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(See pages 3-8)

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Banish Absentee Management in Fisheries!

The International Year of the Ocean, 1998, is a good occasion for governments to banish the system of absentee management in fisheries. Fisheries management must be conspicuously visible at the local level, and encourage active local participation.

Fisheries management? The world's scorecard is dismal. Habitat degradation and overfishing are worsening day-by-day. Poor fisherfolk everywhere are paying the price for neglecting management.

Like the absentee landlords in agriculture, many governments function as absentee sealords. The absentee landlord is at least represented by a caretaker sharecropper. But the absentee sealord is invisible. The management system in fisheries exists only on paper, despite the many laws passed by august Parliaments.

Fisheries management must be conspicuously visible at the local level if it is to be meaningful. But in many countries, it is not. Such absenteeism does not encourage local participation. Result: short-term motivations govern the behaviour of the sector or industry. The plunder mentality, the 'take all you can' ethic, dictates the behaviour not only of poor fisherfolk but also of marketing intermediaries.

The pressure on poor fisherfolk has intensified in recent years, since a new crop of profit-savvy businessmen has invested in mechanised vessels. Poor traditional fisherfolk who have been fishing for generations do not stand a chance. They cannot survive such competition or the well-entrenched and exploitative marketing and credit systems.

A vested interest in resource sustainability

Further, governments pursue an export-oriented fisheries strategy to earn foreign exchange. Yet on average, they allocate less than 10% of the annual budget to fisheries management. Absentee management is the result. It means inadequate enforcement – lack of regular monitoring, control and surveillance, which would deter violations.

We celebrate 1998 as the International Year of the Ocean (IYO), after the 1997 International Year of Reefs (IYOR). It is timeto return the control and management of coastal and marine resources to the people - the local community who are closest to their local environment. We need to restructure and reorient the coastal and marine resources production system to give the local population a greater say in the use of these resources. Since they rely on these resources for food and jobs, they have a vested interest in resources sustainability. They will strive for local solutions to over-exploitation and environmental degradation, and try to mitigate pollution and other threats to their resources systems, including seemingly remote ones.

Every resource user should observe the International Year of the Ocean 1998 by pledging responsible resource behaviour —just as resource managers should. After all, management is mainly about regulating the use of resources on a sustainable basis.

These newly empoweredresource users-turned-resource managers should be vigilant in spotting irresponsible fishing behaviour such as use of small mesh size gear, fishing by using dynamite and other explosives, and poison to stun fish, fishing during closed seasons or in closed areas etc. Awareness-training on implementing resource management measures can be organised for them.

Very often, new technology introduced to a local area fails to absorb labour from the local community. Instead, outside labour is recruited for shrimp and fish trawling, shrimp farming, mechanisation of fishing boats, seafood processing, ice-making etc. While new technology does result in improved methods of production and better performance, care must be taken to ensure that the local population gets job opportunities and that any displaced labour is provided with other alternatives.

IYO 98 should be a landmark year for putting these two simple steps into practice. IYO 98 would then serve its purpose and make a difference to the lives of people who depend on the oceans for food and for livelihood. When this happens, not only will we produce more fish, but also more of preferred species. We won't be saddled with large quantities of unwanted fish – as is happening today on account of absentee management.

Kee-Chai **CHONG**

"He who pays has a say"

Evolving A Self-Financing Scheme For Fisheries Management

By Kee-Chai CHONG

Governments can no longer afford to finance fisheries management by themselves. The private sector, the fishing industry and consumers – all of whom benefit from the resource – must help bear the costs. Several conceptual and practical options are suggested and discussed in this article.

How good and sustainable is funding for fisheries management? In many developing countries, it is seriously underfunded. In some, funds are not specifically allocated for management. In others, it is not funded at all.

Example: Indonesia has more than 17, 500 islands and a 81,000 km coastline straddling the Pacific Ocean and the Indian Ocean. It covers 3.1 million km² of territorial sea and 2.7 million km2 of exclusive economic zone or EEZ waters. But it allocates an average of just about 3% of the five-year budget of the Directorate General of Fisheries for fisheries management. In Malaysia, lack of operating funds, patrol boats and personnel hampers enforcement of management measures. Such expenditures already take up 30% of the development, budget.

Further, given the weaknesses in the fisheries regulatory framework in developing countries, not to mention competing cross-sectoral priorities, weak political will and commitment, it is not at all surprising that the budget necessary for enforcement is absent.

Fisheries regulations in developing countries often lack teeth. In scientific and government circles, management rule-making in fisheries is looked upon as a ritual more symbolic than substantive. Fear of arrest and stiff penalties are needed to, make regulations work. The law should be enforced strictly. But a sustainable financial outlay is needed—for personnel, equipment etc to carry out enforcement effectively. Few countries can afford such a financial outlay—especially today, with currencies in turmoil and economies in a tailspin.

Even at low levels, funding is subject to budget cuts. Until now, fisheries management was viewed as a cost, not as an investment with long-term benefits. Such being the perception, it is not surprising that management is given lower priority than production. Fishing fleets are expanded through generous subsidies for boats, motors and gear, and funds for fishing harbour/port construction. This is due in part to the government pursuit of self-sufficiency in fish and export-oriented fisheries strategy.

Management is an Investment

In the other sectors of the economy, management is looked upon as an investment with a steady stream of future benefits. Like business management! It is an investment in sustainability. Fisheries management must be viewed as a long-term good housekeeping practice by all concerned. After all, fisheries is a business that employs more than 2(X) million people.

Poor fish catches in Indonesia. "Producers and consumers alike are paying the price for lack of fisheries management."

Returns from management are not immediate and cannot be expected for at least two years, at best 18 months (FAO, 1998).

No serious fisheries management plan is complete without reference to who will foot the bill. Barring traditional community-based systems that are no longer practised today, fisheries management is presently the sole responsibility of the government. The government therefore is mainly responsible for its funding, implementation and administration.

In a growing resource-scarce world, effort must be made to transfer a part of the costs of fisheries management from the government to the industry. Community self-policing or self-regulation is increasingly being examined to bring about responsible fishing, post-harvest handling and processing, not to mention consumption. Consumers too are increasingly being made aware of their responsibility for resource and environmental sustainability by exhorting them to exercise their environmental obligations through their purchasing power.

Further, as knowledge and understanding of the fisheries and its ecosystem improve, the system of management will be more and more knowledge-based and knowledge-intensive. The latter will result in a highly cost-effective system of management from heightened and aroused awareness. In fact, management costs will only decline further as more and more community-based systems of management take root and sea patrolling and inspection are done onshore at the fishing harbour or port. Inspection for compliance on type of gear, mesh size and twine material used for nets can be made on land quite easily.

Who Will Pay for Fisheries Management?

It must be pointed out that the current cat and mouse system of fisheries management and enforcement is costly and its impact only fleeting or temporary; it works only as long as the cat is around. This costs money. It is better to practise the adage 'prevention is better than cure' in fisheries management. Prevention by way of community-based or co-management is by far less costly and more effective than curing overfishing — which may be too late, as has happened today. Producers and consumers alike are now paying the price for the lack of management from the beginning. No one benefits from overfishing and reduced supply of fish.

There are many stakeholders or participants and actors in fisheries who benefit from the commonwealth of the ocean. Given the benefits they derive, these stakeholders have the common interests, responsibilities and obligations individually and collectively to sustain the fisheries resources and the fisheries industry through responsible exploitation, development and management, including sharing and shouldering part of the financial burden of management. Up to now, these stakeholders, individually or collectively, have not paid a single cent for management — except indirectly through fines and confiscation of their boats and gear after being found guilty of violations, and more remotely through their income tax payment.

There is today less and less money to pay for fisheries management, or for many other government activities and services. This will be especially crucial as government downsizes, deregulates and privatizes its function and services. In many countries, State benevolence and munificence have been replaced by political expediency and the furthering of vested interests. The present economic crisis confronting Asia will further squeeze government revenues.

Korten in his 1984 paper on "People-Centred Development: Toward a Framework" pointed out that the potential for solving social problems through local or community self-help has barely been tapped. According to him, modern civilisation has seen centralization and public funding for an ever-growing number of activities and services that were once the province of individuals, the family and the community or society. With the evolution of modern government, the bureaucracy has burgeoned and come to control nearly every facet of human activities. Such professionals and bureaucrats are supported by tax-payers. Tax-payers foot the bill for an intricate manipulative bureaucracy that has got institutionalized and entrenched everywhere.

However, Korten (1984) acknowledges that the financial burden of such a bureaucracy hobbles even the wealthiest of nations. Government services are inefficient and ineffective but they drain the treasury and frustrate the citizenry.

As we enter the next millennium, responsible conduct from producers and consumers is essential. Fisheries management must find a way to pay for itself. It can do so through the huge earnings of the soaring fisheries trade (domestic and international), created by the insatiable demand for fish and seafood. In this scenario, what advice can we give policy-makers, planners and managers of fisheries? First, the industry must recognize the problem and accept the solution and be willing to assume management-financing responsibility. However, whether the industry is ready or not, few options remain. .As all stakeholders stand to benefit from fisheries management, they must and should contribute and pay for management one way or another.

