, they also have most of the scientific knowledge. In SHM, fishery agencies are making the process of management more socially feasible by involving all the stakeholders in every

aspect. It is fishery agencies that will have to lead the SHM process, guide it, empower it and through participative enforcement ensure its success. There is no SHM without government as a key stakeholder. Fishery agencies will have to develop their capacities in new areas such as stakeholder identification, stakeholder analysis, and mediation of consultations and negotiations to make SHM happen.

*SHM sounds too good to be true. Surely if there are pros there should be cons. What are some of the problems?*

Sure it has problems, any human process does. It is a difficult process, at least it seems more difficult for a fishery agency than taking all the decisions and trying to enforce it. It does take time. The objectives are difficult to control as in all participative processes. The important thing to remember is that the objective of SHM is not to arrive at the best possible management system but to arrive at the best possible management system that actually works. It is the art of the possible. There are a few other problems. The process of SHM tends to get political, which is natural because managing people's ownership and user-rights of resources is unfortunately political. Finally, in order to practise SHM, fishery agencies will have to change the way they work by building new skills and by becoming more participatory.

*That's a lot of problems. I hope there are good aspects to SHM that would justify taking all the trouble?*

Yes, there are. First, it brings all the parties into the process and makes it more participative. Problems are raised and the process provides clear agreement on the problems and their priorities. By working together and sharing responsibility, and with good mediation, conflicts are easier to resolve, particularly if they are identified before they become serious. From the standpoint of fishery agencies, SHM reduces the cost of fisheries management and enforcement, and this is important – some fishery agencies spend up to one third of their budget enforcing regulations, and not very successfully at that. By giving “ownership” of the resources and of the process of management to the stakeholders they become more

responsible and the chances of sustaining the management process increases. Finally, with all stakeholders involved and negotiating, the chances are that the process will be more equitable than with a few controlling the process. In other words everyone will come out winning though not as much as they would want to.

*If SHM has such good potential, how come people are not using it? Have there been any concrete attempts and, if so, what has the experience been?*

The experience with SHM in the field of natural resources management is still relatively meager. Industry has over a decade of experience in SHM. SHM is being tried out in forestry, fisheries and coastal zone management; experience, learning and the beginnings of success are trickling in. BOBP has tried the SHM approach in its third phase in its seven member-countries with various levels of success, though five years is a very short period to judge the success of participatory developmental efforts. But some successes are visible – such as agreements on problems to be addressed and their priorities, a realization by the stakeholders that the resources that they are managing cannot be managed without all their participation, concrete efforts at modifying legislation to carry such efforts, facilitation of conflict resolution, to mention a few areas. The SHM process seems to be taking root in Sri Lanka in managing the ornamental fish sector, in the Maldives in integrated reef resources management, in Thailand to better manage the fisheries of Phang-Nga Bay. There are also positive experiences from Southeast Asia and the Caribbean and these are enough reason for us to give SHM a serious chance. The most important reason to keep faith in SHM is that if a process that addresses the very nature of the problems fails where will we turn to?

*One last question: where can we get the details, the nuts and bolts of the SHM process, should we want to try it?*

Some information is beginning to appear in the literature and on the Internet. We at BOBP are preparing a field guide to using the stakeholder approach to management of coastal fisheries resources and it should be out in a few months.

**Rathin Roy**

*Sr Communications Adviser*

# BOBP's Experiences in Applying the Stakeholder Approach to Fisheries Management

The BOBP has introduced and helped extend the stakeholder approach to fisheries management in member-countries through training, and testing in pilot exercises.

The stakeholder approach consists of several steps.

- ❖ As many as possible of the different categories of stakeholders in a fishery (fishermen, fisherwomen, the public, fish vendors, fish retailers, fish wholesalers, fish processing firms, fish exporters, fish boat builders, fishing gear companies, government departments, fisheries extensionists, fishery scientists and researchers, international development agencies, donors etc), are identified and brought together to discuss their individual and collective problems in fisheries and possible solutions.
- ❖ Stakeholders analyze one another's viewpoints and solutions, and take

the measures necessary, with the help of government (a key stakeholder).

The stakeholder approach is participatory. It can be slow. But it is steady, sure and systematic, because it is based on everyone's agreed perception of how their interests, aspirations and needs can be met.

The stakeholder approach not merely widens awareness, but narrows differences, reconciles conflicting viewpoints, facilitates solutions.

The BOBP introduced the stakeholder approach to tackling an impressive diversity of fisheries management problems in the Bay of Bengal region. Here's a summary of what was attempted and what was accomplished in the seven member-countries.

- ❖ In the Maldives, an Integrated Reef Resources Management programme was drawn up by the government,

following a landmark first-of-its-kind national workshop in 1996, because of the need to protect reef resources, which are critical for the food and livelihood security of this archipelago. Follow-up action has been proceeding on many fronts, and a second workshop to be held late 1999 will identify actions and directions into the next millennium.

- ❖ In Sri Lanka, disparate interests and groups were brought together to discuss ornamental fisheries in the island, which are vital for biodiversity as well as exports. After a series of meetings and workshops among stakeholders to identify and understand various interests, needs and problems, and promote wider knowledge and better understanding of one another, a task force is to be formed to evolve a precautionary management plan for the ornamental fisheries.

- ❖ In Bangladesh, the problems posed by two resource-endangering hut employment-intensive fisheries – the push net and the estuarine set bagnet – were examined by stakeholders at all levels. A meeting of coastal Members of Parliament was held for the first time because solutions to problems posed by the two fisheries lay in departments other than fisheries. Two international development agencies – the UNDP and the DFID – have formulated projects on the basis of BOBP effort.

- ❖ In Thailand, a community-based fisheries management (CBFM) system has come into force in 110 fishing villages of Phang-Nga Bay. A package of management activities has been put into effect as a result of joint community effort. Examples: bans on trawls and push nets within 3 km of the shoreline; construction and installation of community

*Stake/wider consultations were carried out at several levels in Bangladesh.*





spawning cages; culture of finfish, oysters and mussels; voluntary surrender of resource-damaging push nets by fisherfolk in return for gillnets; installation of artificial reefs to keep out trawlers and aggregate fish around the reefs; mangrove reforestation; sea ranching; construction of a floating pontoon on the sea; setting up of a multi-purpose community learning centre; empowerment of fisherfolk to serve as voluntary rangers to monitor fisheries and ensure compliance with management effort.

- ❖ In India, training provided on the stakeholder approach has helped improve the data base on fisheries and the knowledge base on participatory training and management. BOBP-supported training has eased implementation of other fisheries projects as well, by strengthening interaction and rapport between government extensionists and the fisherfolk. It builds self-confidence among government staff in confronting the myriad problems they face in their day-to-day work.

It has led in Kanniyakumari district, Tamil Nadu, to fisherfolk identifying and prioritising their infrastructure needs; and to maps of fishing intensity that help define overlaps in fishing effort by different types of fishing craft. In Andhra Pradesh, it has led to useful extension literature on shrimp culture in the local language. It has also led to positive ideas to overcome problems with shrimp culture – such as setting up clusters of farmers to modify the water drainage system; culture of alternative species, such as crab, and different shrimp species, such as *Penaeus indicus*; and waste treatment to reduce environmental hazards and improve management. In West Bengal, government staff acknowledge the usefulness of PRA (participatory rural appraisal) methods introduced by BOBP, as a tool for data collection and situation analysis.

- ❖ In Malaysia, the Pulau Payar Marine Park, Kedah state, was identified as the site for testing the feasibility of SAMP (Special Area Management Plan), and for finding out whether SAMP strategies could strengthen



*Fisherfolk from Phang-Nga Bay, Thailand, voluntarily surrendered their resource-damaging push nets in exchange for gillnets. The push nets were burnt.*

eco-tourism and ensure resource sustainability. The project's workshops and activities have led to useful knowledge about the "carrying capacity" of the park, about integrating land and water management, about underwater biodiversity in the Pulau Payar Park, which is a treasure house of marine wealth.

The stakeholder approach to management has been extended beyond the pilot project area – from Kedah to two other States. In Perak, a community-based mud crab fishery management system has been initiated. In Kelantan, a community-based system of artificial reef fishery management is examining community user rights to artificial reefs.

- ❖ In Indonesia, BOBP's use of the stakeholder approach has strengthened knowledge of traditional fisheries management systems in six provinces, and management of coastal resources in the Tapanuli Bay of North Sumatra. The findings and results of

the documentation of these traditional systems will propel Indonesia's future fisheries management thrust.

Since fisheries management is interdisciplinary and requires the co-operation of many segments of society to succeed, there seems to be no feasible alternative to the stakeholder approach, which is participatory and democratic, and depends on sensitizing everyone to problems and problem-solving methods. Most of all, the solutions worked out during stakeholder consultations are "owned" by the stakeholders; they are committed to these solutions and will provide support and commitment to their implementation.

A manual on stakeholder analysis is to be published later this year by the BOBP. Member-governments, as well as institutions and NGOs that take part in BOBP activities, eagerly await the manual. It will help widen knowledge of the principles as well as the nitty gritty of the stakeholder approach, and its use in tackling the many fisheries management problems of the region.

**S. R. Madhu**

# Conservation of hermit crabs in PhOket, Thailand

*Hermit crabs are fast disappearing from Thai shores, but thanks to one man's efforts, a stretch of beach in Phuket is teeming with these fascinating creatures. (This article is based on the feature "Turning the tide" by Nalinee Thongtham from Bangkok Post, May 23, 1999)*

Khun Somnuek Chuapoo is a model conservationist. This owner of a small restaurant on Yanui, a tiny beach in southern Phuket, has been conserving hermit crabs for the past five years in his own inimitable fashion. He has also on his own initiative formulated a Code of Conduct for Utilization of Sandy Beaches (see box). A signboard of do's and don'ts is displayed on the beach, next to his restaurant.

Thanks to Khun Somnuek and his Code, the hermit crab – a fascinating curiosity of the marine world, a "cross" between a shrimp and a crab – is thriving in Phuket, though it is fast disappearing elsewhere in Thailand.

A hermit crab lives in a seashell, which it drags wherever it goes, like a turtle. Its body is long and spiral, and fits snugly into its own shell or the empty shell of a gastropod. Any other empty container is also fair game! A 1980 study found 28 species of hermit crabs on Thai shores.

Hermit crabs can be classified into two groups, on the basis of their habitat. The first group hides under decaying leaves or in the crevices of rocks along the shore during the day. This includes the coconut crab, which has claws powerful enough to peel and open a coconut, which it then devours with relish. Hermit crabs also feed on decaying fish and animal carcasses.

The other group of hermit crabs is more at home in water, salty or brackish. These can be found along wet sandy beaches, in mangroves, around coral reefs, and at the bottom of the sea.

Hermit crabs lay eggs in the sea. The larvae spend their early life in the sea as plankton. When they get bigger, they come ashore to grow. Their survival rate

*The article in Bangkok Post*

is low; as plankton they are eaten by fish; at the post-plankton stage they fall prey to birds and land crabs. The survivors seek shelter from predators by occupying a gastropod shell whose owner has died. Wherever it goes it carries this shell – it's home.

Khun Somnuek Chuapoo says that the hermit crabs play an important role in cleaning up the beach. Every evening they come to the beach to eat food leftovers and the carcasses of fish washed ashore.

Somnuek says that tourists, especially Thais, pick up the hermit crabs and take them home to raise them as pets. They don't realize that some species prefer to remain dry, they die when put in water. Some fishermen collect the crabs, pull them out from the shells and use them as fish bait.

"I was concerned that if I stood idly by and did nothing, soon there would be no more hermit crabs left on Yanui beach, so I tried to protect them."

Somnuek took action on many fronts. He prohibited people from collecting hermit crabs on the beach. He drove around Phuket to buy up seashells as well as the

shells of freshwater snails, from various sources. He then dumped the shells on Yanui beach to encourage hermit crabs to find and make homes. At night, he feeds the animals with leftovers from his restaurant, as well as meat from coconuts discarded by tourists after they have drunk the coconut water.

Result: Hermit crabs on Yanui beach have multiplied thick and fast. "There must be around a thousand here," he said. "Tourists are amazed to see the prints left by the crabs. They think these prints must have been made by a big snake or some other strange creature."

Somnuek is promoting marine biodiversity. In 1996 a Japanese researcher found a new species of crab at Yanui beach. His findings will soon be published.

Somnuek's crusade shows how much a single person's effort at conservation can achieve. He has given meaning to the slogan "Think globally and act locally" and translated it into concrete action. Even as individuals, we can make a difference, we can make the world a better place to live in, we can do our bit for global sustainability.







### Code of Conduct for Utilisation of Sandy Beaches

1. **Don't litter.** Don't throw garbage on the beach.
2. Do not remove stones, corals or giant clams from the beach.
3. Do not catch ghost crabs or hermit crabs.
4. Fire camps on the beach are banned.
5. Avoid loud noise. Do not create a din on the beach.
6. Do not disturb nature and the environment.

Not observing this Code of Conduct means breaking the law.

*Littering not allowed. Penalty for littering: 2,000 Baht.*

*A signboard put up at Yanui beach in Phuket, Thailand, by conservationist Somnuek Chuapoo. It contains a "Code of Conduct for Utilisation of Sandy Beaches" (English translation alongside).*

## Marine Fisheries in Thailand: Setting Research Priorities and Implementing the Code of Conduct

A six-day Workshop on Research Priority Setting for Fisheries and Implementing the Code of Conduct for Responsible Fisheries in Thailand was held on May 17-22, 1999 at Phuket. The workshop was organised by the Andaman Sea Fisheries Development Center, Department of Fisheries, Thailand., with support from the BOBP and the European Union (EU). The meeting was attended by over 40 participants, including researchers from the Marine Fisheries Division of all coastal provinces as well as researchers from the SEAFDEC Training Department and Kasetsart University. Key resource persons for the workshop were Dr. Kee-Chai Chong, BOBP, Dr. Heiko Scilert from FAO, Dr. Alessandro Montaldi from EU and Ms. Pongthong Onoora from the Thailand Department of Fisheries.

Setting research priorities in fisheries will enable action by governments and agencies on organizing knowledge or information on needed lines. It plays a role in tackling management problems such as overfishing, degradation of the environment and bringing about behavioural change. While research is important, the cost-effectiveness of research is crucial, particularly during economic crises when funds are scarce.

The workshop's objectives:

- To strengthen the capacity of researchers in Thailand's marine fisheries to set research priorities in fisheries so that it can help effective and efficient management of fishery resources.
- Provide knowledge and understanding of global initiatives/obligations, particularly the Code of Conduct

for Responsible Fisheries, and to disseminate such initiatives to the public.

The workshop was opened by the Vice-Governor of Phuket Province. He welcomed the resource persons from BOBP, EU, and FAO and the researcher-participants. He stressed the importance of the workshop and wished it success.

During its first three days the workshop discussed:

- The role and importance of research in fisheries;
- Research issues in fishery management;
- Methodologies in setting research priorities;

The agenda for the workshop's last two days was:

- Policy of the Thai Department of Fisheries concerning Code of Conduct For Responsible Fisheries;
- Broad overview of the Code of Conduct For Responsible Fisheries;
- Law of the Sea and Code of Conduct For Responsible Fisheries
- The Code from the FAO standpoint
- Code of Conduct : Taking it to the People.

It was a successful workshop. Participants agreed that they had gained useful knowledge on effectively applying research to further development in fisheries.