Ideas and opportunities for alternative and supplemental sources of financing must be identified. A mechanism for selective payment of user fees based on the 'user pays' principle or the principle of cost recovery can be explored. The idea of a fishing fee is no longer far-fetched; it is an idea whose time has come; it cannot be dismissed nor avoided. It only remains to be worked out on an equitable basis.

In addition, management and enforcement costs can be trimmed, capacity utilization of the existing fisheries enforcement workforce can be improved, rationalization of facilities and services can also be undertaken. The setting up of a management trust fund from contributions or donations, endowments, matching funds, patronage, etc is another option open to mobilize financial resources for management. The government can contribute the initial seed money for setting up such a trust fund or revolving fund. Revenues from admission or entrance fees to marine parks and other marine protected areas can partly pay for management. Further elaboration follows.

Partnerships in Financing Management

As the *de facto* owner and majority steward of fisheries resources, the government is still the main resource manager. While seeking partnerships with industry, the government will continue to play a key role in sustainable fisheries resource management.

Many governments around the world have already begun delegating, decentralizing, devolving and sharing their management authority and workload with the people, the community, industry and private sector. Thailand and Malaysia have instituted community-based fisheries management systems in their respective countries in an effort to reduce their financial burden in fisheries management. In Malaysia, enforcement of fisheries management alone used to take up 30% of the development budget for fisheries. The government views this level of funding as unsustainable.

The private sector and industry must take on or even replace such government services. As demand for fish soars and fish prices and industry revenues escalate, the industry should be able to shoulder the burden in financing and managing its resources, like the rubber industry does in Malaya and later Malaysia since the early 1900s (see box). In spite of the cess, the Malaysian rubber industry has flourished and prospered through the years. Cess collection has in fact benefited the industry. Why should limited public funds be used for management when the industry's resources can be tapped?

Management Costs for Inshore and Offshore Fisheries

There is a difference between the operational management costs of coastal fisheries and offshore fisheries, because of the

Small-mesh gear like this one in Bangladesh (top) leads to low catches (bottom).

Stakeholder financing and problem-solving hold the key to sustainable management of fisheries.

number of vessels to be monitored, and the area and the distance to be covered. Community-based fisheries management is mainly practised for nearshore and coastal waters. The community helps to ensure compliance with management measures: costs are therefore relatively low. Offshore or high-sea fisheries management may be beyond the reach of community-based systems.

However, even offshore fisheries management and enforcement do not have to be very expensive, if they are properly planned and executed. A good part of the offshore patrolling can be done efficiently onshore. All it takes is for the enforcement officer to go to the fishing harbour jetty and make a random check or inspection. Such inspection can include logbook control (to ensure that catch records and declarations are accurate), and checks of fishing gear, mesh size and twine material.

Aerial surveillance through aircraft could effectively supplement the onshore inspection (George Everett, pers comm.). Aerial surveillance can be more cost-effective in the long run than sea patrolling because the former covers a wider expanse of sea.

Model **and** Options Available

The 1954 Scott Gordon classical model on fisheries proposed a system of collection of royalties on catch landed. It includes a 'rent' on resources that can in turn finance conservation and management activities. But catch taxation at the producer level is unpopular since open-access common-property fisheries is already uneconomic. However, such a system of royalties may be accepted more easily when introduced at the post-harvest market intermediary level than at the pre-harvest fisherfolk level. The profit margins of the add-on services after the fish changes hands from the fisherfolk to the market intermediaries are known to be very high – as demonstrated by study after study on marketing and profit margins. Whether it is the producer or consumer or market intermediary who shoulders the burden of payment can be worked out by these three as responsible stakeholders.

More specifically, various schemes can be evolved to charge market intermediaries (including consumers of fish) the resource rent or economic surplus over and above normal profits, including available consumer surplus. We refer here to the excess profits retained by the private sector and the willingness of consumers to pay for management to continue to enjoy eating fish and seafood. As pointed out earlier, demand for seafood is insatiable; specialty upmarket and niche seafood markets generate hefty profits that can help finance fisheries management. Today, the global seafood market is worth at least US$ 50 billion and growing.

Further, there also exists excess (global) fishing capacity to the tune of US $ 50 billion. Even when this over-capitalised capacity is halved, the level of fish landing would not decrease (FAO 1993). This frees US$ 25 billion which can be used to partly pay for conservation and management effort! Such calculations have not even taken into account the net loss to the economy and subsidy made to the industry. For example, in 1991 Canada reported a catch valued at US$ 919 million but paid out US$ 1 billion in subsidies to the fishing industry. The gradual step-by-step reduction of over-capitalised excess capacity at the local, district, state and national levels through licensing, limited entry or non-renewal of fishing licences as well as attracting fishing boats and fisherfolk out of fisheries with alternative or supplemental employment opportunities can go a long way in reducing fishing pressure and thereby help to manage the fisheries. Along this line, the European Union has also pruned about US$ 2.8 billion from its fisheries.

Cost Recovery Option

To pay for management, one option is to recover management costs by cornering a part of the benefits accruing to the

stakeholder beneficiaries. Benefits of management can be seen through:

- expanded economic base of local economy:
  - improved prices for larger-sized and traditionally-preferred species of fish landed and marketed
  - higher incomes from better prices
  - lower fishing costs from improved fishing efficiency
  - improved fish landings through improved catch rates/ levels
- improved eco-system health of fisheries stocks and habitats
- high quality of life of fishing communities.

User Fee Option

Briefly discussed earlier, this user fee system can either be compulsory or voluntary. **It** must be sensitively explored, proposed and introduced. Extensive public hearings and stakeholder and industry consultations are required to elicit feedback, comments and suggestions to evolve an acceptable and equitable system.

Revenues from Fines Option

Fines collected from violations of fisheries management regulations can be turned over to departments of fisheries for management purposes. Such administrative provisions can be legitimized through government orders.

In 1987, almost *50%* of the total fisheries revenues in Malaysia was from fines imposed on the use of illegal gears. According to Christy as reported by Mathew (1990), these fines constituted the single highest source of revenue for the Department of Fisheries, Malaysia.

Overfishing Charge Option

All stakeholders lose when overfishing occurs, no one wins from such short-sighted profiteering. To minimise loss and suffering by the stakeholders, those who cause overfishing or are responsible for inflicting damage or destruction to the fisheries, its stock and habitats must be made to pay for the harm done. Trawling is known to inflict damage to the resource and habitat, resulting in overfishing. If trawl fisherfolk have to pay for using the trawl, trawling will become uneconomical or unprofitable as the trawling charge is figured into the cost of production. As a result, they may give up trawling or switch to another gear type that is less damaging.

The trawling charges collected can be used for financing management activities such as habitat restoration and stock enhancement programmes. Because the number of trawlers is not as numerous as small-scale fishing boats, the trawler charge proposal can be further explored and studied. The same can be applied to other gear types that cause overfishing.

Bank Financing Option

Financial institutions may also wish to contribute to management through their lending mechanism for management of fisheries against exports of seafood. This management lending by the bank can be another supplemental financial source.

Privatisation Option

In some countries, certain management services such as sea patrolling and inspection of fishing vessels have been privatised and taken over by a commercial firm. This privatisation can also be explored as cost-saving effort.

Better management (through mangrove conservation for instance) will lead to improved health of fisheries stocks and habitats.

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Rubber Cess in Malaysia:
A possible model for fisheries management

A cess on the export of rubber was first introduced into the Federated Malay States in 1907 and later into the Unfederated Malay States when the then (colonial) government decided to supplement revenue from excise, import and land taxes. This export duty was even increased to boost the imperial defence fund.

The rubber industry used to have two types of cess. They are collected for the Government by the Malaysian Customs authorities:

a. replanting cess at Malaysian 9.9 cents/kg earmarked for the use of the Rubber Industry and Smallholders Development Authority or RISDA. Under the replanting cess, two funds are set up:
   i) Fund A for estates
   ii) Fund B for smallholdings

b. research cess at Malaysian 3.85 cents/kg for the Rubber Research Institute Malaysia (RRIM), for rubber research and publicity purposes

The cess is a price-dependent levy and revised upward or downward, depending on rising or falling government revenues.

The collection of rubber cess in Malaysia is legally provided under the Rubber Industry (Replanting) Fund Ordinance, 1952 and the Malaysian Rubber Research and Development Fund Act, 1958 (Revised 1989). Both acts are gazetted.

Cess or tax is never popular. The Rubber Growers' Association has consistently protested against the rubber export cess. But the Act provides for some exemptions. Example: rubber exported from Sabah and Sarawak is exempted from research cess. Similarly, any rubber imported into West Malaysia for re-processing and re-export would also be exempted from replanting cess.

A person who fails to pay any cess imposed under this Act commits an offence. He shall, on conviction, be liable to a fine not exceeding 10 times the amount of cess due, a jail term not exceeding three years, or both.

According to Tan Abdullah (1997, pers comm), starting on 1 January 1998, RRIM, MRRDB (Malaysian Rubber Research and Development Board) and MRELB (Malaysian Rubber Exchange and Licensing Board) will merge under Lembaga Getah Malaysia (LGM) or Malaysian Rubber Board. Under the newly established LGM, the Malaysian Government has approved the collection of research cess not only for rubber exported but also for rubber consumed in the country, that is at factory level. RISDA has also been requested to submit a similar proposal to the Government for approval.

Reference

Chew, C.S 1997. Review of R&D and Replanting Cesses, Seminar on Malaysian Latex-Based Industry: Review, Competition and Opportunities, MRPMA, MRRDB, RRIM, MIDA, MRELB, MARGMA, Kuala Lumpur, Malaysia.

Conclusions and Other Observations

The main purpose of this article is to urge policy-makers, planners, fisheries managers and other stakeholders of the industry (who can benefit from innovative financing mechanisms) to convene a regional or even an international consultation to help evolve a self-financing system for fisheries management. The various options briefly described in this article can be further elaborated and worked out by expert resource persons before and during the consultation.

Even though an industry self-financing mechanism for fisheries management is proposed, the government is still very much in the picture, for its role as resource steward will remain crucial.

The proposed self-financing management system is a good starting base for more participatory management by the stakeholders. At present, the so-called participatory or co-management or community-based system which is emerging in certain countries gives an illusion of participation. There is still a lot of government hand-holding. Stakeholder groups and the industry should participate more vigorously in the management process – their co-operation is essential to make management work.

The future survival of fisheries is at stake. Unless sustainable management is immediately put in place, fish as food will no longer be affordable to many. Stakeholder financing and stakeholder problem-solving hold the key to sustainable management of fisheries by determining the willingness of consumers and producers to pay for the fish. "He who pays has a say" must guide future sustainable management of the fisheries by all stakeholders.

It is heartening to see that the quality of management of the fisheries is today higher than before because fisherfolk see the benefits of management, and are quite well-versed on the available tools, techniques and approaches to management. Continued awareness-building is paying off in more and more sustainable producer and consumer behaviour.

Today, both producers and consumers and their government realize that making people pay for irresponsible or bad habits and behaviour in production and consumption through appropriate environmental charges will help to correct environmental ills and woes. Rewarding responsible behaviour and habits through incentives and tax reliefs or exemptions can similarly change behaviour.

BOBP in the Field

Upgrading personnel skills of Tamil Nadu DOF to tackle fisheries management

A core group to assist the Tamil Nadu Director of Fisheries in meeting the department's needs for fisheries management has been suggested by a consultant firm. The core group will assist in strategic planning, identify junior personnel who can shoulder wider responsibilities in future, draw up a detailed HRD (human resources development) plan, and carry out monitoring and evaluation.

This is one of the recommendations of a consultant firm that conducted a study on the training needs that must be met and the gaps in skills that must be overcome, so that the Department of Fisheries may build its institutional capacity for sustainable development and management of fisheries. Mr M.S.S. Varadan, Managing Director of OM Consultants, outlined the rationale and results of the study at a recent meeting of senior officials of the DOF and **BOBP (which** supported the study) at the DOF office in Chennai.

Mr. Varadan said that during the course of the study, the firm analysed secondary data (Ministers' policy speeches, IX Plan documents, the Code of Conduct for Responsible Fisheries which the Government of India has signed and the Tanill Nadu Government has accepted and translated into Tamil). It also obtained primary data through stakeholder consultations, workshops in Madras and Cuddalore, group discussions, field trips and questionnaire-based interviews with DOF staff.

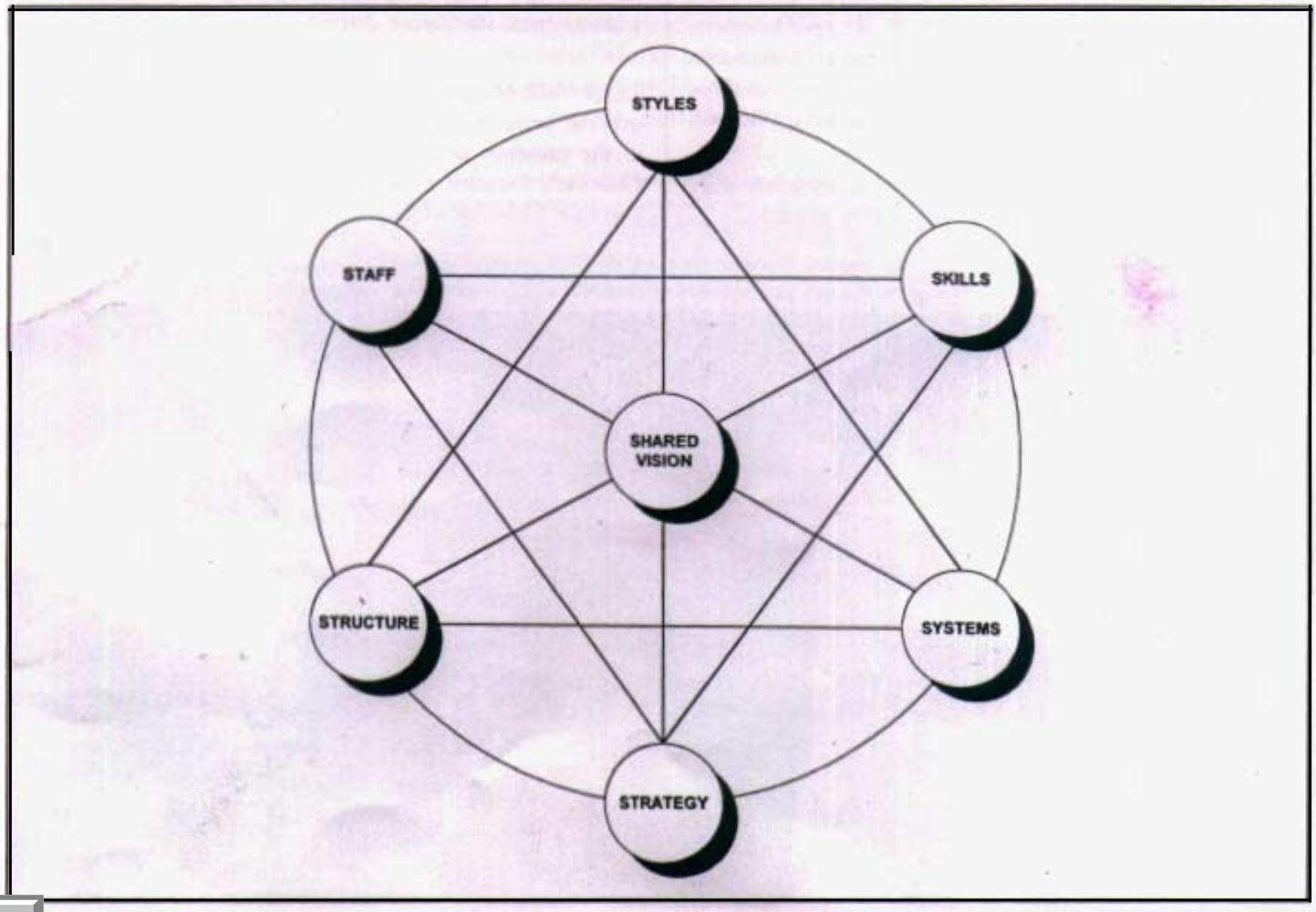
The firm was thereby able to elicit information about the training needs and skills gaps of the **DOF from** two angles – the needs of the various stakeholders in fisheries, and the mandate of the DOF, especially in the light of the recent policy thrust towards "responsible fisheries".

About the HRD plan proposed by Om Consultants to build the DOF's capacity to meet future needs, Mr. Varadan said that it would relate to sustainable fisheries management, participatory resources management, problem-solving and communication and negotiation skills, behavioural skills and attitudinal development, leadership and motivation etc. The HRD plan would be based on the 7-S model (chart below).

Mr. Varadan said that a list of institutes offering courses in the areas mentioned above has been prepared. Selected officers in the DOF could be sent to these institutes for training. Staff performance appraisal would be an important tool to evaluate competence and to select personnel for higher responsibility. Funds made available for HRD to the Government of Tamil Nadu by the World Bank would be used for the training.

However, tailor-made programmes on fisheries management created specially for the DOF would be advantageous. BOBP assistance in the design of these programmes is being sought.

The 7-S model. The HRD plan suggested by a consultant firm for the Tamil Nadu Department of Fisheries is based on this model.



Fisheries Essay Contest for Schools

Tamil Nadu Minister for Fisheries Jennifer Chandran hands over an award to one of the prize-winners in the essay contest for high schools conducted by the Department of Fisheries with BOBP and FAO support. Secretary for Fisheries Mohan Verghese Chunkath, Director of Fisheries Hans Raj Verma and BOBP Director Kee-Chai Chong applaud.

Students from 14 selected schools in four coastal districts of Tamil Nadu took part in an essay contest sponsored by BOBP about the importance of fish and fisheries for health and national development. It was held on the occasion of World Food Day (October 16, 1997). The schools were from Cuddalore, Kanniyakumari, Tuticonn and Chennai districts.

Two students from each district were awarded prizes — **a first** prize of Rs 2,000 and a second prize of Rs 1,000.

The prize winners in Chennai were H Mohammed Asmatullah (I prize) and N Vijay and V Mohan **Raj (II prize). All three** were from the P A Palanichamy Higher Secondary School, Chennai.