Pouchamarn Wongsanga, SEAFDEC

# BOBP in the Field

## Activities in Tamil Nadu

Several activities have been carried out in Tamil Nadu, during BOBP's Third Phase. To summarize:

- ❖ Department of Fisheries staff in Chennai and Kanniyakuman districts have been provided training in stakeholder identification and analysis, and stakeholder communication and perception analysis using PRA (participatory rural appraisal) methods. The DOF staff have used their training to hold a series of stakeholder consultations in the two districts. The whole exercise has led to other activities, it has also been useful by itself—particularly the PRA techniques should be used in other villages as well.
  - ❖ In Kanniyakumari district, Tamil Nadu, a survey of non-fishery infrastructure needs was conducted in 39 fishing villages. It identified safe drinking water, sanitation, schools, education etc. as the main perceived needs of the villagers. (*See Bay of Bengal News*, June 1998). A survey of fishing intensity conducted in 44 coastal fishing villages of the district generated maps showing areas of overlap in fishing effort – potential areas of conflict between *kattumarams*, *vallams* and trawlers. (*See Bay of Bengal News*, December 1998).
  - ❖ DOF staff in Tamil Nadu were trained in the design, planning and implementation of participatory exploratory fishing trials. This would help them facilitate diversification of fisheries programmes – use of trolling, longlining, and handlining by small trawlers to catch large pelagics and demersals.
- A major 5-year project for diversification of fishing through experimental fishing trials was proposed to the Government of India. This would involve fishermen and officials from different parts of Tamil Nadu, and their participation in trolling, longlining and handlining trials. The Department of Fisheries at the Centre has kept approval of the project on hold pending finalisation of the proposed Marine Fisheries Policy of the Government of India. Meanwhile, BOBP will go ahead with training and capacity-building exercises in the DOF, Tamil Nadu – so that they are ready when the project materializes.
- ❖ The Tamil Nadu Government has with BOBP support translated the FAO's Code of Conduct for Responsible Fisheries into Tamil. This publication was released on April 29, 1999, by the FAO's Director-General himself, when he visited Chennai. (The first copy was handed over to the Secretary of Fisheries, Mr Mohan Verghese Chundath). However, the Code of Conduct is not an easy document to comprehend, let alone put into practice; it must be popularised and presented to fishermen in an easy-to-understand format. The DOF will do so through a mass contact programme – a road show that will feature Street plays, talks, discussions and a photo exhibit.
  - ❖ Artificial reefs: An artificial reef for experimental purposes has been installed for Kanniyakumari fishermen with the co-operation of the Department of Science and Technology, Government of India, and a Tamil Nadu NGO. The fishermen are delighted with the reef, which has helped improve their catches. They want more such reefs and offer their labour for reef installation.
  - ❖ A skill gaps and training needs assessment was conducted in Tamil Nadu with the help of a consultant firm, to build the institutional capacity of the Tamil Nadu Government for coastal fisheries management. The study was carried out in a participatory manner, with interviews, workshops, group discussions at different levels and a field trip to Cuddalore. The firm suggested a core group to assist the Tamil Nadu Director of Fisheries on meeting its needs for coastal fisheries management. The core group will

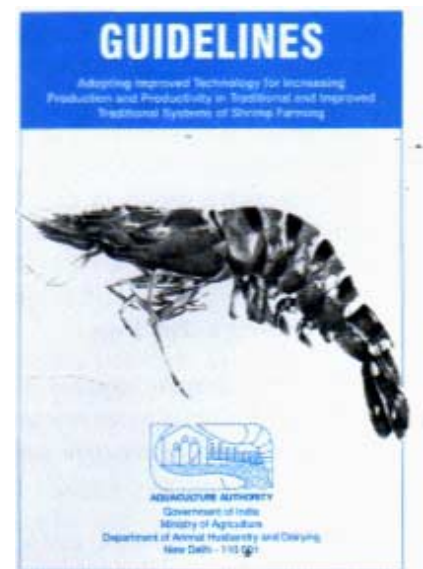
assist in strategic planning, identify junior personnel who can share wider responsibilities in future, draw up a detailed HRD plan, and carry out monitoring and evaluation.

During the recent annual India Review Meeting held on June 29, 1999 (see pages 17-18) the Tamil Nadu Director of Fisheries thanked BOBP for its contribution to his State. He said the artificial reefs were a grand success. The Kanniyakumari studies had produced a great deal of knowledge and awareness. The PRA studies were very useful.

## Guidelines on shrimp culture

The Aquaculture Authority constituted by the Government of India in response to a Supreme Court directive, has produced a set of guidelines for shrimp farmers who practise traditional systems of shrimp farming. The Court has permitted such farmers to improve their technology for higher returns and productivity. The guidelines lay down parameters for adoption of improved technology by such farmers. The guidelines were illustrated and published in book form with BOBP support.

*A booklet of "Guidelines" brought out by the Aquaculture Authority in India to help traditional small-scale shrimp farmers to adopt improved technology.*





# Expert Consultation on Cleaner Fishery Harbours to be Held in Chennai in October

Fishery harbours and landing sites in some BOBP member countries have been found to be unhygienic and wanting in many aspects of design and provision of facilities. Many harbours need to be rehabilitated. New harbour designs need to be reviewed to meet the requirements of quality systems such as the HACCP and ISO 9000. The growing concern globally of seafood related health hazards has resulted in stringent quality standards for water used in processing of fish; hygiene in work areas; cooling and storing systems; fishing vessels and harbours; and for fish and fish products. Inability to meet these standards would mean loss of trade and earnings, and direct negative impacts on several thousand fishers and fish workers.

The European Union recently banned import of fish and shrimp from at least three BOBP Member-Countries. ISO 9000 regulations to assure the quality of seafood imports are either in force or are expected to be in force by the end of the year. HACCP regulations have been imposed by the authorities in the USA.

The BOBP, with support from the International Maritime Organisation (IMO) has helped promote cleaner fishery harbours in the Bay of Bengal region, and has organized pilot activities in India, Thailand, the Maldives and Sri Lanka. The focus of the activities was on awareness building amongst the stakeholders of fishery harbours about the need to overcome pollution, the benefits that would consequently accrue, and methods to avoid and overcome pollution. A manual of guidelines was produced for fishery harbour managers and administrators to help them cope with pollution and thus improve the quality of fish.

The key concerns in fishery harbours seem to be to ensure safe and clean freshwater; collect and safely dispose of solid and liquid waste, particularly bilge waste; to rapidly handle and transfer fish from boats to harbours and

on to markets; and ensure adequate sanitation facilities. An important learning from BOBP's efforts has been **that cleaner fishery harbours are difficult to achieve without the participation and active involvement of all stakeholders.**

**Fishery harbours, particularly in warm and humid climates, need special design approaches and construction materials, to cope with fish wastes and to facilitate cleaning and maintenance of hygienic conditions.** Harbours are often designed by engineers who may not have the necessary knowledge and experience to take such factors into consideration. The FAO has considerable experience in the design of fishery harbours and in retrofitting fishery harbours to rehabilitate them to meet present standards.

The Member-Countries of BOBP have expressed keen interest in approaches and efforts to rehabilitate existing fishery harbours and in designing new fishery harbours, with a view to ensuring cleaner fishery harbours and assuring quality of seafood. The Member-Countries have

strongly endorsed the need for a technical consultation which will build awareness, expose the participants to state-of-the-art appropriate technologies and approaches, and facilitate exchange of know-how and expertise.

The BOBP and the FAO therefore propose to organize a Regional Expert Consultation on Cleaner Fishery Harbours and Fish Quality Assurance in Chennai from 25 to 28 October, 1999.

The overall development objective of the regional consultation is to assure the quality of seafood through rehabilitation of existing fishery harbours and appropriate design of new fishery harbours.

The immediate objectives are to:

- \* Build awareness amongst key stakeholders about the need for developing cleaner fishery harbours, and approaches and techniques toward this end; build awareness amongst key stakeholders about participative approaches to cleaner fishery harbours and their management.

## The ISO System

ISO stands for International Organisation for Standardisation. The ISO system was set up in 1947 and covers more than 120 countries. Important acronyms under the system are as follows:

HACCP	Hazard Analysis and Critical Control Point.
ISO 9000	Indicates that an organisation has obtained ISO accreditation for documentation that explains the organisation's procedures.
ISO 9001	Accreditation provided for the stage from design to production, installation and service.
ISO 9002	Accreditation for production, installation and administration.
ISO 9003	Accreditation for inspection and final testing of the products.
ISO 9004	Accreditation for guidelines to achieve maximum efficiency. The details will vary with the type of business.
ISO 14000	Shows that the organisation has adopted work plans that aim to achieve better environmental management.
ISO 18000	Accreditation for occupational health and safety.

- \* Expose the key stakeholders to state-of-the-art design principles and technologies to enable and facilitate low-cost and participative rehabilitation of existing fishery harbours and development of new fishery harbours.
- \* Facilitate sharing of experience, expertise and learning amongst Member-Countries in their efforts towards ensuring cleaner fishery harbours and assuring quality seafood.

The four-day Consultation will include a field trip to a fishery harbour. Every member-country will be represented by a team of two to three participants drawn from fishery harbour managers/administrators, fish quality control professionals, fish export professionals/administrators and harbour design/construction engineers. (The number of participants will be kept below 40 to enable good discussion).

Resource persons with expertise and experience in state-of-the-art, low-cost approaches and technologies to rehabilitate existing fishery harbours and design new fishery harbours in hot, humid tropical conditions will be invited to make presentations and lead discussions with keynote papers.

Organization: The BOBP, the FAO and the Member-Country hosting the meeting in a cost-sharing mode will jointly organise the regional consultation. Additional funding to cover the costs of resource persons, as required, will be sought from donors. Fishing Industry and

Fish Export Associations in the region and technology manufacturers will be invited to co-sponsor the consultation and provide resources and inputs for a mini-exhibit accompanying the Consultation. Other individuals interested in taking part in the Consultation will have to meet their own costs.

#### Programme Highlights

The Consultation will address the following issues through presentations by experts, an exhibition of technologies and management measures, contact sessions with experts, field trips, small-group discussions and a "design clinic", which will take up a case study of the Chennai Fishing Harbour and come up with concrete recommendations for its rehabilitation:

- \* Seafood quality assurance and the critical role of cleaner fishery harbours and landing sites.
- \* Strategies and approaches to cleaner fishery harbours and seafood quality assurance in situations where unorganized, poor, small-scale and artisanal fisheries dominate the industry.
- \* Participative, self-financing, stakeholder approaches to developing and managing cleaner fishery harbours.

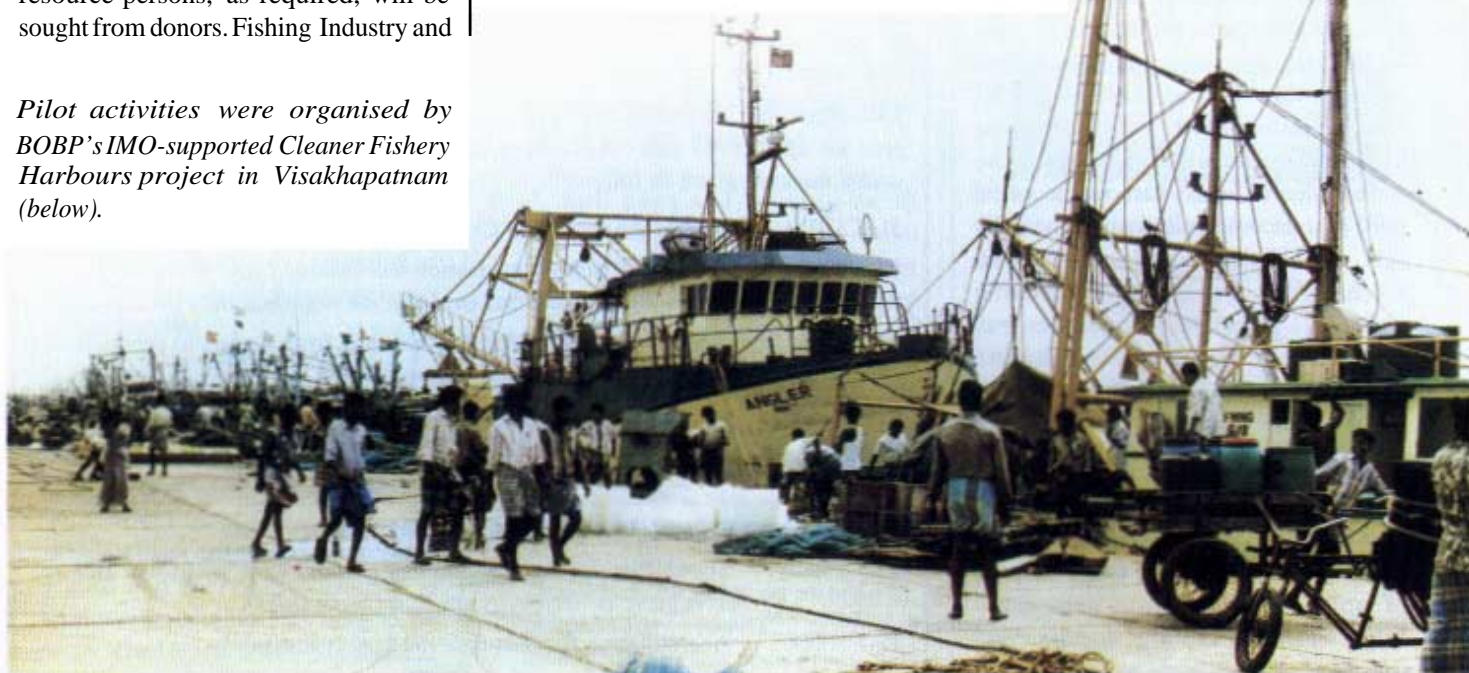
Awareness building as a tool for participative, stakeholder

management of cleaner fishery harbours.

- \* Appropriate, low-cost, safe collection and disposal of liquid, oily and solid waste in fishery harbours including appropriate sanitation measures for people working in harbours.
- \* Appropriate, efficient and low-cost methods and technologies for on-board fish quality assurance in small to medium fishing crafts.
- \* Appropriate, efficient, rapid and low-cost fish handling storage and transportation systems for fishery harbours.
- \* Appropriate, low-cost approaches and technologies for provision of clean freshwater for fishery harbours.
- \* Strategies and design principles for rehabilitation of existing and development of new fishery harbours for seafood quality assurance.