The Tuticorin prize winners were S Hema(I) and S Jeyabharaty (II) both from Holy Cross Higher Secondary School.

E Laema Rani (St Mary's Higher Secondary School, Colachel) and F Isaac Newton (St Anthony's Higher Secondary School, Kanniyakumari) were the winners from Kanmyakumari district.

Muruga Baskar (I) from the Arcot R L Mudaliar Higher Secondary School, Cuddalore, and A Syed Shariff **(II) from** the St Joseph's Higher Secondary School, Cuddalore, were the winners from Cuddalore district.

Tamil Nadu Minister for Fisheries Jennifer Chandran handed over the prizes to prize winners in Chennai at a recent function in the presence of Secretary of Fisheries Mohan Verghese Chunkath, Director of Fisheries Hans Raj Verma and BOBP Director Kee-Chai Chong.

An exhibition was held at the Department of Fisheries, Chennai, to mark the 75th birthday of Tamil Nadu Chief Minister M. Karunanidhi. Minister of Fisheries Jennifer Chandran goes through publications at a BOBP display on the occasion.

Fisheries in Kanniyakumari: fisherfolk state their needs

by Rene Verduijn

The Depqrtment of Fisheries, Thmil Nadu, with BOBP support is striving to improve fisheries management in Kanniyakumari district. The author describes the methodology being used, and the results of the latest activities — including a survey offisherfolk's basic needs as perceived by them.

Kanniyakumari in south Tamil Nadu at the tip of the Indian peninsula, is where the waters of the Arabian Sea and the Bay of Bengal unite. The district is traditionally known as much for luxuriant rubber and coconut plantations as for rich fishing grounds tapped by some of India's most energetic and volatile fisherfolk. But over the past decade, fish catches and incomes have fallen while conflicts have risen among different classes of fisherfolk.

During the past two years, however, the district has seen a quiet but conspicuous ferment of a different and positive kind — discussions, interviews, analysis relating to fisheries management. There is now real hope of joint action by government, fisherfolk and other stakeholders in fisheries to improve fisheries management.

What lies behind the ferment are 11 consultations of fisheries stakeholders held in Kanniyakumari district in the past two years with the Department of Fisheries' encouragement and **BOBP** support. The stakeholders include fisherfolk, fish traders, boatbuilders, engine repair and maintenance groups, money lenders, fishers' unions, cooperative societies, district and state government officials.

The following issues emerged from these consultations:

- Participatory initiatives with fisherfolk at the forefront are essential for sustainable fisheries management. Examples: Trawlers should reduce fishing effort, fisheries should be diversified, use of artificial reefs should be promoted;
- Government agencies should improve the basic fisheries infrastructure (e.g. hook-shaped jetties along the coast for proper berthing of crafts, protection walls or boulders against storm surges or sea erosion);
- Government should enforce law and order and fisheries regulations more vigorously;
- Research on commercial marine species (e.g. to identify spawning periods and grounds) should be intensified to avoid excessive fishing.
- The "Coastal Peace and Development Committee", established by the Roman Catholic Kottar Diocese, which covers all fisherfolk communities, should be encouraged as an institutional forum to resolve conflicts among stakeholders;
- The welfare needs of fisherfolk communities (such as coastal roads, transportation, water and power supply, street lighting, housing etc.) should be addressed.

Several coastal fisherfolk communities in Kanniyakumari seek better-staffed and better-equipped schools in their vicinity.

Seventeen out of 39 coastal communities surveyed say that safe drinking water is their No. 1 priority.

Ascertaining the needs of fisherfolk

Just as results in a game of soccer — as exemplified by the recent tremendously popular World Cup — depend on efficient teamwork rather than individual brilliance, fisheries management can succeed only with vigorous co-operation among all the players. For example, no fisheries regulation can succeed unless the fishermen decide to observe the regulations.

The two lead players in fisheries management in Kanniyakumari are the Kottar Diocese of the Roman Catholic Church (almost all fishermen in the district are Roman Catholics) and the Tamil Nadu Government, particularly its Department of Fisheries. Both have played a positive role.

The Kottar Diocese helped set up the Coastal Peace and Development Committee, which is already following a stakeholder approach through a mechanism for peaceful, discussion and resolution of conflicts among fisherfolk. (See *Bay of Bengal News*, June and September 1996).

The Department of Fisheries is willing to improve the fisheries infrastructure and has already embarked on efforts towards this end. As for the non-fisheries infrastructure, the Secretary of Fisheries will soon convene a meeting of various government departments, all of which have a development stake in Kanniyakuman district — such as public works, education and rural development. This meeting will discuss and plan coordinated action on the specific needs of coastal fishing communities.

What are these needs? The Government decided to get the fisherfolk to state their needs themselves. The BOBP was requested to conduct a survey among all fisherfolk communities of Kanniyakumari district during the first half of 1998 to identify their needs for basic services as well as their infrastructure needs. The results of the survey will be presented at the inter-departmental meeting referred to above. This meeting will suggest a plan of action to meet the stated needs of fisherfolk, which in turn will be discussed among stakeholders of Kanniyakumari.

Implementation of the plan in co-operation with the fisherfolk will improve the credibility of government and government departments among fishing communities, and improve communication with them.

Survey methodology: **what are the** fisherfolk's priority needs?

To conduct the survey on the priority needs of fisherfolk, BOBP selected two local enumerators in every village with the assistance of the Coastal Peace and Development çommiuee. They were given training for one day in the conduct of interviews. These enumerators conducted group interviews with fisherfolk (both sexes) about the status of local services. A detailed questionnaire guided them in their efforts. To assist the fieldwork a local supervisor was appointed by BOBP. Finally, a rapid appraisal was undertaken by BOBP staff in coastal areas of Kanniyakumari to validate the results obtained.

The Survey Results

The 39 coastal fishing communities of Kanniyakumari district were asked to identify and rank their priorities concerning needs for basic services, from a list of nine electricity, health care, land availability and housing, road access, safe drinking water, sanitation, schools, water for bathing/washing, telephones. These nine needs had been identified by the fisherfolk themselves during the stakeholder consultations referred to earlier. The priorities indicated by the communities are set out in the chart below.

Many respondents said that all services needed immediate attention, but they were persuaded to rank these services in the order of importance.

1. Safe **drinking water:** Seventeen of the 39 communities agreed that access to safe drinking water is their main problem.

The surveyed area is a densely populated coastal area, which is intensively used for agricultural purposes. Drinking water, not necessarily safe drinking water, is often available just for 1 or 2 hours a day or for a couple of days a week. All sources seem insufficient, especially since ground water reservoirs are very limited, and the surface waters are often polluted with waste or sea water. Many communities also complained that they

were able to tap or pump water only for a short period every couple of days. Power disruptions also made it difficult for them to fill water tanks when necessary.

Specific requests were made to increase the capacity of water tanks, to dig wells at appropriate places and to increase the distribution network of pipelines.

2. Sanitation: Ten communities, or about *25%* of the total surveyed, regard sanitation as their main concern. Specific sanitation needs include facilities for handling and disposing sewage, drainage facilities, public and private toilets, and regular garbage collection.

Most sanitation facilities in the coastal belt are very poor. The survey revealed a distressing state of affairs: only a few people could afford private latrines or toilets. A majority of the population use the beach, the sea or private land nearby. Some fisherfolk complain that the lack of hygiene is responsible for ill-health and outbreak of disease. Others complain about untidy dwellings and the unattractive environment. Almost everyone wants immediate action to set up a minimum of conveniences, with a system of public and private toilets and regular garbage collection implemented by the local *panchayat.*

3. Health care: Six communities, or *15%* of the 39 surveyed, rated health care as their first need. (In fact almost half of the 39 communities describe health care as their No 1, No 2 or No 3 problem.)

Everyone seems to want reasonably priced, well-staffed governmental hospitals or primary health centers (PHC) that are open 24 hours a day. Most private institutions are perceived as too expensive. Government-run primary health centres and hospitals are relatively cheap, but they lack qualified staff and are open only for a few hours a day. A better transportation system would obviously improve access to well-equipped medical centers. Bus services would indeed be vitally useful if a better network of roads were available.

4. Education: Three communities (8%) rank schools as their No. 1 priority. They want primary schools, middle schools and secondary schools with qualified staff and equipment in the vicinity of the communities. The schools that operate at present need to be improved.

Many fisherfolk complained about the standard of teaching. This is not surprising if we realize that quite a few teachers do not receive regular salaries. Since the church manages most educational institutions, the problem of school education should be discussed between fisherfolk, the Government of Tamil Nadu and the Kottar Diocese. As regards higher education, it appears that most collegiate, professional and vocational facilities are out of reach of the communities. At present, higher education facilities are available in Nagercoil, while smaller educational centers are present in Colachel and Thoothoor.

Transport again holds the key to better education access. If coastal link roads were improved, there would be better school bus services, and more children could attend good schools.

5. **Land availability and housing: Two** communities (6%) have ranked "land availability and housing" as their biggest and most urgent problem. Most fishing communities in Kanniyakumari live on a small coastal strip of land (often church-owned or government-owned). They are caught between a ferocious sea that keeps eroding even this little strip, and privately owned land used for agriculture. Rising population has further aggravated land pressure. As if this were not enough, there is a company that mines pockets of land and coastal beaches for minerals.