*For any clarifications about the Consultation, please contact*  
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*Pilot activities were organised by BOBP's IMO-supported Cleaner Fishery Harbours project in Visakhapatnam (below).*





## Hassan Maniku

— “A<sup>20th</sup> century renaissance man”

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*Hassan Maniku retired recently from the Ministry of Fisheries, Agriculture and Marine Resources (MOFAMR) in the Maldives, after 20 years of service, and after establishing a small but useful research wing. But his association with fisheries development and management in the Maldives will continue.*

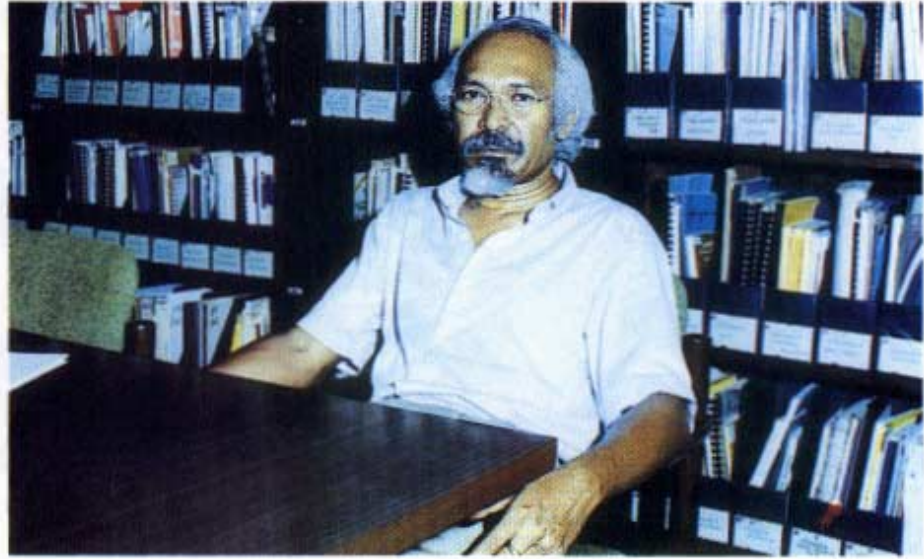
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With his spectacles, greying goatee and salt-and-pepper hair, he resembles an academic rather than a government decision-maker. This is Maizan Hassan Maniku, Director-General of Research and Development in MOFAMR, Maldives. During his 20 years with the MOFAMR, Hassan has initiated research, headed the Marine Resources Centre since its inception in 1984, promoted integrated reef resources management in the archipelago, strengthened documentation.

Some 16 years ago, Hassan visited the BOBP. I was to interview him about “Fisherman’s Day” in the Maldives for an article in *Bay of Bengal News*, and follow it up with a visit to Maldives for on-the-spot reportage. He turned out to be an excellent interview subject, with facts and figures at his fingertips. In fact he was so thorough that my trip to Maldives was rendered redundant! For others at BOBP too, who organise the Programme’s activities in the Maldives, Hassan has been invaluable with information, advice and assistance.

Hassan is a marine biologist by training. He obtained his first degree from the American University, Beirut. He didn’t continue with college, he took up teaching for a while, then joined the government and got busy with research. He also did training stints in fishing technology and stock assessment of tropical marine resources at several places including CIFNET in India. The research wing in the Maldives was initially a part of the MOFAMR; in November 1988, it became an autonomous body. It has since come a long way.

“My vision is to create a cadre of research scientists,” says Hassan. “We now have good well-trained research staff – two PhDs, three master’s graduates,



Hassan Maniku

a few graduates. There’s one specialist each in tuna and coral reefs. As for myself, I could be considered a bridge between policy-making and research.”

Mr. Rathin Roy, senior communications adviser, recalls BOBP’s long association with Hassan Maniku.

“He was perhaps the first technically qualified person to join the Ministry. He later became a first-class manager and researcher. He freely delegates authority and responsibility... He has focused on coordinating between the policy-makers and the field, getting the best out of his staff ... The Marine Resource Center is now a team of well-qualified young researchers who have taken over from Hassan.”

“Hassan has always had a long-term view,” says Roy. “He doesn’t confine himself to day-to-day work. He is driven not by programmes but by a vision. So in the work of the Ministry we see a plan evolving. The Ministry sees itself primarily as an organisation responsible for reef resources management and marine resources management. This

vision is never lost sight of in the nitty-gritty of everyday administration.”

“Hassan is perhaps the only DG in the region who actively pursues field work... He’s always out there, meeting fishermen and pursuing field-level understanding... Other DGs may have field affinity, but do not get the opportunity to pursue it. Hassan creates the opportunities.

“His other interests supplement the Ministry’s work. He is an artist, graphic designer, photographer, architect ... His company Studio I runs the only art gallery in Male. It encourages young artists and photographers to display their work. It is housed in an old beautiful building, conserved with care. Hassan also helps manage a resort. He is interested in the history of fisheries, of boatbuilding. He has assisted an Australian museum with studies on how the original Dhonies were built ... He is an environmental activist.

“When the question of tourism-fishery interaction comes up, Maniku is uniquely informed. He has first-hand knowledge of both tourism and fisheries.



*The tuna pole and line fishery is one of the five issues tackled by the Integrated Reef Resources Management Programme in the Maldives. A second workshop on IRRM is to be held around September 1999.*

“I haven’t met anyone like Hassan Maniku in fisheries. He isn’t just a fisheries man, he is a renaissance man of the 20<sup>th</sup> century. He’s a great team player, very pleasant to work with, a superb organiser.”

Hassan has chosen to retire from government though only 46. “The private sector needs experienced hands,” Maniku says. “The government will benefit in the long run from my work with the private sector.”

Talking about major MOFAMR projects, Hassan says a workshop in integrated reef resources management (IRRM) will be held around September 1999 for middle-level managers from government, private companies, international agencies, schools. The workshop will discuss findings and issues from the work programmes of 1997, 1998 and 1999 following the landmark IRRM workshop of March 1996 (reported in BOBP/REPI76).

The IRRM programme is a holistic approach to reef management which combines fisherfolk knowledge,

scientific studies of reefs and the expertise of all ministries in the reef areas. It tackles five key issues – the reef fishery; the bait fishery for tuna pole and line; coral mining; tourism-fishery interactions; and comprehensive resource management. There has been perceptible progress since the 1996 workshop in addressing these issues.

Hassan is preparing a paper on traditional fisheries management for the September 1999 workshop. He says that there are some similarities in traditional fisheries management between Lakshadweep and the Maldives. Fishing boats in Lakshadweep have a work-sharing and dividend-sharing arrangement. Everyone concerned with the fishing operation – the owner of the boat, the crew, the helpers, even the village headman and priest – gets a share of the catch. The traditional system in the Maldives was similar; the difference lay in the ratio of distribution of catch.

But under the modern system, the boat owner and the crew in the Maldives get a majority of the catch. Priests and headmen are now paid salaries by the

government, so they don’t get a share of the catch. Earlier, the village headman was interested in developing the fishery. Now this is no longer the case.

Hassan says that a study of traditional fisheries management has to deal with four types of information – about the community; about the legal and constitutional structure; about the traditional system; and about the fish species. All this information has to be integrated to formulate a management strategy. There can’t be a single strategy for all areas and peoples and fish species.

“Management systems that evolve would be influenced by historical contacts. Maldives has been exposed to trade with Australia and China from the 9<sup>th</sup> century onwards. Dry tuna has been exported from the Maldives from the 12<sup>th</sup> century. This has some implications for research. “My study on traditional fisheries management has been branching off in many directions,” says Hassan. “That’s exciting, and I’ll pursue them. But I’ve made sure that I will not leave a vacuum behind (in the MOFAMR) when I leave.”

*S.R. Madhu*



# Indian Fisheries Officials Urge that BOBP Continue As Inter-Government Programme

*BOBP's activities in India were reviewed at a meeting of senior fisheries officials from the Central Government and from the four east coast states on June 29, 1999. Here's a summary of the discussions.*

Senior fisheries officials from the Government of India (GOT) and from India's four east coast states have urged that the BOBP should continue after December 31, 1999, as an inter-government programme.

They were taking part in a meeting in Chennai on June 29, 1999, to review the Programme's activities in India and to discuss a report on the learnings from BOBP's Third Phase, prepared by a consultant. The report was agreed to with some minor changes.

Participants at the meeting (the Fisheries Development Commissioner to the Government of India, and Secretaries or Directors of Fisheries of the four east coast states – Tamil Nadu, Andhra Pradesh, Orissa, West Bengal) pointed out that existing inter-government fisheries bodies such as SEAFDEC, INFOFISH, NACA and ICLARM\* are located on the eastern side of the Bay of Bengal. While they serve all of Asia, their location in Thailand, Malaysia and Philippines gives these countries special advantages by way of access to information, knowledge and expertise. Since BOBP is the only regional fisheries outfit covering the western part of the Bay of Bengal, it should continue and not wind up.

Dr Y S Yadava, Fisheries Development Commissioner, noted that South Asia is an important fisheries player in the world scene. Any new international or regional fisheries agency would take many years to establish. Steps should be taken to ensure that at the very minimum, a regional project already existing was not lost to the region. If the proposed Global Environment Facility (GEF) project

came into being in Chennai, it could take up the continuation of BOBP as an inter-governmental body.

Dr Yadava pointed out that India is the second largest producer of inland fish and the fourth largest fish producer as a whole, and harbours significant marine resources.

What activities should the extended BOBP take up? The following needs identified by the state governments and the Government of India give an idea of the scope for an extended BOBP:

- ❖ Participatory fishery resource surveys
- ❖ Surveys to assess the impact of fisheries management initiatives like closed seasons
- ❖ Implementation of the Code of Conduct for Responsible Fisheries
- ❖ Management of coastal fisheries
- ❖ Development of the ornamental fishery

- + Study of co-operative societies of fisherwomen

Earlier, welcoming the participants, BOBP Director Kee-Chai Chong said that there are enough success stories worldwide in fisheries management to encourage new initiatives.

He cited community-based fisheries management in Phang-Nga Bay, Thailand, as an example. In 110 villages of the Bay, fisherfolk communities had initiated an entire package of measures. On the other hand, in Songkhla Bay, Thailand, purse-seiners continued to fish for anchovy despite the ban on anchovy fishing using light lures. Recently, small-scale fishermen whose catches suffered on account of the purse-seiners, blockaded the entrance to Songkhla Bay, demanding strict enforcement of the ban on anchovy fishing by purse-seiners. The authorities should ensure that small-scale fishermen are not forced to take management issues into their own hands.

## Review of BOBP Activities in India: List of Participants

**Dr Y S Yadava**, Development Commissioner (Fisheries), Ministry of Agriculture, Government of India.

**Mr G D Chandrapal**, Deputy Development Commissioner (Fisheries), Ministry of Agriculture, Government of India.

**Mr D S Murthy**, Director of Fisheries, Andhra Pradesh.

**Mr T V Mohan Rao**, Joint Director of Fisheries, Andhra Pradesh.

**Mr Madan Mohan Mohanty**, Principal Secretary, Ministry of Fisheries and Animal Resources Development, Orissa.

**Mr Jagadananda Panda**, Director of Fisheries, Orissa.

**Mr D K Ghosal**, Director of Fisheries, West Bengal.

**Mr S Anser Ali**, Director of Fisheries, Tamil Nadu.

**Ms Renuka Taunni**, Programme Officer, FAO, New Delhi.

**Dr Kee-Chai Chong**, Programme Coordinator, BOBP.

**Mr Rathin Roy**, Senior Communications Advisor, BOBP.

**Mr S R Madhu**, Information Consultant, BOBP.

\* SEAFDEC – Southeast Asian Fisheries Development Centre. NACA – Network of Aquaculture Centres in Asia. ICLARM – International Center for Living Aquatic Resources Management.



One of the aims of BOBP's Third Phase is to improve the management of coastal aquaculture in Andhra Pradesh.

**Dr Chong** also said that stakeholder consultation and analysis activities in India had increased the confidence of government officials in dealing with fisherfolk groups.

Mr Rathin Roy, BOBP's Senior Communications Adviser, provided an overview of the Programme's activities in India. A few of the main results and outputs: (See also Page 16, "Activities Tamil Nadu")

- ❖ Training of officials of the four east coast states at different levels in stakeholder identification, analysis and consultations, and in PRA methods and techniques.
- ❖ A survey of 39 fishing villages of Kanniyakumari district, TamilNadu. It led to villagers identifying their main non-fishery infrastructure needs.
- ❖ A survey of fishing intensity in 44 coastal villages of Kaniyakumari district. It generated maps showing potential areas of conflict between *kattumarams*, *vallams* and trawlers.
- ❖ Training for DOF staff in Tamil Nadu in the design, planning and implementation of participatory exploratory commercial fishing trials.
- ❖ Publication of the Tamil version of the FAO's Code of Conduct for Responsible Fisheries.

Successful demonstration of an artificial reef in Kanniyakumari.

- ❖ Conduct of a skill gaps and training needs assessment of the Department of Fisheries, Tamil Nadu, with the help of a consultant firm.
- ❖ Identification of a cluster of shrimp farmers in three districts of Andhra Pradesh, for field trials to ensure sustainable aquaculture. Suggestions by junior government staff include: modification of water drainage system through the cluster of farms; culture of alternate species, crabs for example; culture of different prawn species, such as *Penaeus indicus*; and waste treatment to reduce environmental hazards.
- ❖ Publication of three leaflets in Telugu by the Department of Fisheries, Andhra Pradesh, based on BOBP-assisted shrimp culture work. The leaflets were "Selection of Prawn Seed"; "Prawn Culture – General Management Practices," and "Prawn Diseases – Causes and Remedies". Fifty thousand copies of each pamphlet had been produced for dissemination throughout the state.

It was agreed that BOBP would wind up its present activities in the four east coast states two months before the Programme's scheduled closure. Meanwhile, the BOBP would assist in the

implementation of the following three activities:

- ❖ Assistance to the Tamil Nadu Government in popularising the Code of Conduct for Responsible Fisheries among fishermen through a mass contact programme and a travelling road show.
- ❖ Co-operation with CIFNET and CMFRI to train DOF staff in design and management of participatory exploratory commercial fishing trials to diversify inshore small-scale fisheries.
- ❖ Co-operation with the Aquaculture Foundation of India, Chennai, in preparing guidelines in the form of comic books for culture practices to be carried out by small-scale shrimp farmers in Andhra Pradesh and West Bengal.

The representatives present complimented and thanked BOBP for its initiatives in fisheries management. Mr Anser Au, Director of Fisheries in the Programme's host state of Tamil Nadu, said the Programme should continue as it was a success. He said he looked forward to the Programme's manual on stakeholder analysis. Dr Yadava said the main impact of the BOBP's Third Phase would be felt in the long term, after all stakeholders absorbed and put to use its recommendations and lessons.

- S.R.M.



# Operationalising and Implementing the Code of Conduct for Responsible Fisheries

by John Kunen

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*The author discusses the structure, the content, the meaning and the implications of the Code of Conduct for Responsible Fisheries. Emphasizing the importance of the Code, he says "The challenge for change is a big one. We need to take it, not leave it."*

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The Code of Conduct for Responsible Fisheries is indeed one of the most important international instruments devised for wholesale management of the living aquatic resources of our planet.

The Code arises out of the Declaration of Cancun made at the Conference on Responsible Fishing sponsored by the Government of Mexico in 1992. The Code has been formulated to be consistent with the 1982 UN Convention on the Law of the Sea, the UN Treaty for the Conservation and Management of Straddling and Highly Migratory Fish Stocks, the strategy endorsed by the 1984 FAO World

Conference on Fisheries Management and Development, the 1992 Rio Declaration and Agenda 21 of UNCED.

## **What does the Code Contain?**

The Code sets out voluntary international standards of behaviour for responsible practices in fisheries, based on the general principle that the right to fish carries with it the obligation to do so in a responsible manner. Only this can ensure effective conservation and management of living aquatic resources, with due respect for the ecosystem and for biodiversity. The Code recognises

the interests of everyone concerned with fisheries as well as the interests of consumers and other users. It calls on States and all the various interest groups to apply the Code and give effect to it.

## **The Objectives**

The objectives of the Code are to establish principles and criteria to formulate national policies for responsible fishing and fisheries activities. It thus intends to serve as a reference document for the exercise of

*FAO Director-General Jacques Diouf hands over to Tamil Nadu Secretary of Fisheries Mohan Verghese Chankath the first copy of the Tamil version of the Code of Conduct for Responsible Fisheries.*





*The Code of conduct for Responsible Fisheries urges States to protect the right of fish workers to a secure and just livelihood.*

responsible fisheries by providing standards of conduct for all persons engaged in the fishery sector.

### **The Structure**

The Code has a part that comprises the general principles together with six thematic articles on fisheries management, fishing operations, aquaculture development, integration of fisheries into coastal area management, post-harvest practices and trade, and fisheries research.

### *General Principles*

The statement of general principles asserts that users of aquatic resources should conserve the aquatic ecosystems. It states unequivocally that fisheries management is for present and future generations. It calls on States to protect the right of fish workers to a secure and just livelihood and to involve them in policy formulation. It advocates transparency in decision-making processes.

### *Thematic Articles*

Among the thematic articles the one on fisheries management is one of the first. The precautionary approach is accepted as a guiding principle for fisheries management; the absence of adequate scientific information should not be used as a reason for postponing or refraining from measures to conserve and manage a fishery. The articles on fishing operations are fairly comprehensive –

covering fishing practices, gear selectivity, energy optimisation, marine environment, atmosphere protection and artificial reefs and fish aggregation devices.

The articles on aquaculture urge States to ensure that aquaculture will not impair the livelihood of local communities and their access to fishing grounds. It also suggests that the active participation of fish farmers and their communities be promoted to develop responsible aquaculture practices. The articles on integration of fisheries into coastal area management permit the evolution of holistic ecosystem management.

The articles on post-harvest practices and trade cover questions of responsible fish utilisation and international trade, which give top priority to fairness, equity and environmental concerns, and call for laws and regulations governing the fish trade. The articles on fisheries research stress integrated and multi-disciplinary research and the setting up of appropriate institutional frameworks to promote this. They emphasise that the role of traditional knowledge and technologies needs to be investigated and strengthened.

### **What does Adopting the Code Imply?**

When the Member-States of the FAO unanimously adopted the Code on 31 October 1995, they were also collectively endorsing two things. First, they were tacitly admitting that living aquatic resources could no longer sustain

the rapid and uncontrolled exploitation and development they had been undergoing over the past four decades. Secondly, they were enthusiastically endorsing the urgent need for new approaches to management of these resources that would reflect conservational and environmental concerns.

It is this second factor that gives the Code its significance. But unlike other international agreements, the Code has no legal sanctity. Consequently, even States that unanimously endorsed the Code at the 1995 FAO Conference, are not under any compulsion to implement or operationalise the Code. Herein lies both the strength and the weakness of the Code. It can be cast aside as a collection of unnecessarily convoluted norms. Or it can become the centre-piece and the inspirational foundation for States and sub-regional or regional fisheries organizations that wish to formulate sustainable management measures for a new era of responsible fisheries. If this latter course of action is adopted, the Code may well become an instrument to chart the voyage into a new century of sustainable fisheries development and management.

### **Operationalising the Code**

Operationalising the Code becomes a task (the burden of all stakeholders in the fisheries) once a commitment is made to accept it as a new frame of reference. Clearly, mere endorsement of the Code by the State will not suffice.



The FAO published the Code early in 1996 in all its official languages and made it accessible through Internet on a www home page. It has also disseminated the Code through the FAO's marketing services and its associated organisations (GLOBEFISH, INFOFISH, INFOPECHE, INFOPESCA, INFOSAMAK), so that fishery users, processors and traders would be informed about it. Some 3,800 fisheries organisations have received copies of the Code. It has also been disseminated through well-known fisheries magazines and newspapers. The UN and the FAO are producing a joint publication which will contain the provisions of UNCLOS relating to the Conservation and Management of Straddling Fish Stocks and Highly Migratory Fish Stocks, the Code and the Agreement to Promote Compliance with International Conservation and Management Measures by Fishing Vessels on the High Seas.

The message of the Code needs to be effectively communicated and also fully imbibed by all the actors in the fish economy – fishworkers, investors, traders, processors, bureaucrats, politicians and others. Educating everybody about the Code is therefore the most primary task for operationalising it. There is no standard practice for this task. For those who drafted the Code, every word in it is important – they are unlikely to easily concede any “dilution”. However, though the Code is not a legal document, its involved and cautious phraseology makes its essence elusive. We need many attempts to translate, summarise, simplify, illustrate and visualise the Code. (The author has prepared a summary of the Code's 12 articles containing 231 paras. This has been published elsewhere.)

### Implementing the Code

As a first step to promoting implementation of the Code, the FAO sent a circular to Governments and private bodies, entreating them to publicise and apply the Code by adopting responsible fishing practices. Suggestions were made about initiatives that could be undertaken for particular countries, regions and circumstances. The appointment of a focal point was suggested, also the setting up of mechanisms to facilitate coordination and monitoring of various initiatives to implement the Code.

Partly due to this initiative, some countries have already started formal programmes to redesign their fisheries policies and management practices in line with the provisions of the Code. The United States, Canada and Morocco are said to be among the first to take these initiatives.

Requests for authorisation to translate the Code into other languages also point to the seriousness with which it has been received.

Another task to be undertaken will be to ensure that all States ratify the Agreement to Promote Compliance with International Conservation and Management Measures by Fishing Vessels on the High Seas, so as to bring it into force as soon as possible. This is being done only gradually, and the pace needs to be speeded up. Only 10 countries have ratified the Agreement so far. In Asia, Myanmar is the only country to do so.

To assist developing countries to implement the provisions of the Code, the FAO has elaborated an inter-regional programme for external assistance. A programme containing 10 components was submitted to donors. Norway, Netherlands and the UNDP have to date expressed interest in considering support for some of the components. Project documents are being prepared for these.

The FAO, in collaboration with some Member States, is also engaged in preparing a series of “Technical Guidelines for Responsible Fisheries.” Canada, New Zealand, Sweden, and Australia have collaborated by hosting Technical Consultations to develop some of the guidelines pertaining to the thematics of the Code, particularly fisheries management and fishing operations.

The need for responsible aquaculture is gaining popular response the world over, particularly in Asia. A number of activities to support implementation of the Code's article on aquaculture are being undertaken by Asian-based organisations such as SEAFDEC, NACA and ICLARM, and networks like INGA.

Non-Governmental Organisations (NGOs) who took part in the formulation of the Code are trying to spread the Code's message in order to create

pressure from below to get States to take measures to adopt its provisions.

International organisations working closely with fishworkers have also taken initiatives to publicise relevant aspects of the Code. They include the International Labour Organization (ILO), the International Federation of Free Trade Unions and the International Collective in Support of Fishworkers.

### Giving a New Meaning to Fisheries Management and Development

An important clarification is in order at this stage. How different is “responsible” fisheries from the approaches we have all followed thus far? Is “responsible” only an additional new adjective for the old game of fisheries development and management?

The Collins Westminster dictionary defines “responsible” as accountable, trustworthy and rational. The title, “Code of Conduct for Responsible Fisheries” may therefore be expanded to read:

The orderly collection of principles and norms that direct and provide guidance for behaviour to achieve accountable, trustworthy and rational fisheries.

The three words that elaborate the meaning of “responsible” can be further paraphrased thus: *being able to explain one's actions; being reliable and accurate; and being sane, equitable and fair.*

An honest introspection will show that on all the above counts, the past behaviour at all levels of various actors in world fisheries can hardly be considered responsible!

The challenge for change is a big one. We need to take it, not leave it.

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*About the Author: Dr. John Kurien is an Associate Professor at the Centre for Development Studies in Thiruvananthapuram, India. He took part in the discussions of Technical Working Groups relating to the fisheries management component of the Code of Conduct for Responsible Fisheries. He also prepared guidelines for the FAO on management of small-scale fisheries in developing countries, in the context of the Code of Conduct.*

# Code of Conduct for Responsible Fisheries

## – Significant Developments in India

by Yugraj Singh Yadava

*Fisheries Development Commissioner, Government of India*

The main objectives of marine fisheries development in India are to

- ❖ Conserve aquatic resources and genetic diversity
- ❖ Enhance production of fish and the productivity of fishermen and the fishing industry
- ❖ Generate employment for the coastal and rural poor and improve the socio-economic conditions of traditional fishermen
- ❖ Augment the export of fin and shell fish, duly taking into consideration the need for sustainable and responsible fisheries.

Some statistics about the marine fisheries sector:

- ❖ It provides gainful employment to about 2.14 million full time or part-time fishermen (not including another 1.58 million occasional fishermen).
- ❖ Marine fish production in India has gone up from 1.658 million tonnes (mt) in 1987-88 to about 2.950 mt in 1997-98, showing an average growth rate of about 5.50% per annum during this period (see the table below). It highlights the need

for a strategy to tap resources beyond the 50m depth zone.

- ❖ The marine fishing fleet has increased from 0.146 million in 1992-93 to about 0.238 million (including about 35,000 motorised traditional craft and 47,000 mechanised boats). Besides, there are some 170 large fishing vessels above 20m in length. Major fishing activities are still concentrated in areas within the 0 to 70-80 m depth zone. Trawling by larger vessels is confined to north-east coast, Visakhapatnam being the base. Concentration of traditional craft is greater on the east coast (about 62.5 % of the total) than on the west. The reverse is the case for motorised and mechanised vessels. This distribution pattern is also reflected in the total fish landings of the two coasts.

The Government of India has been deliberating for some time about ways to ensure the optimum exploitation and the long-term sustainability of the fin and shellfish resources in the EEZ of the country. The marked increase in fishing effort in recent years, and the plateau in marine fish production from the mid- '90s onwards, has further dramatised the need for conservation and management of

resources. Effort deployed should not exceed the productive capacity of the fishery resource.

The Government of India constituted a National Level Review Committee to optimise the size of the fishing fleet vis-à-vis harvestable potential. After discussion with experts and with coastal States, this Committee believes that the present strength of the mechanised fishing fleet in the size range of 8-15 m OAL is optimum. No further addition to the fleet is needed in this size. However, considering the resource potential and the present level of production from the EEZ beyond the 50 meter depth zone, the Committee has suggested an additional 700 new-generation resource-specific fishing vessels (about 18 meter OAL) including trawlers and gill netters-cum long liners.

These additional vessels will bring about an annual increase in marine fish catch of about 0.23 million tonnes, which constitutes a 16% increment from the depth zone beyond 50 meters. However, introduction of these fishing vessels would be subject to the Marine Fishing Regulation Acts of different States/Union Territories as well as the fishing regulations proposed to be enacted for fishing beyond territorial waters by the Central Government.

Of the 191,207 traditional craft in the country, about 25000 are motorised. The Committee believes that the programme of motorisation of traditional craft should continue till at least 50,000 of the present traditional craft are motorised. Motorisation will help ease the drudgery of the traditional fishermen and also enable them to go farther into the sea, thereby reducing pressure on the near-shore waters.

In consonance with the principles of fisheries management, the Code of Conduct for Responsible Fisheries says that States should try to prevent or eliminate excess fishing capacity. They should also ensure that levels of fishing

### Exploitable Marine Fishery Potential in India's EEZ

Depth Range (meters)	Potential (million tonnes)	Present level of exploitation (million tonnes)	Percentage of potential exploited
0-50	2.210	2.200	99.5
50-200	1.391 }	0.737	53.0
200-500	0.004 }		
Oceanic (all pelagic)	0.295	0.030	10.0
Total	3.900	2.950	75.6



effort are commensurate with the sustainable use of fishery resources, as a means of ensuring the effectiveness of conservation and management measures (Article 7-7.1.8). Therefore, besides aiming at optimisation of fleet capacity, the Government of India has also initiated a move to impose a uniform ban on fishing during monsoon months. This ban will help reduce fishing pressure and stimulate rejuvenation of stocks.

The Ministry of Agriculture has discussed this issue with coastal States and Union Territories, in consultation with the Central Marine Fisheries Research Institute, Kochi and the Fishery Survey of India, Mumbai. The data compiled on biological parameters reveals that the breeding period of commercially important finfish and shell fishes is not confined to the monsoon months; it often extends beyond them. A large number of such species breed at different periods in different areas. But a ban for a short period will give the stocks some respite and enable rejuvenation and growth. Further, the ban during monsoon months when the sea is very rough, will prevent fishermen from venturing into the sea and save many a precious life.

There was a consensus on the need for uniformity in the ban period. Any variation in the ban period between States may encourage poaching in neighbouring waters. To avoid such inter-state conflicts, all coastal States and Union Territories have agreed to harmonise the ban period. The dates of the ban in the west and east coast are under finalisation.

The potential yield of fishery resources in the EEZ was estimated in 1991 on the basis of data and information then available, including the results of an exploratory survey. The list of harvestable species drawn up then was based on various criteria including the commercial status of the species. However, considerable data on fishery resources and their potential have been generated since then through an exploratory survey, fishing by vessels under charter, joint ventures. There have also been pronounced changes in consumer preferences. More and more species have been added to the list of commercial varieties that command a good price in the domestic market as well as export markets. The Government has, therefore, considered it necessary to revalidate the harvestable potential. A Working Group of Experts has been

constituted with the following terms of reference:

- i) to revalidate the potential yield estimates of marine fishery resources made in 1991 on the basis of subsequent research, survey and exploratory work on the fishery resources of the Indian EEZ.
- ii) to estimate the additional harvestable yield that could be obtained on a sustainable basis from different depth zones/regions of the Indian EEZ.
- iii) To make suggestions about the conservation of fishery stocks in the Indian EEZ in the light of existing legislation and various global conventions/initiatives.

These initiatives for fishery resource conservation and management on the part of the Union Government are landmark decisions toward implementation of the Code of Conduct for Responsible Fisheries. They will pave the way for sustainable development of marine fisheries resources in India.

*The Government of India has initiated a move to ban fishing during monsoon months. This ban will help reduce fishing pressure and stimulate rejuvenation of stocks, says the author.*



# Caught Between the Devil and the Deep Blue Sea

by Venkatesh Salagrama

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*The author traces the rise and fall of artisanal fisheries in Andhra Pradesh and Orissa. The “fall” has been caused by overfishing and by excessive pressure on resources. He examines the viability of immediate and long-term fisheries management strategies.*

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He could be 35, as his wife insists, or 60 as the lines on the face indicate. Of medium height and less than average build, he sports a semi-dried look. His hairline seems lost in his forehead. The once-thick head of hair is now a shiny wasteland—it reflects the morning sun—but contrasts sharply with the dull faraway look in his eyes. He will tell you that he is a fisherman, and hastens to add that more often he is occupied with such esoteric occupations as illicit liquor brewing or drinking or shrimp-seed capture or gambling (a chorus of laughs while he says this).

He lives in a remote fishing village in Orissa, one of the many where fishing is fast becoming a secondary or tertiary occupation for fisherfolk. You will find many like him, sitting on the verandas,

busily engaged in playing cards. Sometimes, if you look like an ‘official’ type, they surround you immediately. And disappear just as quickly once you let out (sheepishly) that you have nothing to offer but “tears, toil and sweat,” as the cliché goes. Self-help is not very appealing when marginalisation is so complete, self-pity is more appropriate.

One curious thing that you observe is that not many women are around—they are busy on the beaches purchasing fish for sale or have gone to the nearby town in search of work. Work is not easy to come by—hardly surprising because they have few skills, and a day’s work fetches about Rs. 30 or less than US\$ 1. And the woman’s earnings pay for the fisherman’s food, his gambling and drink. No wonder then that self-help groups are almost

always formed by women. The men argue that they are fishermen by profession, and looking for other work is beneath their dignity. Is it machismo, you wonder, or just plain helplessness? Traditionally, it is a resource-rich community—look at the way a fisherman squanders his catch before selling it with a magnanimity that doesn’t come easy even to the very rich—and sudden exposure to lack of resources of any kind could frighten and then engender pessimism.