Sanitation, including toilet facilities, is another major priority of Kanniyakumari fisherfolk communities.

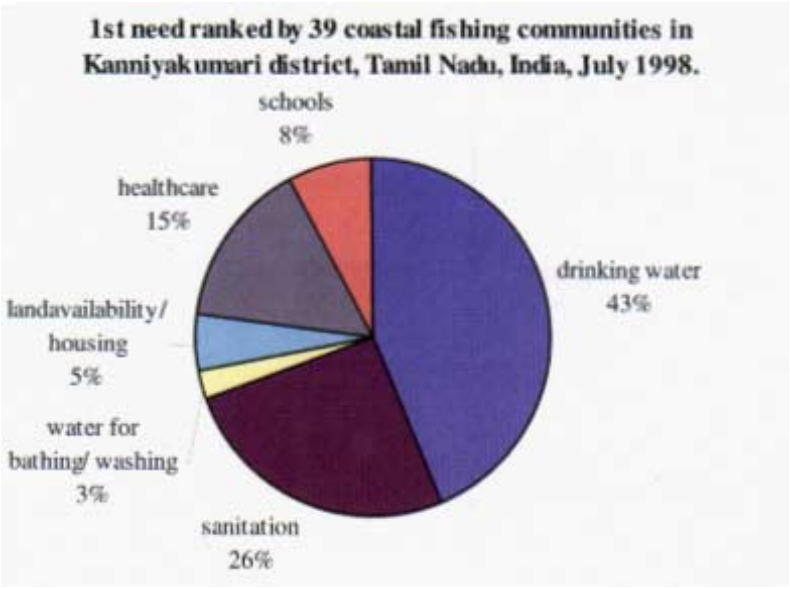
Better road access is an important need in all fishing communities.

To buy or rent land, fishing communities have to depend on the goodwill of others. Some respondents said that three **or four** families are sometimes forced to live together, because neighbouring land owners do not want to sell land to the community. This is perceived as a major reason behind quarrels and local unrest. Assistance is required from the government since they are the only power that can intervene and provide the fishing communities with land.

6. Water for bathing and washing: One community (3%) has indicated that **water for washing** and bathing is its **first priority. Fisherfolk from** Puthoor **say that the limited supply of** drinking water in the village is fully used up. This leaves nothing for other purposes such as washing and bathing. As many as 13 communities complained about water for washing and bathing being insufficient. (Some villagers have to board a bus and travel more than 10 kilometers, just to bathe at a polluted well). At some places, so-called drinking water was not even suitable for washing and bathing because it was muddy or turbid and saline.

Rivers, creeks and streaming canals seem the natural resource for these purposes. But in Kanniyakumari, the upstream effluent ruins the quality of the downstream water. Action is needed to desilt and clean the rivers and the AVM Canal and keep saline water out of the bar mouth.

7. Electricity: Many coastal communities — between *50%* and 90% — have access to electricity. But almost everyone complained about the frequent power cuts, power surges and load-shedding. Many fisherfolk said that students suffered from power cuts at night. New high-power transformers need to be installed. Seven communities specifically asked for street lights to improve safety. Even proper maintenance of the existing infrastructure will improve matters.

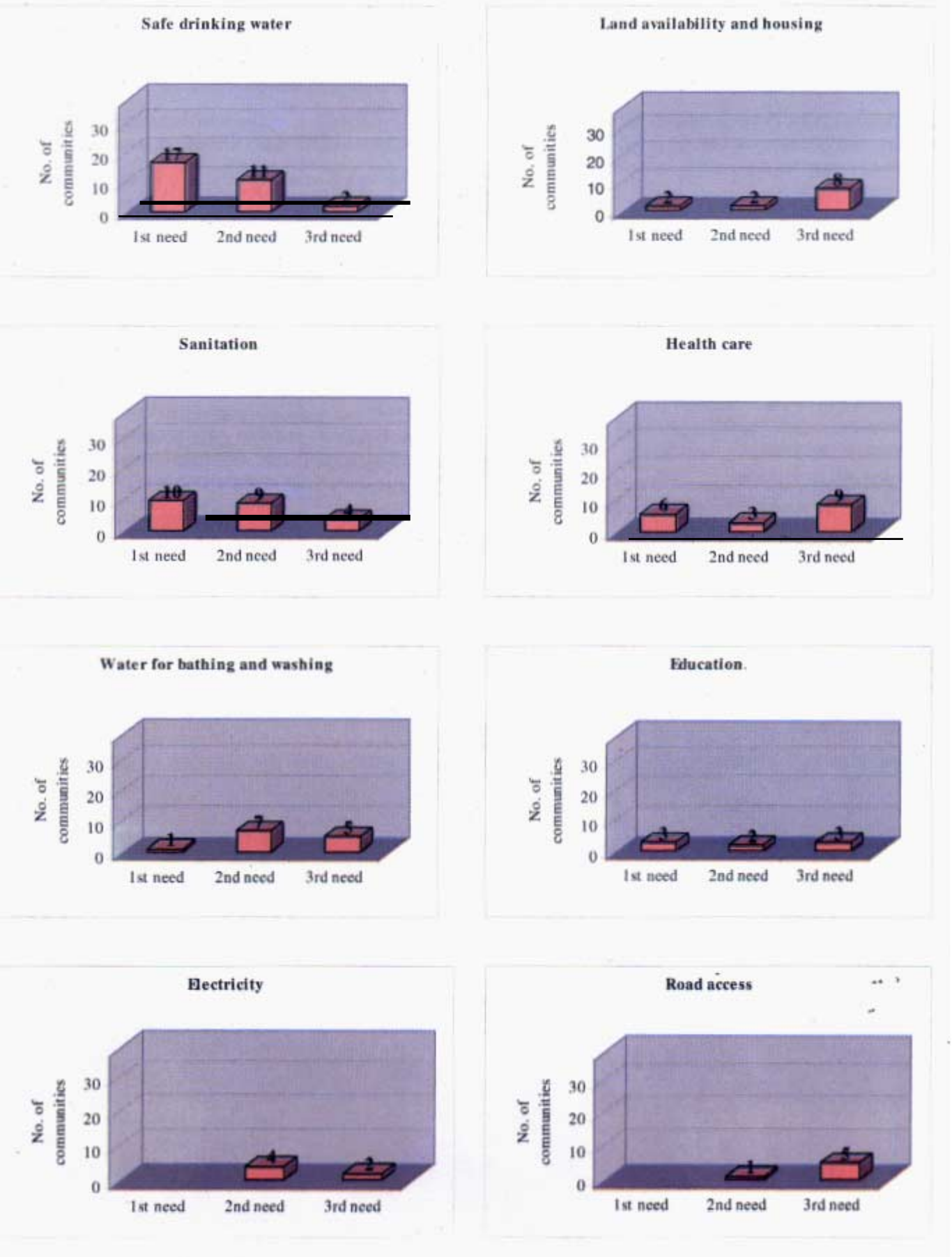


The DOF as facilitating agency for fisherfolk

Finally, should the Department of Fisheries take the initiative and **concern itself with non-fishery issues that affect** fisherfolk? The DOF certainly seems to be the appropriate agency to coordinate action to meet the most important needs of fisherfolk. It is obvious that such basic needs as drinking water, sanitation and health care can pose bigger threats to the livelihood of fisherfolk than conflicts at sea. A facilitating role for **DOF in ensuring that these needs** are **met would seem justified. It could also** promote the goal of fisheries management. Better access to educational facilities may pull youngsters out of fisheries and reduce fishing effort. Better road and transport facilities may open up coastal areas, and bring alternative income opportunities within reach of the fisherfolk.

If proposed actions by the government and the church were to be sustainable, fisherfolk should learn to shoulder greater responsibilities in fishing villages. For example, fisherfolk could help maintain their villages, and assist in such services as collection and disposal of garbage, after some basic training. Such a spirit would further the goal of fisherfolk and stakeholder initiatives to ensure stronger and more self-reliant communities.

Basic services ranked as 1st, 2nd or3rd need by 39 coastal fishing communities in kanniyakumari district



Fisherfolk and the Kottar Diocese

by Fr A. Selvaraj

During the 16th century, migrants from the east coast of Tamil Nadu set up thatched huts along the coastal belt of Kanniyakumari district. They took to fishing. Today there are *1.5* million fisherfolk in the district, spread over 42 coastal villages. Most of the fisherfolk are Catholics. Their ancestors were baptised by St. Francis Xavier during the 16th century.

The Kanniyakumari coast is known for many imposing churches, usually constructed by the people themselves. The Diocese of Kottar has been active in development work in the district since 1930.

The fishers of the coast are poor and illiterate. They fondly hope for a huge catch tomorrow that will change their fortunes. However, the catches are dwindling. What a few people caught some years ago is today the catch of many fishermen.

The fisherfolk are mired in poverty. They lack education. They are exploited by middlemen and money lenders. They suffer cultural oppression and isolation. Pent-up frustration finds release in liquor. Squabbles break out over even minor differences of opinion.