Probing deeper, you will find that the helplessness is rooted in the classical tradition: of money, greed, apathy, short-sightedness and ignorance. What follows is a generalised account of surveys done in 24 fishing villages in Andhra Pradesh and Orissa. The surveys were carried out by Integrated Coastal Management

*Catches from artisanal fisheries in Andhra Pradesh went up during the early ‘90s on account of several factors, including a better fisheries infrastructure. But overfishing took its toll and catches fell.*





(ICM), Kakinada, for three NGOs – United Artists Association, Puri, which covered eight village of Puri and Ganjam districts; Orissa; Coastal Community Development Programme, which covered five village of Krishna district, Andhra Pradesh; and the Forum for Integrated Rural Management, which covered 11 villages of East Godavari and Srikakulam districts, Andhra Pradesh. While the trends may not be uniform all along the coast, the symptoms are there in most places.

### Marine Fisheries in the 1990s

In the 1990s, artisanal fisheries on the East Coast of India witnessed some momentous changes, enabling fisherfolk to push up returns from their catches as never before. A host of inter-connected developments – economic liberalisation, improvements in basic infrastructure, such as roads, transport, and telecommunications, the availability of ice and freezing plants allowing long-term storage of fish – changed the way fish are caught, processed, and disposed of. The coastal aquaculture boom that accompanied the liberalisation also contributed significantly to these developments.

Because of these developments and the non-availability of traditional materials for boat building, fishing systems became more refined and sophisticated. Motorisation became *de rigueur*, and investments and working capital requirements mounted, leading to overcapitalisation and increased indebtedness, besides marginalisation of the poor from active fishing. And, for all the stories of gross exploitation by the middlemen and traders, there is no denying that some of the fishermen reaped handsome profits. The benevolent attitude of the Government towards influential and powerful fisherfolk, by way of loans that were seldom fully repaid, also helped the illusion of prosperity.

But there was a price to pay. There was an ever-increasing dependence on external forces over which the producers had very little or no control. Over-emphasis on certain 'exportable' varieties, particularly shrimp, meant that any fluctuation in the catches or in global markets – both of which are endemic

## Big Business in Shrimp By-Catch

The fishing grounds of the Visakhapatnam-based mechanised boats are located in the Sandheads area off the Bengal coast. Fisherfolk of Bengal and Orissa used to approach these mechanised boats during and after their hauls to obtain trash fish discarded by the boats. Initially, it was a free transfer, because the trash fish were discarded anyway. As the number of collector vessels increased, the system turned into one of give-and-take. The trawlers were provided with rations, fuel, cigarettes etc., in return for the by-catch.

As a result of the increasing trawler fleet at Paradeep and Chandipur in Orissa, the Visakhapatnam trawlers shifted operations to the south, fishing off the Chilika mouth. The fisherfolk of the adjacent Ganjam district, who were facing problems with a fall in the Chilika catches, turned to collecting by-catch from trawlers, and traditional fishing became a secondary occupation. As the value of by-catch at Visakhapatnam went up and competition between collector vessels increased, it became a demand-and-supply process, escalating prices. Trawlers were invited to fish in the near-shore waters adjoining individual villages, in return for the by-catch, albeit during the lean fishing seasons.

This dependence on trawl by-catch created its own problems. There were intra- and inter-village tensions and fighting between motorised and non-motorised crafts within villages. The availability of cheap and abundant by-catch with little effort upset the rural economy. The trawlers continued fishing in the area round the year, leaving little scope for the traditional fishers to operate their trammel nets for fear of being overrun by them. The problems became acute and in early 1998, the coastal villages in Ganjam district imposed a ban on all transactions with trawlers. However, this did not make any difference to the trawlers themselves, which continued to fish unhindered in the near-shore waters. Tensions mounted high, and violence broke out between the two sections in the first quarter of 1999, which was brought under control with difficulty by the administration.

phenomena – had a direct impact on the fishermen. The traditional processors in the villages, who often were women or the poorest of the poor or both, lost their occupations, because fewer fish were available for salting and drying. The loss of traditional occupations to the fisherwomen also meant a loss of their pre-eminence in the fishing communities.

### Decline in Fishery Resources and Impact on Fisherfolk

Alongside the improved marketability of certain produce, a steady decline in catches also had the effect of pushing up prices. This is the classic demand-and-supply story, with a difference: supplies cannot grow with increasing exploitation.

The decline of resources has generated much song and dance: how bad is the decline? Regular observations at any landing centre show that the catches are becoming more erratic, and the number of fishing days is declining, for whatever reasons. The small-scale marine capture

fisheries scenario is worsening by the day. During the surveys mentioned above, every fisherman interviewed stressed one point: that the fish landings have declined sharply, to about a tenth of what they used to be a decade ago. Official catch statistics do not always show such a sharp decline, but the uniform response to the issue from the fishermen – in different villages – is a validation in itself of their argument.

It is as easy to list the causes for the declines in catches, as it is difficult to establish the causality. Different reasons are put forth – depending on who you speak to – but the end result is the same. Fishing systems like the wooden *kattumarams* and shore-seines are dwindling in numbers, indicating the non-viability of operations. The average size of the commercial species like sharks has reportedly come down. In several villages, the effective fishing period is hardly four months a year.

The increase in investments acts as a deterrent to many fishermen continuing

in the sector: there is evidence that in some areas the fleet is increasingly owned by outsiders, with the fisherfolk themselves working as deckhands. Fewer households own their boats now than in the past. Idle manpower in the villages is on the rise: with little or no opportunities for alternate means of income generation, there is a growing unemployment problem. In several areas, more housewives are working now than before; with the men idle, they have to take on the responsibility of running the household. Some of these women compete for whatever is left after the exportable fish are taken away. With fewer catches being available for processing, more women joining the sector as traders or processors means a further reduction in the per capita availability of fish. Many other women end up as agricultural workers, bricklayers and servant maids in the nearby towns. Increasingly, families subsist on one meal a day.

Shrimp seed collection by the small-scale sector continues. Enforcement of the ban on shrimp seed collection has been weak in many States, primarily because the ban might eventhreaten the survival of small-scale fisherfolk communities.

The opening of international markets for Indian seafood seems to have severely undermined traditional village-level management systems. As one World Bank report noted, "... reasons for the disintegration of the traditional systems include demographic pressures and the penetration of market forces. These lead to pressures for individual gain at the expense of community stability and to the encroachment of large-scale operations into waters used by communities." Greed and big money, in effect, encouraged the subversion of the traditional systems of management, and the impact is not hard to find.

#### Traditional vs. Mechanised Sector

To cap it all, the traditional fisheries are besieged by a major 'enemy within'. Ask a fisherman about the biggest menace they face in fishing, and most often the answer is, mechanised boats. Mechanised boat operations force traditional fishing to stop for months together. There are thousands of instances of fishing gears used by

traditional fishermen being overrun by mechanised boats, with little or no recompense. The fishermen in Ganjam district of Orissa went through a whole spectrum of relationships with the mechanised sector, and always came out the losers. And thereby hangs a tale (see box on shrimp-by-catch).

None of the problems facing coastal communities is new or has come up today. Several development agencies have been aware of the problem and its magnitude. In recent times, many sustainable livelihood programmes have been initiated in many parts of the coast. A start is being made towards a more sustainable, responsible and participatory approach to resource conservation and management, in such a way that fishermen do not end up as losers in the conservation programme. But we have a long way to go before reaching anywhere.

Most agencies handle projects for income generation/enhancement as part of their economic programmes. This takes the form of promoting and supporting improved post-harvest enterprises to increase returns from existing fishery resources and, secondly, to provide alternate livelihoods to fisherfolk. However, these two components are handled as stand-alone activities rather than as part of a much broader resource management programme. Unless this linkage is clearly established, programmes are likely to falter and the main objective is lost. Developing responsible community-based fisheries management systems is the third, and the most, important component of the programme, but it is easier said than done.

*Fisheries Management:* The one question that arises when one looks at fisheries management as an activity is, how does one go about it? How can an agency working in a handful of villages show the benefits of better management practices to the fishermen – on its own? We are talking of a malady of titanic proportions here, and trying to solve it with a pain balm is a waste of the balm. And at the macro-level, apart from a few bans here and there, there is little to show so far. Also, anything related to imposing controls – people-based or otherwise – will invite social, political, cultural, policy-related, economic and environmental implications, which are

simply beyond a rural organisation to handle. Rather than risk the opprobrium of all and sundry, organisations tend to take the safer routes. Consequently, fisheries management does not find a place in most action plans, or is confined to conducting 'awareness programmes'.

#### Alternative Income Generation Programmes

The one answer – catch-phrase, rather – to the problem of fish declines for many people is alternate income generation programmes. It means, simply put, since fishing is unviable or is going to be unviable in due course, let's take some of the people away from the fishing sector and employ them elsewhere. So far, so good. But, considering that some estimates suggest a halving of the existing fishing effort, the question arises as to which other sector can absorb such a huge workforce. Can huge communities be relocated in any other sector that they were not born into? And is it possible to provide them the necessary skills, considering the abysmally low literacy levels? What about the fisherfolk themselves: are they willing to, or able to, leave the sector for good? Questions like these frighten those few brave hearts who venture into AIG programmes, and their efforts remain confined to conducting the good old sewing or tailoring classes, breeding masses of tailors in every fishing village.

*Improving education standards:* Providing good education to the fisher-youth, to help them make their way in other sectors, is a noble thought. But in practice, it often fails. Take the case of a fishing village in Ganjam district again: people here showed a healthy interest in the literacy programmes initiated by an NGO, and many youth studied up to the High School levels. But they did not feel like going any higher up on the education ladder, so dropped out. Now, their educated status does not pennit them to go fishing, and is not enough to provide them with any meaningful employment either. These youth are a living reminder to the villagers of the fate that awaits their children if they were educated.

These issues are not raised to test one's rhetorical abilities. These are the questions that a rural organisation working with coastal fisherfolk grapples



witf every day in the field. With the fisherfolk themselves not considering themselves fit to do anything but fishing, there are very few answers coming from that quarter. And thinking in most government agencies is still confined to increasing the size of the fishing fleet for more productivity. Any problem that arises out of such largesse is handled firmly and automatically by imposing a ban. A ban, 'officially' speaking, is the panacea to all evils – "I Ban – So It Does Not Exist"! So where does one turn to for answers?

### What Can be Done?

Confronting the question "What can be done?" is daunting. There is so much to do, and time is ticking away. People cannot believe that the oceans will ever be completely devoid of fish, but is that enough consolation for the fisherfolk? Everyone agrees that regulation is perhaps the most important need of the day. But little if any cognisance is taken of the seriousness of the issue so far. There is no information available on how serious the declines are, and what factors cause them. Unless more interest is paid to understanding the problem better, regulating fishing effort will not work. Besides more accurate information on the catch declines, a more active participation of the people in decision-making processes is absolutely vital.

### Need for Long-Term and Immediate Strategies to Overcome the Problem

Obviously, it is not possible to go in depth into all issues related to sustainable livelihoods of coastal fisherfolk in an article, and it is beyond any single individual to do so anyway. Only some of the issues that need tackling are touched on below.

Clearly we are in need of a strategy that involves long-term commitment, and includes improving awareness among fisherfolk, putting effective management practices in place and soon. We also need another strategy for meeting the more immediate needs of the communities.

**The Immediate Strategy:** The more immediate objectives include: Increasing incomes (and reducing fishing pressure in the process) through better post-harvest (to make the best of whatever is

caught), which includes making credit, marketing facilities (and linkages), and better storage and transport systems more accessible to artisanal sector, and trying out alternate income generating/enhancing systems on a pilot scale. Credit not only for trading, but also to tide over lean seasons, is absolutely essential to keep the people off such occupations as shrimp seed capture.

As mentioned, it is easy to talk of AIG programmes, but very difficult to identify suitable ones that can absorb significant numbers of the population, implement them on a pilot scale to the satisfaction of all concerned, and then standardise them into packages that could be used elsewhere, with due modifications.

Keeping in mind the fact that a programme succeeds more easily if it is based on the actual experience of target groups, the activities suggested can be categorised into four types:

1. Activities within the existing systems, which aim at bringing slight improvements to the current practices and systems, thereby reducing fishing pressure and enhancing incomes;
2. Activities within the fisheries sector, though not necessarily those in which the target group is working, but which do not involve increasing fishing effort;

3. Activities within the village/area/region in that order, which are not necessarily related to the fishing and fish processing sector, and,
4. Activities which are totally new (exotic) to the communities.

Specific activities in each category can be identified for testing on a pilot scale, before implementing the programme at a macro-level. It is obvious that more efforts will need to be put in, and more uncertainty will prevail, as the activities move farther from the actual experience of the fishermen.

**The Long-Term Strategy:** To achieve the long-term objectives, given that most agencies, individuals and fisherfolk are individually (and independently) aware of the problem, but collective measures to overcome this are not immediately available or forthcoming, there is a need to raise the level of debate to a higher plane. Even where the awareness exists, the suggested approaches vary, and there is a need to fine-tune the processes towards more uniform and focused strategies. Fisheries policy planners – that most invisible but oft-quoted tribe of people – will need to spend some time with the fishing communities, before they embark on the next phase of their policy-formulation. The fisherfolk have to be made aware of the need for regulating fishing effort, which ultimately is to their advantage, and grass-root level

(continued on page 44)

*Fisherfolk urgently need credit, not only for trading, but also to tide over lean seasons.*





# Women in Asian Fisheries

*Summary of the proceedings and conclusions of an international symposium on women in Asian fisheries. It was held on 13 November, 1998, sponsored by the Fifth Asian Fisheries Forum of the Asian Fisheries Society, and held in Chiang Mai, Thailand.*

Women and children make highly significant but undervalued contributions to fisheries, aquaculture, fish processing, retailing and fisheries sector services, according to the experts who gathered on 13 November, 1998, in Chiang Mai, Thailand at the first International Symposium on Women in Asian Fisheries.

Appropriately, the Symposium was conducted in Thailand as part of the Fifth Asian Fisheries Forum. Thailand is the biggest exporter of seafood in the world today. Women play a big role in Thai fisheries; they hold 33% of the professional positions in the Central Directorate of Fisheries, according to the Thai Director General of Fisheries, Mr Dhammarong Prakobboon, who spoke at the opening ceremonies of the Symposium.

Men and women from diverse specialist backgrounds gathered for the Symposium. They included rural bank managers, NGO representatives, university chancellors, research managers, international agency officials, fish product inspection experts, biologists, social scientists and fisheries information specialists. The keynote address was delivered by Senator Helena Benitez, who is renowned internationally and in her home country, the Philippines, for her contributions to women's rights, rural development and environmental conservation.

The Symposium was chaired by Dr Meryl Williams of ICLARM (International Center for Living Aquatic Resources Management), and co-chaired by Dr M.C. Nandeesha of CARE Bangladesh. Presenters came from Bangladesh, Cambodia, India, Italy, Indonesia, Malaysia, Philippines, Taiwan, and Thailand.

Knowledge of the contributions of women in fisheries is evolving slowly and still lags behind that of other rural sectors in Asian countries. The experts

concluded that one way to help rectify this situation would be for governments in Asia to cover gender questions on fisheries and aquaculture in their regular agricultural censuses. Participants were urged to go back to their ministries of agriculture and alert them to this vehicle for data collection. Despite the lack of comprehensive data, the Symposium learnt from several studies in India, Bangladesh and the Philippines that agricultural banks and NGO organisations are already helping hundreds of thousands of women entrepreneurs and fish producers through technical assistance, loans and credit and fostering self-help groups.

The Symposium recognized that women in Asian fisheries play multiple roles and are hard-pressed for time. This is a factor development agencies must consider when designing assistance programmes

for women. The sense of confidence and self-worth of men and women were intrinsically linked and embedded in their culture. Therefore, social support systems need to be organised to help bring about changes that may be resisted at first. Gender relations should not be seen as competitive but rather as complementary and mutually reinforcing. Support systems should also help to raise the aspiration levels of women.

Service and delivery agencies are realising that they can do their jobs these days only if they are gender-sensitive and more participatory with their clients. For example, by helping fish farmers design curricula for farmer field schools. In most cases, this means a major internal effort in organisational transformation. The workshop learned how some NGOs have already embarked on these internal cultural changes.

*Women in Asian fisheries play multiple role and are hard-pressed for time.*





Women in fisheries are marginalised in planning and policy-making. Unless this is changed, they will continue to suffer inequalities and discrimination. Even some Asian women fisheries scientists and academics rated their chances of making a significant policy contribution as 'hopeless'. Several speakers stressed that community-based coastal resource management was one activity related to fisheries that would be successful only if both men and women were active in it. Although such management was becoming more inclusive of stakeholder groups generally, women were still rarely involved.

Women frequently participate in the fisheries sector under conditions of great inequality, bordering on blatant exploitation, even though they do gain economically from their participation in the labour force. Young and unmarried women are often preferred because they are cheaper to employ and have fewer family responsibilities.

Studies show that women labourers in some offshore fisheries in the Philippines and in fish processing plants in India are paid below minimum wages, receive few basic health and welfare benefits and because they lack power and legal protection, could even be exposed to sexual harassment on the job. Such labour and personal discrimination is often well hidden because the women cannot speak out and their basic human rights are not adequately protected.

Speakers at the Symposium discussed studies that showed that women were productive and efficient when they had access to the right technologies and opportunities. Studies in Malaysia and other countries showed, however, that more than 80% of rural women's activities were carried out in or close to the home. New technologies and modernisation in the sector tend to marginalise these backyard activities. The new developments include the introduction of large-scale centralised fish processing aimed at high-quality export markets and the mechanisation of fishing vessels. However, small-scale aquaculture, low capital fish processing, value-added fish products, rice-fish farming and rearing of fingerlings from fry are examples of fisheries activities well suited to cottage industries. In addition, complementary activities such

as tourist lodging, handicrafts and seasonal farming showed promise for diversifying, stabilizing and raising fishing family incomes.

Women's issues do not command the same interest in fisheries that they do in other sectors, and since this Symposium was a first for the Asian Fisheries Society, various comments on it were made. Some participants at the Fifth Asian Fisheries Forum frankly told the experts that there was too much talk and not enough action! The experts pointed out that already some agencies with which they were involved, including banks, NGOs and some government departments, had made major strides in helping women's contributions in the sector. The participants will broadcast their findings through the proceedings of the Symposium that will be published in collaboration with ICLARM. The results will also be distributed to sectoral magazines read by policy-makers. The message will be spread through the women-in-fisheries networks from Indo-China countries. In addition, the participants have urged the Asian Fisheries Society to maintain the momentum built up at the Symposium through the following:

1. Continue the 'women in fisheries' photographic competition at the Sixth Asian Fisheries Forum in Taiwan in 2001. The competition started in 1995 at the Fourth Asian Fisheries Forum in Beijing. The 1998 competition drew 54 entries, many of outstanding quality and some of these will be used widely in regional and international fisheries magazines such as *Naga*, *Aquaculture Asia*, *INFOFISH* and *Catch and Culture* (which is brought out by the Mekong River Commission).
2. Sponsor another women-in-fisheries section at the Sixth Asian Fisheries Forum and ensure that this does not clash with related sessions such as rural aquaculture. Early planning could make this special session into a global forum on women in fisheries, showing the world that Asia not only leads the world in fish production but also in addressing some of the major social, economic and political issues in the sector.
3. Select both men and women keynote speakers at each forum and major conference or workshop.

4. Ensure gender equity in selecting session chairs for the forum.
5. The Asian Fisheries Society should analyse its own gender sensitivity and encourage its branches to do so, to reach down to the grassroots.
6. Strive for gender equity, while upholding the principle of merit and the balance of nationalities.
7. Investigate the feasibility of a women-in-fisheries section of the society, along the lines of the Fish Health Section and the Asian Fisheries Social Science Network.

More general recommendations from the Symposium:

1. Training and extension programmes in fisheries should specifically target women in areas where they contribute to fisheries activities.
2. Microcredit programmes, along the lines of the successful programmes in Bangladesh and India, should be tried to benefit women in other countries too.
3. Networks should be formed at the national level with the active participation of all the actors. Actions initiated by the Mekong River Commission to form networks in each of the four riparian countries of the Indo-China region at the national level should serve as examples for others in the region. The Asian Fisheries Society could help the national branches/organisations to take the lead in the formation of national networks.

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# Small-Scale Fisheries in the Bay of Bengal Region: New Opportunities in the New Century

by Kee-Chai CHONG

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*At the dawn of the new millennium, small-scale fisheries in the Bay of Bengal region finds itself facing many problems and challenges – decline in resources and catches, conflicts between large-scale and small-scale harvesters, degradation of the environment, use of resource-damaging fishing gears. The author analyses how these problems have arisen, and how they can be met. He urges that the responsibility for fisheries management must be restored and returned to the fishing communities.*

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## Bay of Bengal Large Marine Ecosystem

The Bay of Bengal (BoB) is one of the world's 49 Large Marine Ecosystems (LME). It supports some 6-8 million fish harvesters directly, and more than 35-40 million others indirectly.

The Bay of Bengal Programme for Integrated Fisheries Management (BOBP) is 20 years old this year. Its first phase (1979-1986) was devoted to technology transfer and development in small-scale fisheries. The second phase (1986-1994) focused on people-centered activities to alleviate poverty and raise the living standards of small-scale fishing communities. The third phase (1994-1999) aims at sustainable development and management of small-scale fisheries through stakeholder approaches to management.

Member countries of the BOBP are Bangladesh, India, Indonesia, Malaysia, Maldives, Sri Lanka and Thailand. In terms of area, the Programme covers an area of about 2.83 million km<sup>2</sup>. This includes the Bay of Bengal (2,215,000 km<sup>2</sup>), Andaman Sea (536,000 km<sup>2</sup>) and Malacca Straits (81,000 km<sup>2</sup>). Of this area, 277,000 km<sup>2</sup> constitutes the area between the continental shelf and 50 metres depth; 522,000 km<sup>2</sup> is the area between the shelf and 200 metres depth. Ocean current exchange is minimal in the Bay and adjacent seas.

The Bay of Bengal is relatively shallow, especially in the north or upper reaches of the Bay. Its hydrology, hydrography, bathymetry and trophodynamics, and

therefore its corresponding productivity, are heavily influenced by the continent's major river and estuarine systems – Ganges-Brahmaputra-Meghna – and to a lesser extent by other rivers such as the Mahanadi, Godavari, Krishna, Cauvery, Irrawaddy. The waters of the Bay of Bengal are not as saline as those of other bays, due to the spread of fresh/estuarine water far into the sea. As a result, certain coastal marine species are not commonly found in the Bay – clupeids, for example. But zooplankton, fish eggs and larvae are found to be abundant.

The total length of the coastline of the countries straddling the Bay and its adjacent seas is about 105,000 km (excluding Myanmar's coastline). The Bay of Bengal is a relatively productive fishing zone of the Eastern Indian Ocean. Small-scale fisheries takes place in waters up to 10 m depth, while most marine fisheries are found in waters up to 10-50 m depth. More than 300 fish species are estimated to be of commercial value.

Small-scale fisheries operators in the Bay are still largely traditional. With the introduction of motorisation into small-scale fisheries, fishing operations have intensified. Even so, about 30-40 % of the traditional fishing craft are not motorised yet. Log rafts and wooden crafts are still often seen in coastal India, Bangladesh and Sri Lanka.

In many coastal areas of the Bay and adjacent seas, fish are still landed on open beaches, as fish landing centres or fish harbours are few and not conveniently located for many small-scale fisherfolk. Several of the fish harbours are unsuitable

for small-scale fishing craft. Given the small size of fishing boats and the height of the harbours' piers, jetties or quays, the boats cannot make use of the available facilities in these fish harbours. There is a mismatch between facilities and users. Private jetties are therefore quite common in the region.

## Fisheries and GDP

Fisheries contributes only between 0.2% and 2% of the national gross domestic product (GDP) in the countries around the Bay of Bengal. But what fisheries does for national nutrition, health and survival is significant. Fish is a source of much-needed animal protein for coastal populations – as well as a source of livelihoods and jobs.

Yet, joblessness and food insecurity among the coastal populations remain high. Since they are unskilled and lack formal education, they have little to offer other than manual labour. Industries are confined to urban centres, thanks partly to Government policies. Prospects for jobs in agriculture are limited – it is small scale in nature. So the opportunity cost of labour among coastal populations is very low. Fishing is the only source of livelihood in many coastal rural areas. It is more and more uneconomical, because of dwindling resources and degradation of the fisheries habitat and coastal environment.

## Problems and Prospects

The most threatening problem in fisheries of the Bay of Bengal is the steady loss of



productivity and biodiversity, and therefore the loss in the means of livelihood of many coastal populations. Other problems and challenges include:

- Declining catches, on account of overfishing of market-preferred species.
- Growing competition and conflicts between small-scale and large-scale fish harvesters, as also between small-scale fish harvesters themselves using different gear types in overlapping fishing grounds.
- Degradation of many mangrove and coastal wetland areas, sea grass beds and coral reefs.
- Widespread reliance on the use of indiscriminate fishing gears and their impact on resource sustainability.

#### Why Have These Problems Arisen?

Do fish harvesters think about their future? Yes, they do. But in their preoccupation with now and today, and their self-interest, they seem to ignore the

common good and the interests of tomorrow. Further, the institutional structure of most governments is such that it fails to promote the sustainable development and management of natural resources. This is especially so with fisheries.

Take government goals in fisheries: Higher fish production. More exports and foreign exchange. More jobs. All these call for production-oriented investments and activities. The objectives are frequently incompatible with each other. With no management inputs to sustain the push in production, the resource system is soon over-exploited.

The authorities recognise the need for management, but merely pay it lip service. Financial outlays for management are low. Production without management is unsustainable, but many developing countries choose this path. Many policy-makers and politicians still regard fisheries resources as abundant and inexhaustible.

Increasing fish production is no longer a simple proposition as in the days of old

when fish populations were high and human populations low. Sophisticated fishing technologies are developed and aggressively pushed. They invariably generate negative social and environmental impacts. The resource base and the environment suffer irreversible harm.

Equally distressing: the benefits from new technologies are monopolised by the well-to-do, the large-scale fish harvesters. Reason: They are not only better educated but have better access to information, capital and available technology.

Apart from technology overkill on a depleting resource base, the quantum of capital investment in fishing effort is excessive, considering the present catch of about 6 million tons at the BoB level and 100 million tons at the global level. (Capital investment overkill has been estimated at US\$30-40 billion at the global level. No comparable figure is available for the BoB region.) Capital investment has been boosted by generous government subsidies. In the early days, these subsidies aimed at promoting

*Systematic awareness-building and stakeholder consultation are necessary to dispel the "I want another boat" syndrome among fisherfolk when catches are falling. Here is one such exercise in Bangladesh.*



offshore or deep-sea fisheries. But small-scale fisheries enjoyed its share of subsidies as well.

What's the way out? This paper offers some suggestions for management.

### The First Step in Management – Register and License All Fish Harvesters

Small-scale fisheries account for the bulk of fish landings in developing countries. Small-scale fish harvesters make up 90 % of the total number of fish harvesters. By government accounts, a majority of them live “below the poverty threshold”. At one time, it was estimated that 90 % of the East Coast fish harvesters in Peninsular Malaysia fell into this category.

It has not been possible or economical to register or license small-scale fish harvesters, because of their sheer numbers, and because they are scattered far and wide along the coastline, many of them in remote and inaccessible locations. Result: no accurate information is available about the numbers of small-scale fish harvesters or their fishing boats.

The first step toward rational management of small-scale fisheries is therefore to register and license all small-scale harvesters – so that their fishing activities can be monitored and regulated. Licensed fish harvesters may pay a differential user fee for targeting certain prized much-in-demand species.

### Build Awareness through Consultation

If a fish harvester nets a good catch and is asked what he will do with the profit, his reply is predictable: he will buy another fishing boat. Just a few minutes earlier, he would have complained of losses or poor catches due to overfishing. Why such inconsistency? Is such a response rational? Is the fish harvester a risk-taker or just ignorant? Only steady and systematic awareness-building and stakeholder consultations can dispel such attitudes.

### Use Multi-Gear Characteristic of Small-Scale Fisheries to Help Management

The multi-gear characteristic of small-scale fisheries – switching from one gear

or species to another, depending on availability of fish stocks and market prices – has not been made use of so far to manage fishing effort or formulate policy. This characteristic can be imaginatively employed to manage the fisheries according to the level of exploitation of the different species by gear type – heavily or lightly exploited fisheries.

### Does only Export Matter?

Focus more on Nutrition

More than half of the world's fish catch, or more than 65 million tons, is consumed in developing countries. At present, Asia accounts for almost 60% of the catch from capture fisheries and more than 90% of the aquaculture output.

Table 1 shows the per capita annual consumption of fish in BOBP member countries. It is clear that fish contributes a significant proportion of the dietary protein of the population around the Bay, ranging from 30 % to 70 %.

But in many coastal areas, the per capita consumption or availability of fish has dropped sharply. In Bangladesh, for example, fish availability has dropped from about 33 gm per day in 1975-76 to about 28 gm in 1996-97. In India, the landings of oil sardines (considered the poor man's source of protein) have declined from about 279,000 tons in 1989 to about 47,000 in 1994 or 17% a year.

Unfortunately, the contribution of fish to people's nutrition and health has been frequently overlooked, in favour of the potential foreign exchange earnings that development of fisheries, in particular small-scale fisheries, can ensure.

A better balance between the objectives of export and nutrition might reduce the production orientation of government.

### Regulate Excesses, Live within Means

In fisheries management, or for that matter any other coastal resource management, only the primary producers or fish harvesters are asked to sacrifice, curtail or cut back on production. Curbs are imposed on the primary producers. No other stakeholder is asked to sacrifice or adjust production or level of output.

Our earth's natural resource base, and the quality and size of the fisheries resource base in particular, is rapidly being overwhelmed by the force of numbers. The world population is supposed to touch six billion by the middle of 1999. Numbers apart, what about the increasingly callous, wanton and wasteful production and consumption habits that our human species have developed over the years? It is assumed that technology and capital investments (including subsidies) will solve shortages (in food and raw materials).

Sri Lanka's Five-Year Plan for the Development of Fisheries (1990-1994) envisaged a 42% increase in fish production for the 5-year period through subsidies for the construction of craft and motorisation. Are such projected increases in fish output realistic, given the growing evidence of resource limitations?