The Kottar Diocese invited experts to evolve a strategy for peace among the Kanniyakumari fishers. Some 90 experts, mostly from coastal villages of the district, held a series of talks and suggested the setting up of a Coastal Peace and Development Committee (CPDC). It would look into disputes among villagers, and also strive for their all-round uplift.

The vision of the CPDC is the 'integral development of individuals and communities in the coastal belt of Kanniyakumari in all its aspects – physical, intellectual, spiritual, emotional and cultural".

The following approaches dictate the work of CPDC:

- Identify problems responsible for the backwardness of the community and take up appropriate action to solve these problems.
- Involve the stakeholders themselves in conflict resolution.
- Liaise with government officials – for maintenance of law and order, and development measures including basic utility services.
- Conduct awareness and education programmes to encourage peaceful co-existence in the proper utilization of marine resources.
- Train leaders at village, zone and district levels.
- Mobilize funds to buy land for houses.

CPDC maintains a close liaison with the district administration in Kanniyakumari and with other government departments. It familiarizes the people with government welfare schemes and helps them avail of these schemes.

CPDC is recognized today as a forum to address and resolve the grievances of fisherfolk. It has well-organized village-level local committees that enable fishers to present their problems. It brings conflicting parties together and facilitates settlement. Overcoming the scepticism and despair that often grip people struggling for survival, fisherfolk have now begun to search for answers within themselves.

Integrated development of individuals and communities is the aim of the CPDC, set up by the Kottar Diocese of Kanniyakumari.

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INTERNATIONAL EXPERIENCES IN COMMUNITY-BASED FISHERIES MANAGEMENT - SUCCESSES AND PITFALLS

by Masamichi Hotta

This article provides some examples from Japan's rich experiences in community-based fisheries management. it has been condensed from a presentation by the author at a seminar on "Smart partnerships for sustainability in the fishing industry", held in Penang, Malaysia, in November 1997.1

Management of small-scale fisheries has become very critical during the past decade, and poses an extraordinary challenge both for local communities and governments. Unlike large-scale fisheries, small-scale fisheries at the national level is difficult to manage. Reasons

- Limiting the effort of small-scale fishermen means lower incomes and fewer job opportunities for them.
- Doing away with the practice of free and open access to fishery resources, and imposing management curbs, often leads to serious economic and social problems for fishing communities. But if the open-access condition remains untouched, resources get depleted, economic returns fall, and community stability is endangered.

An FAO-Japan expert consultation on fisheries management was held in Kobe in 1992. It emphasized the need for bottom-up rather than top-down approaches to manage small-scale fisheries. Since then, numerous studies have been undertaken. There is now widespread acceptance of the concept that sharing of authority between a government and a community is important for effective fishery resource management. This concept is known as community-based fishery management or CBFM. Interest in decentralized management systems is now growing in Malaysia, Philippines, Sri Lanka, Thailand, Indonesia and Viet Nam.

The basic principles of CBFM are participation of fishermen in (a) planning and decision-making on measures to be taken; and (b) implementation, control, surveillance and evaluation of management activities.

Why CBFM? When fishermen themselves help design management, a high rate of compliance can be expected. There will be no need for external enforcement of regulations; consequently, the enforcement will be both effective and cost-effective. Further, in a close-knit fishing community, social sanctions are far more effective than legal sanctions.

Key factors in the design of CBFM are – devolution of management authority to the community; establishment of territorial boundaries; and incentives and motivations to fishermen to set up local management systems.

Devolution of management authority to the community: Adequate village-level fishermen's organizations are needed for the purpose. But governments are often handicapped by the dearth of such organisations. Even where such organisations do exist, they cannot immediately assume CBFM responsibilities in the absence of any experience or expertise in CBFM. Acquiring it is a gradual process. Fostering viable community-level organisations is the first step to CBFM.

The community-level organisations entrusted with fisheries management responsibility should be economically and socially viable. Else, fishermen will not trust the organization. In fact, such organisations should win fishermen's trust in their competence and capacity even before they get involved with resource management.

When fisheries management authority is delegated to fishermen, care should be taken to ensure a fairly equitable sharing and distribution of benefits among fishermen, "Fishing by rotation" is one way this objective can be achieved – fishing spots are rotated among fishermen so that all of them get to fish in the most fertile areas. A "pooling system" that distributes all fishing earnings in an area equally among fishermen of that area is another method. This is practised in Japan. In Sn Lanka, fishermen return some of their earned money to the community by donating cash or a social facility for the community. Whether the local community can manage the fishery resource depends partly on government support. Some fishery administrators may be reluctant to relinquish authority and power.

CBFM should be integrated into the national legal framework, because community-based organisations need legal recognition for their decisions to be enforceable. They can regulate the behaviour of local fishermen through informal community sanctions, but they have no control over fishermen from other communities. If they are given legal authority, they will be able to enforce regulations on fishermen outside the community.

Establishment of territorial boundaries in the area adjacent to the community is a basic element of CBFM. This is done, for example, in the traditional fisheries systems of Japan, the Philippines, Indonesia, Sri Lanka, Papua New Guinea, Solomon, Fiji etc.

The merit of demarcating waters for the exclusive use of fishermen is that it gives fishermen incentives to establish self-regulating systems – they own a wealth-producing property. Compliance is built on trust. Control over resources by fishermen would make a management regime feasible – they will be motivated to preserve their resource.

Incentives to fishermen to establish local management systems: Such incentives could be created through collective action in fishing and fish marketing. Development of co-operative marketing would be one such incentive. It would strengthen the bargaining power of fishermen. Co-operative marketing can be combined with management. For example, the local management authority can instruct fishermen on whether fishing should be carried out on that day, after studying market trends for fish. If prices are unfavourable, fishing trips would be cancelled.

1 Seminar organized jointly by BOBP and the Institute on Governance, Canada, with support from the Department of Fisheries, Malaysia, and the Maritime Institute of Malaysia (MIMA).

Pic. courtesy: Japan Marine Products Photo Materials Association

Fish culture by coastal fisherfolk communities through co-operative associations of fishermen is an excellent example of CBFM in Japan.

in Japan, coastai nsneries resources are managed by some 1,200 fisheries co-operatives throughout the country. Each co-operative has its own by-laws within the framework of national fishery laws and fisheries co-operative laws. This legal system empowers co-operatives to exercise a fishery right or some kind of property right over resources within their jurisdiction. Access to territorial boundaries is limited to members of co-operatives. The co-operatives establish regulations concerning boats, gear, season, area, mesh size, marketing of fish etc.

Could the legal framework for decentralized fisheries management practised in Japan be a model for other countries? Thorough studies are needed to determine the answer. Very careful adaptation to local conditions would be necessary if Japan is indeed taken up as a model.

Fisheries research institutes in Japan play a very constructive role in fisheries management by alerting fishermen about the state of resources. Smaller-sized fish, falling fish prices, lower incomes from fishing, greater fishing competition – all these are warning signals that research institutes look out for. Fishermen then take up management measures themselves. In the past, fisheries management was taken up only during a crisis. Nowadays, fishermen are more careful, thanks to support from research institutes.

Coastal fisheries in Japan is classified into three types from the management standpoint – reef fisheries, mobile-species capture fisheries and aquaculture. Management methods for the three differ, and are classified into five by objectives:

– *Discipline and order in fishing grounds:* Management is designed to prevent a mad rush to fertile fishing spots such as artificial reefs. "Fishing by rotation" regulates the type of gear used, the fishing periods and hours, the position of the gear to be set.

– *Management offishing grounds:* The carrying capacity of a fishing ground is limited. If you introduce more fishing boats, the total output will remain the same, while individual catches will decrease. Therefore the optimum number of fishing vessels is determined, and surplus vessels are transferred to other areas to improve cost-effectiveness.

– *Fish price stabilization:* Fish prices are stabilized by a policy of quotas and effort control. Two days of fishing followed by a non-fishing day is an example.

– *Resource conservation:* The use of larger mesh size has not merely helped conserve fish stocks, it has also improved returns by increasing the size of fish and raising the price of fish.

– *Enhancement of fish stocks:* Fish farming and the setting up of artificial reefs can help enhance fish stocks.

The common objective of all these measures is to maximize economic returns under a sustainable fishery environment.

In sum, fisheries co-operatives in Japan play a vital role in CBFM. Their characteristics:

- All members of the co-operative assign sale of fish to the co-operative. This enables the co-op to understand and assess production trends and the status of management effort.
- Successful co-ops have a committee to ensure smooth coordination among fishermen on management measures. Such committees have helpedmediate and monitor views among fishermen and establish a consensus on management action.
- Without exception, successful co-ops comprise an active study group of young fishermen who help generate new ideas. Practices such as the "pooling system" for catches and "rotation in fishing", now widely prevalent in Japan, were set up by such study groups with the help of fisheries research stations.

A law concerning conservation and management of marine aquatic resources, commonly known as the law of the TAC, came into effect in 1997. Sardine, jack mackerel, mackerel, saury, Alaska pollack and crab are the fish species to which TAC is applied. Continuing efforts will be made to integrate TAC systems into existing fisheries legislation and management mechanisms. The law of the TAC obliges fishermen to report their catches.

Issues to be taken up in future include (a) Application of TAC to Chinese and Korean vessels that operate in the waters around Japan. (b) Establishment of a single management authority. (c) Setting up early catch reporting systems and (d) Withdrawal of vessels.