The human species has to live within its own resource and environmental means and moderate the rate and level of consumption, rather than use technology and investment to sustain its

**Table 1 : Profile of Fish Consumption in Bay of Bengal Region & Japan**

Country	Annual Per Capita Fish Consumption (Kg)	Percentage of Animal Food. Food Calories Derived From Fish
Bangladesh	7	20-30
India	9	6
Indonesia	19	45
Malaysia	45	20-30
Maldives	126	90
Sri Lanka	22	30-40
Thailand	25	20-30
Japan	65	30-40



extravagance. Other solutions – besides technology and investment – must be looked at.

### Strive for Fisheries Management, not Conflict Management

Conflicts between commercial and small-scale fish harvesters, between motorised and non-motorised fishing boat operators, between different gear types – continue. Instead of working out solutions to such conflicts through fisheries management measures, and designing integrated systems of management, the authorities have tended to respond to the conflicts in an *ad hoc* manner. This habit of conflict management rather than fisheries management addresses only the symptoms of the conflicts, not the root causes.

Happily, the reverse is now happening in Indonesia and other BOBP member-countries. At one time, violent conflicts between trawlers and small-scale fish harvesters were frequent. Through the effort of the Government and the Asian Development Bank, the Coastal Community Development and Fishery Resource Management Project, which operates in four provinces of Indonesia, has embarked on stakeholder approaches to management. This is because efforts are being made to sensitize fish harvesters about the root causes behind their conflicts. Fisheries management – through stakeholder participation and consultation in decision-making processes that affect the welfare of coastal communities – will become an established process in coastal communities.

### Transfer Excess Capacity out of Fisheries

The present excess capacity in fisheries can be comfortably transferred out of fisheries without decreasing total production. In fact, the quality of fish catch, and the income from fisheries, may improve. The capital released can be profitably used outside fisheries to produce a bigger basket of goods and services.

However, any effort to withdraw fish harvesters or fishing boats or inputs out of the fisheries must be accompanied by

viable job and income-generating opportunities for these fish harvesters. Unless this is done, the fish harvesters and fishing boats will not leave the fisheries.

### No “Invisible Managers,” please

Fish harvesters have not benefited from past management of open-access common-pool fisheries resources. Reason: the management structure was not firmly established and put in place at the local level. Such management was largely invisible. Fisheries managers were not physically present in the field; they preferred the comfort and security of their offices to field hardship. Fish harvesters were unable to relate to such invisible management.

Except for Malaysia and Thailand, and to an extent Maldives, fisheries managers in other countries – whether at the policy-making level or at the enforcement or patrolling level – are not sufficiently visible to fish harvesters and other coastal resource users.

### Better Analysis of Small-Scale Fisheries, Better Coordination between Stakeholders

In the past, small-scale fisheries was by and large sustainable, relying as it did on traditional fishing craft powered by sail or oars, and on fishing gear or nets that used netting and lines made from materials of plant origin. This was before the advent of motorisation, mechanisation and the use of synthetic fibres to fashion fishing gear **and lines**.

*Happy Bangladesh fishergirl shows off her father's catch. Government should focus as much on nutrition as on exports, says the author*



The dynamic nature of the conditions and needs of small-scale fishing communities was not addressed till recently. There was no systematic long-term analysis of small-scale fisheries. Various small-scale fisheries were treated alike - though some species suffered over-exploitation on account of high demand, some others were insufficiently tapped because of low demand. Although fisheries is treated as a commodity, there are different products in the form of species.

An appropriate institutional structure or mechanism is needed to bring about greater coordination and collaboration among different stakeholders – in particular, between government agencies and NGOs.

#### **Empowerment – through Education and Communication**

Fisheries management systems have often been imposed from the top. The system of government inherited from colonial rulers wasn't designed for participatory management. The bureaucracies of those days preferred the authoritarian or punitive approach to management. 'Government knows best' was the motto of governance.

It has taken more than 50 years for awareness about the need for management to be built up. Awareness empowers people. Information creates, builds and strengthens awareness, and in the process arouses and reinforces empowerment. Yet, information is often out of the reach of the poor, especially those in remote coastal and fishing villages.

Information and communication are self-reinforcing processes. They help to reconcile differences in perceptions, views and positions between and among different stakeholders with differing interests, aspirations, needs and agendas. Communication between the government and the people should be used to empower the people and help the government in nation-building and development.

#### **Introduce Community-Based Fisheries Management (CBFM)**

A centralised top-down system of management has not worked. It has at best had limited success at high cost. The

benefits do not justify the cost of enforcement and implementation. Further, governments do not any more have the financial resources to implement such a centralised top-down system of management. The government sector in many countries is shrinking and cutting back on services to the public. The responsibility for management of the resources and the resource system should therefore be exercised by the people and the community.

Part of the problem of overfishing and of environmental degradation has to do with the nature and characteristics of the resources and resources systems. Because of the open-access common-property nature of the resources, no individual fish harvester has any interest in conserving or protecting it. Every fish harvester tries to maximise his own individual harvest of the common resources as quickly and cheaply as possible, without regard to the future sustainability of the resources.

To overcome continuing poverty and resource depletion, there is a definite need to manage individual drive and motivation. This can best be done through the community-based system of resource management. Such a system does not make the government redundant. But it's the community that takes the initiative.

#### **CBFM in Thailand**

The community-based system in Phang-Nga Bay, Thailand, supported by BOBP, is an excellent example. Representatives from some 110 fishing villages of the Bay hold regular monthly meetings to initiate, discuss and monitor management activities. These are implemented by the Andaman Sea Fisheries Development Center of the Department of Fisheries, with community co-operation and BOBP support.

Some management activities introduced so far: Use of trawls and motorised push nets has been banned within 3 km of the shoreline. A fleet of patrol boats monitors compliance. Second, fisherfolk voluntarily gave up resource-damaging push nets in return for gillnets made available by the government. The push nets voluntarily given up in exchange for gill nets were burnt. Third, community spawning cages, cage culture of finfish,

oyster and mussel culture and open-water stocking of finfish and shellfish seeds are being promoted to enhance fish stocks and widen income options. Other activities include installation of artificial reefs to keep out trawlers and concentrate fish around the reefs; mangrove reforestation; sea ranching; installation of rubbish bins and incinerators for collection of dry, liquid and oily waste; construction of a floating pontoon in the sea which serves as a government field station and enables fisherfolk to visit, relax, exchange views etc; setting up of a multi-purpose community learning centre; empowerment of fisherfolk as volunteer-rangers to monitor fishing activities; training; sports events etc.

This project is a triumph of people's participation. Its impact on resources, on government-fisherfolk relations, and on fisherfolk morale, has been outstanding.

#### **A Final Word**

The responsibility of managing the fisheries must be restored and returned to the fishing communities. Sustainability can once again be made a way of life through the community's own indigenous system of controlling access to the fisheries and other coastal resources.

Although the challenges facing the living resources of the Bay of Bengal large marine ecosystem, in particular those of small-scale fisheries, are complex, they are not insurmountable. What's needed is political, social and community will, and the co-operation of all stakeholders. Awareness of management approaches and benefits at top government levels and at the field level are already high.

The strong support of all the Bay's constituent governments given to the FAO/UN-World Bank/GEF Project on the Sustainable Management of the Bay of Bengal Large Marine Ecosystem is encouraging indeed. The daunting challenges faced by the Bay of Bengal Large Marine Ecosystem – environmental stress, rapidly depleting resources, deteriorating resource quality – can be faced head on with well-coordinated transboundary co-operation among the countries straddling the Bay and its adjacent seas.



# An Overview of Fisheries Management in Asia

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*The authors discuss fish production, management characteristics, and features of fisheries management in Asia before the 1980s, and during the 1990s and beyond. They recommend three approaches to fisheries management – Marine Stewardship Councils, community-based management and precautionary management.*

## Top Fish Producers are from Asia

The importance of the fisheries sector to the Asian economy is widely acknowledged. Its significance lies in three main areas:

- (1) as a source of animal protein
- (2) as a source of employment, and
- (3) as an earner of foreign exchange.

Some 150 million people in Asia are economically dependent on fishing and

its related activities, although marine fishing accounts for only about one per cent of the worldwide economy. Table 1 shows the distribution of world marine catch by principal producers in 1993. Ten of the 20 top world fish producers are from Asia. These 10 countries together account for almost 43%. China alone contributes about 10 million tonnes of fish or 11.9% of the total world catch. Southeast Asian countries such as Thailand, Indonesia, Philippines and Vietnam, account for another 10 per cent.

## Fishing Fleet

In 1992, Asia accounted for almost 43% of the world's total fishing fleet, way ahead of its more advanced counterpart from the former USSR, Europe and North America. Table 2 shows the distribution by continent of the world's nominal catch and total fishing fleet. In terms of productivity of the fishing fleet, the index for Asian fisheries is quite low at 4.39 mtJGRT compared to the fisheries of South America, Africa and Oceania. With a rapidly growing population, and an increasing demand for fish among Asians, it is expected that the dwindling fish stocks in the region will face even greater pressure.

The facts of the fishing crisis have been well documented. Yet there is little sign that the fishing industry and those who control it are interested in anything other than short-term gain. The general response to declining fish stocks around the world has been to keep using bigger boats and more sophisticated methods so that catches go on increasing. Asia accounted for some 85 per cent of the number of decked vessels in operation and about 62 per cent of undecked vessels in 1992.

It appears that Asia is set for the same mistake that Europe, the former USSR and North America have made with regard to overcapitalization in fisheries. Unless the commercial fishing industry and governments that regulate fishing capacity are prepared to reduce capacity and develop a system of sustainable management for fish stocks, we are heading for an even greater disaster in Asia.

Marine fishing accounts for only about one per cent of the worldwide economy, but for many Asian countries the effect

**Table 1: World Marine Catch by Principal Producers 1993**

No	Country/Region	Marine Catch ( '000 tonnes)	% of Total World Catch
1.	China*	10,066	11.9
2.	Peru	8,410	9.9
3.	Japan*	8,273	9.8
4.	Chile	6,020	7.1
5.	USA	5,595	6.6
6.	Russian Federation	4,154	4.9
7.	Thailand*	3,065	3.6
8.	Indonesia*	2,731	3.2
9.	Korean Rep*	2,619	3.1
10.	Norway	2,562	3.0
11.	India*	2,473	2.9
12.	Iceland	1,718	2.0
13.	Philippines*	1,688	2.0
14.	Korea DPR*	1,640	1.9
15.	Denmark	1,499	1.8
16.	Spain	1,300	1.5
17.	Taiwan*	1,144	1.4
18.	Canada	1,135	1.3
19.	Mexico	1,036	1.2
20.	Vietnam*	810	0.9
Total World Marine Catch		84,262	

\* Asian countries

Source: FAO (1995). The State of World Fisheries and Aquaculture, Rome

**Table 2: Distribution by Continent of the World's Nominal Catch, and Total Fishing Fleet, 1992**

<i>Continent</i>	<i>Nominal Catch (‘000 mt)</i>	<i>%</i>	<i>(‘000 GRT)</i>	<i>%</i>	<i>Catch/GRT (mt/GRT)</i>
Asia	48,427	49.1	11,013	42.37	4.39
Africa	5,203	5.3	699	2.69	7.44
Europe	12,679	12.9	3,018	11.61	4.20
South America	15,913	16.1	817	3.14	19.48
North America	8,652	8.8	2,560	9.85	3.37
Oceania	890	0.9	122	0.47	7.29
Former USSR	6,876	6.9	7,776	29.87	0.88
World Total	98,640	100.0	26,005	100.0	

*Source: FAO (1995): The State of World Fisheries and Aquaculture, Rome*

of a fishing collapse could be disastrous, as some 150 million people are economically dependent on fishing and its related industries. In Southeast Asia, five million full-time fishers contribute US\$6.6 million to the total annual earnings of the region (Martin, 1996).

#### **Characteristics of Well-Managed Coastal Fisheries**

Although Asian fisheries contribute substantially to the world's fish catch, one of its unique characteristics is that its fisheries tend to be dominated by small-scale coastal fisheries. The challenge for fisheries administrators in Asian countries is therefore clear: better management of coastal small-scale fisheries. But what are the characteristics of a well-managed coastal fishery? Some universally accepted properties of well-managed coastal fisheries are described by Miller (1990). These properties can be classified into two sets of characteristics:

#### **Resource Characteristics**

- (1) The quality and quantity of resource habitat are maintained.
- (2) Catch is stable and changes by only a moderate amount, e.g. a factor of less than 1.3 in successive years.
- (3) Market demand, processing capacity, resource yield, and fishing capacity are well-matched.
- (4) Annual yield predictions are avoided, but if required they are

based on recruit year-class strength and yield per recruit rather than on an assumed stock-recruitment relationship.

- (5) Resource waste is low: discards and by-catch are less than 30% of the yield to the fishery, and the yield per recruit is at least two-thirds of the maximum.

#### **Management Characteristics**

- (1) Fishermen or fishermen's organisations take part in framing and implementing regulations.
- (2) Regulations in place are enforceable and enforced.
- (3) Reasons for regulations are understood by the fishing industry, enforcement personnel, resource managers and scientists.
- (4) The resource managers and fisheries scientists are visible and can be personally identified by fishermen or fishermen's organisations.

Understanding these characteristics is critical for the design and adoption of fisheries management tools in many countries. However, what has happened thus far in many countries is that fisheries management policies tend to be *ad hoc* in nature. To a large extent, it is a political exercise. Most fisheries management policies were implemented as a response to certain tragedies or events that disrupted the harmony that existed within the fisheries sector. As such, the fisheries management regimes in many Asian

countries revolved around the nature of fisheries exploitation itself. The institution of certain fisheries management regimes is therefore seen as a temporary solution to a particular problem in the fisheries. The next section traces the evolution of fisheries management in Asia, discusses changes over the years, and possible future directions.

#### **Fisheries Management in Asia**

For many years, the management of fisheries resources has been paid little systematic attention by the countries of Asia. Efforts at fisheries management have largely been exercises in political management, with little basis in the application of the biological, economic or social consequences of management approaches. Limited social science research and very little biological research have been specifically directed at management issues. In the 1990s, however, there has been a small but notable change, and fisheries scientists are increasingly directing attention to management issues. The social scientists are now at a point where they can begin to address important issues of fisheries management policy.

The 1980s and the early 1990s were decades of ambitious industrialisation programmes in many of the developing countries of Asia. The approach adopted for industry was also applied to fisheries. Many of the programmes for developing the fisheries failed, and donors "discovered" small-scale fishing as the mainstay of most fisheries resource exploitation in developing countries. Funding for the fisheries subsector, both inland and marine, by bilateral and multilateral donors – particularly development banks – was substantial, with a major emphasis on fishery development/investment in catching and processing capacity (Insull and Orzeszko, 1991).

The emphasis of national fisheries policy in all the countries of Asia has been to increase fish production for domestic consumption and export. This has been sought through various devices such as motorisation, port development, and introduction of new boats and fishing gear. There have been substantial technological advances resulting from private sector adoption and adaptation of new fishing methods such as trawls. This



production development has been supplemented by market development efforts in some countries that have sought to improve the incomes of fishermen and their families. The result has been increased output, to be sure, but the corollary has been major increases in investment in fishing effort.

Another factor that has contributed to the growth in effort has been the role of fishing as an employment of last resort. The fisheries sector has played an important role in absorbing surplus labour. People who cannot find any job either in cities—where both population and employment are high – and in villages, have sought opportunities in fishing. This almost limitless supply of labour has kept incomes generally low and supported labour-intensive but very effective fishing technologies. Only in the late '80s and the early '90s has the rapid industrial development of some of the Southeast Asian countries (Malaysia, Thailand, Indonesia and Vietnam) possibly reduced employment pressure on fisheries. But the pressure on fisheries resources has remained high because of more advanced capture technologies.