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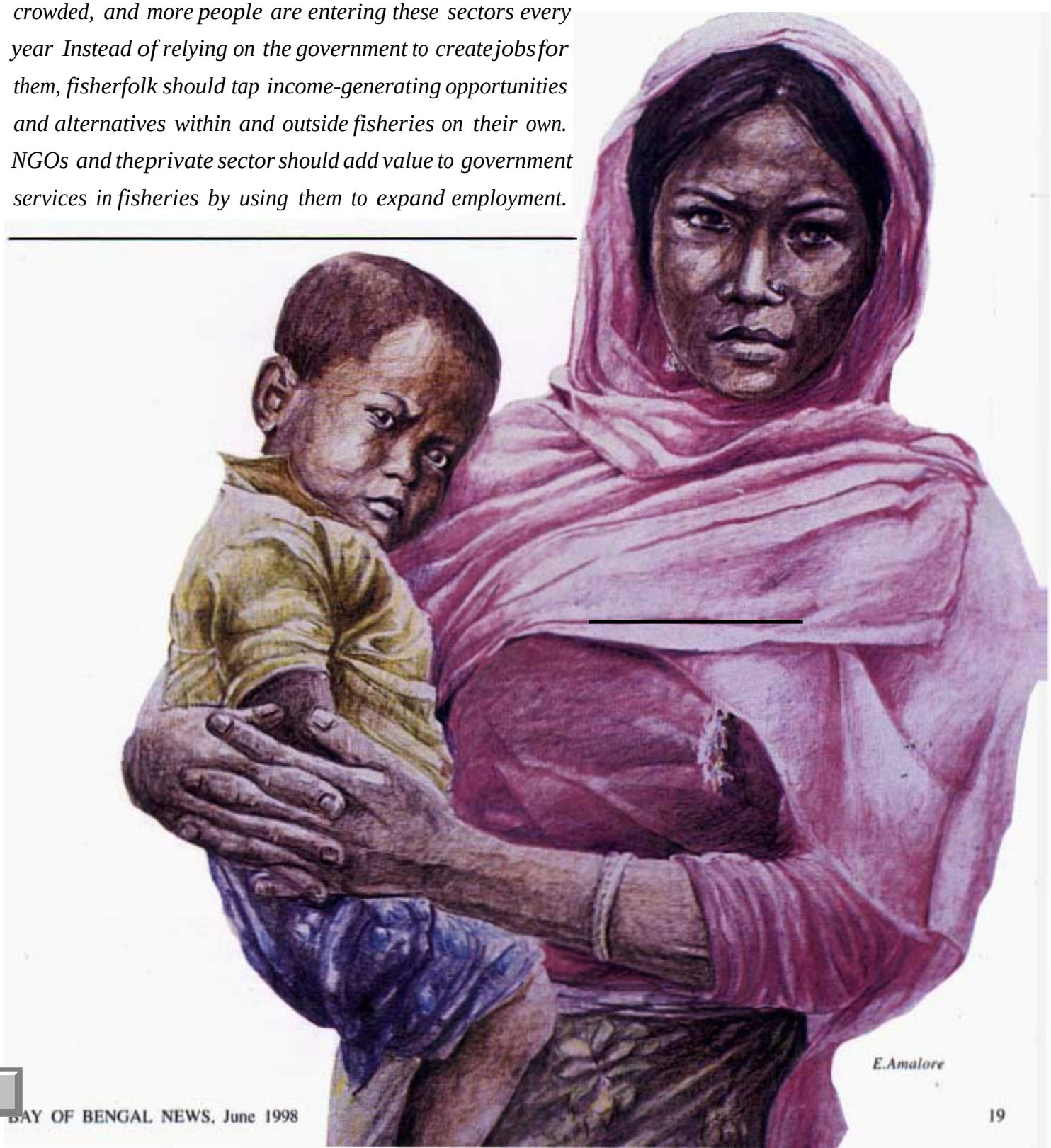
Expanding the Economic Base of the Local Economy: Adding Value To Government Services In Bangladesh

by Kee-Chai CHONG, Masudur Rahman, Harun-or Rashid and Giasuddin Khan

Both agriculture and fisheries in Bangladesh are over-crowded, and more people are entering these sectors every year Instead of relying on the government to create jobs for them, fisherfolk should tap income-generating opportunities and alternatives within and outside fisheries on their own. NGOs and the private sector should add value to government services in fisheries by using them to expand employment.



E.Amalore

Agriculture absorbs the largest number of the available labour force in Bangladesh. In a country of about 118 million people, fisheries provides full-time employment to about 20 million people, and supports more than 75% of the country's population. Fishing is regarded as the livelihood of last resort. Can agriculture and fisheries still absorb the one million Bangladeshis entering the labour market every year?

Growing unemployment and the inability of the economy to absorb fresh labour are threatening social stability on the one hand, andenvironment and its fragile ecology on the other. As elsewhere, people expect the government to provide 'them with jobs.

How has such a perception come about? Is it the government's duty to provide jobs? Isn't it the responsibility of the individual to create or find work? Like in the past!

Marine Fisheries Base

There are at present *1.5* million full-time fisherfolk in Bangladesh, and more than 11 million others who fish on a part-time basis. The marine sector alone has some 550,000 fisherfolk, with another 2.5 million fishing part-time. These marine fisherfolk live in some 3,200 coastal villages. The pressure they exert on the coastal environment is tremendous. Any relief for the resource system is possible only through responsible management as well as the creation of other gainful employment. Bangladeshi marine fisheries is dominated by small-scale fisheries, with the large-scale sector accounting for less than *5%* of its output.

On an annual average, the marine catch is estimated at 250,000 tons, representing approximately a quarter of all the fish landed in the country. Of this marine catch, the set bag net fishery accounts for about 30% or 75,000 tons. The estimated 12,600 set bag net fishing units operate out of 7,500 boats, of which 98% are non-mechanised. Bangladesh marine fish landings are thus quite dependent on these set bag net fisherfolk. The gear has been found to be highly resource- and habitat-damaging.

A healthy and welcome trend emerging in the set bag net fishery is the steady decline in the number of set bag nets deployed since 1993. Valued at US$ 18 million, this set bag net fishery provides a crucial source of livelihood to coastal communities along the country's 480 km coastline.

Vegetable gardening is another attractive option to improve incomes.

Over-crowding occurs in both agriculture and fisheries, which are still largely small-scale, relying on technology that is still largely traditional. The systems of production are still resource-based rather than technology-based. Compared to other rapidly developing economies, where the private sector is growing, the government still plays a major role in the Bangladeshi economy. Government income transfers prime the engine of national growth. But poverty alleviation efforts are not making much of a difference, partly because many benefits are cornered by the well-to-do. (See also article on "Community-based marine resources management in the Gulf of Mannar Biosphere Reserve".) It mentions the fact that intermediaries at various levels in the fish trade grab a big share of the money paid for fish.

Looking to the Future

In the 21st century, the age of information and information technology, global market forces will reduce the demand for unskilled labour. This is a serious dilemma—especially ih Bangladesh where the labour is largely illiterate and unskilled, poverty is endemic and more than 40% of the population survive below the national poverty threshold of less than US$1 a day.

Coastal artisanal or small-scale fishing is increasingly uneconomical. To make ends meet, the fisherfolk have to work even harder and exert greater fishing pressure on a resource that is already under stress. The fisherfolk resort to all manner of catching fish, especially the,

use of tiny-mesh gear like the set bag net which is soaked for long hours, usually not less than six hours. The Government recognizes that these fisherfolk have very little access to other occupations. The 1994 Seminar on Sustainable Development of Marine Fisheries Resources in Bangladesh, held in Cox's Bazaar, recommended that the present inequitable income-sharing system between boat owners and crew fishermenin small-scale marine fisheries be changed so that the crew are saved from privation and are able to maintain their basic needs (Mazid et a!, 1995).

In the past, agriculture and fisheries were relied on to absorb the labour force entering the job market. Today, there is a need to look outside agriculture and fisheries.

The Government alone cannot be expected to create employment for each and every citizen of the country. Society and its individual members must join hands and work together with the Government to create jobs, and add value to their labour.

Dependency on the Government

In many countries, a growing segment of the population has come to rely on government handouts or welfare services. At least two to three generations of fisherfolk have been nurtured on a psychosis of dependency. This dependency began in the colonial days when many of the responsibilities, functions, services and needs of the people, traditionally provided by the people themselves, were taken over by bureaucrats. (See also article on 'Evolving A Self-Financing Scheme for Fisheries Management" pages 3-8).

This dependency syndrome has systematically killed the people's initiative and spirit of entrepreneurship, and condemned them to poverty. With revenues drying up, many governments can no longer be depended on to provide for the people. They are jettisoning their responsibilities and duties, particularly social services, civic amenities and infrastructure facilities.

Entrenched Exploitation

According to the Chittagong-based Community Development Centre (CODEC), an NGO, coastal fisherfolk constitute the most neglected community in Bangladesh—they are vulnerable to social, political and economic exploitation. This is particularly true of the minority Hindu fisherfolk, who live in isolation. Their access to information and modern communication is very limited, and they feel insecure.