Many of the nearshore and coastal resources in Asian countries are overfished. Fishermen's incomes have been sustained by price increases, not by increases in productivity. Increases in total landings have often provided a misleading picture of the possibilities for further expansion. The force of market pressure continues to attract investment into artisanal fisheries and those who compete with it. Growing fishing pressure has generated growing conflict.

The rising conflicts among resource users provided the impetus for the establishment of several fisheries management strategies in many Asian countries. However, these regimes underwent a series of changes over the years in response to the changing nature of the fisheries in the region. Fisheries management in Asia can roughly be divided into three phases: (1) Pre-1980s (2) During the 1980s and (3) the 1990s and beyond. But most fisheries management policies focused mainly on fishing effort reduction.

#### Pre-1980s

In the early 20th century, most Asian fisheries were coastal and small-scale in nature. Fixed fishing gears were the gears



*Small-scale fishing is the mainstay of most fishery resources exploitation in developing countries.*

most commonly used by fishermen. Catches were low, and meant only for local consumption. But in the 1930s, many parts of Asia showed a preference for more mobile fishing gears that allowed fishermen to actively pursue the fish. This was followed by the introduction of purse seines and motorised boats in the 1940s and 1950s. They generally fished in shallow territorial waters within 12 miles from the coastline, mainly catching pelagic species. Fisheries management policies then were confined to limited licensing programmes.

In the early 1960s, trawlers were first introduced by the Germans in Asia. The introduction of these mechanised fishing techniques has changed the fishing industry in this region. What was once a coastal, small-scale and self-sufficient fishery, became commercial and export-oriented. During this period, fish catch - including increased landings of small juveniles and by-catches - increased at a record rate. Trawlers caused a lot of damage to fishing and nursery grounds. At the same time, their intrusion to nearshore areas, meant exclusively for small-scale fishermen, created serious conflicts among fishers.

Several countries amended their fisheries regulations to reduce the damage created

by trawlers and to create orderly fishing activities in their coastal areas. Mesh-size restrictions were introduced. For example, Malaysia's 1963 Fisheries Act says that the minimum mesh size for any trawl net shall not be less than 1" internal measure at cod end (Saharuddin, 1995). At the same time, many Asian countries introduced operational zones for trawlers to prevent depletion of their fisheries stocks.

Although fisheries regulations were established, governments were handicapped by the lack of enforcement and surveillance capabilities. The effort to reduce fishing effort proved ineffective. More trawlers were introduced during this period, driven purely by the short-term motive of profit. Many countries reported cases of overfishing and serious conflict among fishers in the 1970s. The clashes among resource users sometimes took a toll of human life. Result: some existing laws were amended.

There was a ban on trawlers in Indonesia in 1980 (Susilowati, 1991). At the same time, new regulations were introduced to further tighten the disastrous effects of trawls. As the experiences of the 1960s and 1970s had shown, individual fisheries management regimes were less effective in controlling overfishing.

**Table 3a: Zoning Regulations in Malaysia**

Zone	Distance From Coastline	Description
A	Within 5 miles <b>from</b> shoreline	Reserved solely for artisanal, owner-operated vessels
B	5-12 miles	Reserved <b>for owner-operated</b> trawlers and purse-seiners of less than 40 GRT
C	12-30 miles	Reserved for trawlers and purse seiners greater than 40 GRT, wholly owned and operated by Malaysian fishermen.
D	Beyond 30 miles	Reserved for deep-sea fishing vessels of 70 GRT and above. Foreign fishing vessels through joint ventures or charter are restricted to this <b>zone</b> .

Source : Endorsed copy of the Minister of Agriculture Decree No. 607, 1976.

**Table 3b: Zoning Regulations in the Philippines**

Zone	Distance From Shoreline	Description
1 (municipal waters)	Up to 3 nautical <b>miles from the</b> shoreline of municipality	Only <b>for</b> municipal fishing vessels (3 <b>GT or less</b> with or without power or fishing without boat)
2 (national waters)	> 3 nautical miles	For commercial vessels (>3 GT)

The era of the 1980s saw a different philosophy for fisheries management in Asia. A combination of various tools was introduced to prevent further **depletion of fish** stocks in the region.

#### During the 1980s

The valuable lessons learnt by fisheries administrations during the 1960s and the 1970s had led to new insights concerning fisheries management. In the 1960s and 1970s, fish catch increased rapidly through over-capitalization of fishing fleets. Many inshore areas of Asian countries were overfished. In the 1980s, the problems faced by fisheries planners sprang basically from activities of earlier decades. Many fisheries administrators were saddled with the problems of resource rehabilitation and resource conservation for sustainable uses. To meet these new demands, a host of integrated fisheries management regimes were instituted to further reduce fishing effort. Major policies aimed mainly at effort reduction. Measures included limited licensing programmes, gear restrictions, area closures and further restraints on mesh sizes.

One of the most effective tools used during this period was the zoning regulation, which not only specified

fishing areas but also clamped down on the type of gears used in certain zones. The net results were improved catch, less poaching, less gear damage and fewer reported conflicts. Examples of zoning regulations in selected Asian countries are listed in Tables 3a and 3b.

Restrictions to fishing zones were also introduced in other countries like Thailand and Myanmar. In Thailand, for example, the 12-mile territorial waters remained closed to trawlers. In Myanmar, under the Marine Fisheries Law, all artisanal fishermen are given priority to fish in all fishing zones (FAO, 1996). To some extent, these zoning regulations were successful in reviving and conserving fish stocks in this region for future use. However, further refinements were needed to establish a healthy and economically viable Asian fishery. These goals became new challenges to fisheries managers in the 1990s.

#### The 1990s and Beyond

Prior to 1990, many fisheries management regimes were concerned with intra-generational equity issues (Garcia 1994). In many Asian countries, fisheries policies and regulations were based on a top-down approach and most of these

regulations were by-products of colonial legacies. Their legitimacy was always questioned by stakeholders in fisheries. It was for this reason that in many cases, fisheries management failed to achieve its desired objectives. The failures of conventional methods of managing fisheries in many parts of the world are well-documented and publicised. The unwillingness on the part of fisheries administrators to include fisherpeople's interests while formulating fisheries regulations and policies, partly explains why fisheries management failed badly in many areas. Realising these past mistakes was the best thing that has happened to many fisheries administrators in Asia.

The traditional approach towards fisheries management requires a serious second look. The interests of stakeholders in fisheries cannot be taken for granted and a shift in management paradigms will have to take place among policy-makers. The new fisheries management objectives must focus on more pressing inter-generational equity issues and its implementation has to be more participatory, taking into consideration both the government and fishermen's standpoints.

Using these two guiding principles of the new order of fisheries management, many



scientists and economists today have advocated community-based management, precautionary fisheries management and Marine Stewardship Councils (MSCs) as new fisheries management approaches, over and above the conventional techniques in place. Although these approaches have been mooted for quite some time now, it is too early to evaluate their effectiveness, as they have not been fully implemented at the ground level for a sufficient period of time.

### The Way Forward

The way forward in fisheries management is to a) avoid falling deeper into the capital trap (i.e. the tendency to over-invest in the capacity to capture fish) b) to lower enforcement costs arising from attempts on the part of some to create property rights to designated fisheries resources and c) to improve legitimacy for institutions engaged in managing fisheries resources.

The three approaches mentioned above – Marine Stewardship Councils (MSCs), community-based management and precautionary fisheries management – are seen as possible approaches that can lead fisheries in Asia forward. They will check investment in fish capture capacity, lower enforcement costs and increase the legitimacy of fisheries management institutions.

### Prospects for the Future

The prospects for the approaches mentioned above may not be the same in all Asian countries. The concept of Marine Stewardship Councils (MSCs) is still very new in all of Asia. But it

probably has greater chances of success in the more developed Asian countries such as Japan, Korea and Taiwan and less bright prospects in poorer countries such as India, China, Indonesia and Philippines. Community-based management, on the other hand, appears to have better prospects in less developed countries such as the Philippines, Indonesia, India.

There are also issues with regard to the costs of alternative management approaches. It is often argued that the transaction costs of alternative approaches differ. Which approach is better is ultimately an empirical issue (Nik Mustapha, K. Kuperan and R. Pomeroy, 1996).

The precautionary approach instills the need to consider the fishery ecology and socio-economic relationship as fragile. Policies should therefore be implemented with caution. This could help improve the way politicians think about or approach fisheries management.

*Note This paper was presented at the SOAP-supported Regional Workshop on the Precautionary Approach to Fisheries Management, held in Medan, Indonesia in February 1997 and organised by the Directorate - General of Fisheries, Indonesia.*

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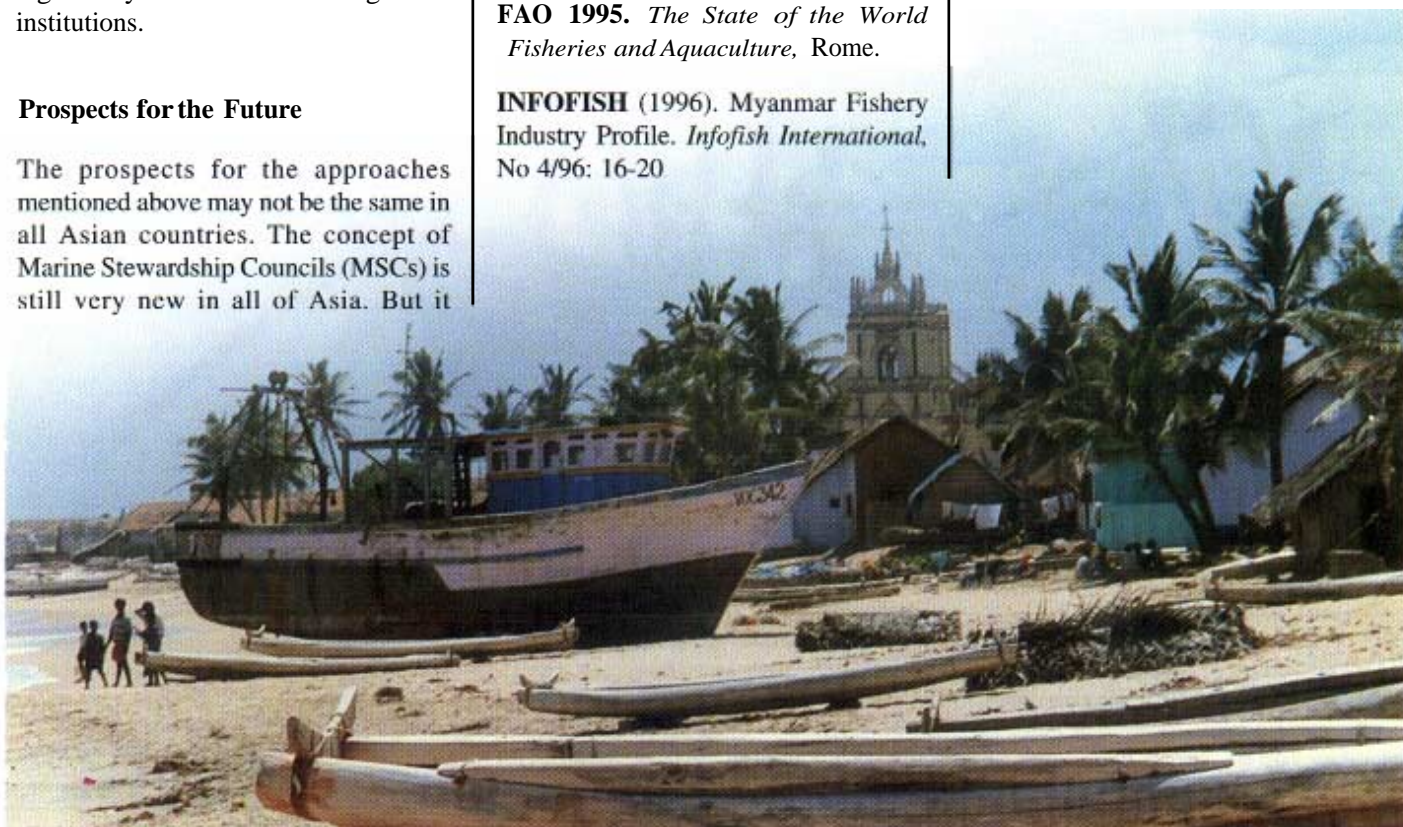
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# Caught Between the Devil and the Deep Blue Sea

(Continued from page 31)

organisations have a significant role to play here. Funding and development agencies will need to consider promoting and supporting sustainable initiatives in resource conservation and management.

Open access regime, *it is agreed*, is one important area of concern. The Marine Fishing Regulation Acts notwithstanding, encroachments still continue unimpeded, leading to conflicts between different groups. In several countries, traditional management regulations exist for some fisheries and in some localities. These are often based on territorial rights, which restrict access by outsiders and determine how and when the resource can be utilised by community members. In the Godavari delta area, for instance, the numerous creeks are divided among the many fishing villages bordering them, and the rights to access these waters are guarded very zealously. The fisherfolk in Uppada area have their own mechanisms to allow all shore-seines to operate from all parts of the shoreline available to them on a rotation basis. When the village elders impose a ban on fishing for a certain

period, for whatever reasons, it is seldom that the ban is flouted. The traditional management systems are not overtly concerned with resource conservation, but can perhaps be made more effective.

Many innovative ideas have been tested out in many countries to restrict open access. The success of such measures will depend on how seriously the government takes their implementation. The sincerity of the government will depend on how best the fisherfolk and their organisations can highlight their plight at the relevant fora. Even then, any government can only push things so far and no farther, and it is again the role of the fisherfolk organisations and other grass-root level groups to mobilise fisherfolk's support for a responsible management system.

*More integrated, participatory and need-based fisheries development policies:* For any approach to be rational, and more importantly to succeed, it is imperative that it takes all stakeholders, along with their needs, constraints and ideas, into consideration. The relationship that has

developed between the fisherfolk and the government agencies is a very curious one, which could perhaps be a result of decades of isolation followed by years of pampering, which is succeeded by – in recent years – alternating periods of regulation and apathy. The isolation seems to be endemic to the sector as a whole, which stubbornly insulates itself from lessons to be drawn from any other sector, and presents a very lonely picture indeed. Although fisheries and animal husbandry go hand in hand in most States, it is rarely that one sees a crossbreeding of ideas. However, fisheries today is too important to be left to fisheries experts alone – over the years it has grown widely to acquire a multi-faceted personality, one that requires a more integrated and inter-sectoral approach than is allowed today.

**In the meantime, my hero continues to** find gambling and shrimp seed collection and illicit liquor brewing more productive than fishing, although he continues to add that he is a traditional fisherman, with a capital T. Purists may disagree on many counts, but there he is!



**BAY OF  
BENGAL  
NEWS**

*Bay of Bengal News* is a quarterly publication of the Bay of Bengal Programme (BOBP), a regional multi-agency fisheries programme which covers seven countries around the Bay of Bengal – Bangladesh, India, Indonesia, Malaysia, Maldives, Sri Lanka and Thailand. The programme plays a catalytic and consultative role: it develops, demonstrates and promotes new methodologies, techniques, technologies or ideas to help improve the conditions of small-scale fisherfolk communities in the member countries. The BOBP is sponsored by the governments of Denmark and Japan, and by member governments in the Bay of Bengal region. The main executing agency is the FAO (Food and Agriculture Organization of the United Nations)