Available literature confirms this widespread exploitation of the poor by money lenders and market intermediaries. This does not seem to abate, given the inertia shown by all concerned. On the basis of several rapid and participatory rural appraisals, and focus group discussions with 200 fisherfolk organized in six coastal fishing villages of Chittagong and Cox's Bazaar districts, CODEC found that fisherfolk indebtedness is widespread. Typical interest rates are as high as 240% per annum. At other times, the rates can go up to 30% per month or more. Besides, the indebted fisherfolk are required to sell their entire catch at *50%* of the ex-vessel or shore price to their creditors. Alternative marketing channels provided by the Government have been unable to break the hold of the money lenders on these poor fisherfolk.

Attempts to develop and expand the economic base of the local economy had not succeeded because of the lack of political and financial commitment. But they failed mostly because of well-entrenched and exploitative credit and marketing systems. Money lenders, middlemen or market intermediaries do not consider themselves as stakeholders in fisheries. They regard themselves as outsiders, without any long-term stake in the fisheries. The bondage of the fisherfolk to their creditors is becoming more and more severe as resources dwindle and poverty deepens. Moreover, the traditional extended family structure, which helped tide over hardships among family members, has broken down and has been replaced by a more nuclear family structure.

Integrated Human Resources Development and Management (IHRDM)

Unemployed labour is a waste of productive resources and a loss to the local and national economy. Investments in IHRDM pay handsome dividends in the long-run.

As pointed out earlier, Bangladeshi coastal fisherfolk live in isolation. Because of poverty, exploitation by middlemen and money lenders, and dwindling coastal fisheries resources, they resort to indiscriminate fishing practices—targeting juvenile, under-sized immature fish with tiny-mesh set bag nets.

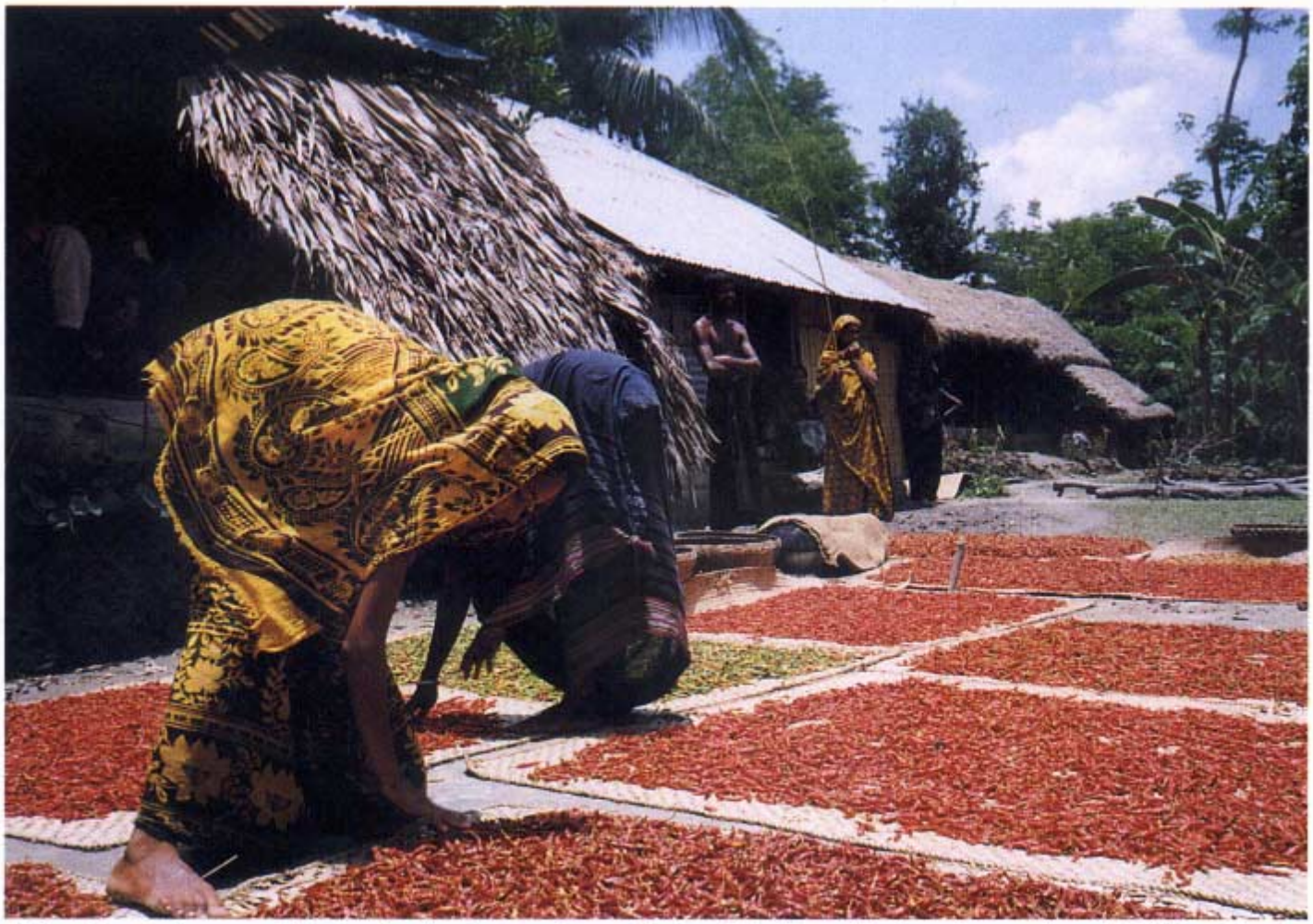
It would pay to invest in IHRDM—for women as well as men. The poor lack not only marketable occupational skills but also managerial and management skills. For income-generating opportunities to work, these skills must be imparted or strengthened.

The key to community self-help and stakeholder problem-solving is to give the community exposure and training on how it can initiate activities to expand the economic base of the community. The community—alone and by itself—has to do it. It cannot rely on outsiders, as shown over and over again. Self-help must come from within the individual and the community. Community elders and leaders can be taught fundamental skills in leadership and community organization, in entrepreneurship and entrepreneurial management.

IGO or IGA?

The distinction between income-generating opportunities (IGO) and alternatives (IGA) must be made clear. 'Alternatives' mean activities other than fishing. Opportunities could be either alternatives or activities that supplement fishing. Alternatives will work only if the fisherfolk are willing to switch to other occupations. If they are reluctant, supplementary work must be found. Diversification into fish-related IGO are thus needed for such fisherfolk.

The Hindu fisherfolk of Bangladesh and South Asia regard fishing asTheir sacred occupation—a calling handed down from one generation to another by their Goddess. Because of their strong religious and occupational ties to the sea, it is said that these fisherfolk bathe or wash themselves first before going out to fish (V. Suryanarayan, 1998 pers comm). An occupational and geographical mobility surveyundertaken by CODEC showed that they are not willing or do not wish to leave their chosen occupation. Supplemental livelihood activities and opportunities



Chilly cultivation is a potentially lucrative income-generating activity that fisherfolk could take up, because demand is high and supply short in many countries of the region.

are therefore needed to diversify fisherfolk activities and increase their incomes.

Innovative Ways to Expand Economic Base

There is a definite need to develop and expand the base of the local economy, whether rural or urban, to strengthen food and livelihood security. Labour is the only resource abundantly available in rural areas—but this is unskilled, and thus not easily marketable for gainful employment. For many of the fisherfolk, fisheries is the sole means of survival. They perhaps think the sea is always there, and it is for the government to ensure that it will continue to sustain them.

From the beginning, man and woman have toiled together in the field—and later in factories and plants, with the advent of the Industrial Revolution. Compensation for such work was more than adequate to keep the people going. They in fact prospered. Both self-employment and paid employment were the means that generated wealth – capital or assets to feed, clothe and shelter the people. Prosper thy neighbour, not beggar thy neighbour, was the philosophy of life in those days.

Today, the well-being of the people, especially of rural coastal communities, depends on a steady and stable source of gainful employment and on income-generating opportunities. Poverty alleviation cannot take place in a stagnating or shrinking economy. It can occur only in a growing or expanding economic base.

Any expansion in the economic base of the local economy must overcome problems with availability of capital—not only capital investments but also working capital. And the government is again expected to supply the capital! In the past, the people themselves mobilized the capital or saved and accumulated it.

The experiences of Grameen Bank in Bangladesh with micro-credit—and its role in mobilizing capital—are instructive in this context. They can free the poor from the grip of money lenders, and help small enterprises to succeed.

To expand any economic base, the availability of raw materials in adequate quantity must also be guaranteed. Irregular supply can disrupt production and the utilization of installed production capacity.

Adding Value to Government Services

A number of services are provided to rural areas by various government ministries and departments. In fisheries, investments are made to improve and strengthen the infrastructure, the human resources and institutional capacity of the country. In marine fisheries, the government expends about US $250,000 a year for resource surveys. Those who organize the surveys should try to involve fisherfolk in the survey activities – their local knowledge and experience can help survey interpretation. NGOs and the private sector can use other government services to create jobs or IGO livelihood activities. Some select examples follow.

The private sector, in particular the local business community in nearby coastal towns or urban areas, can do more to enlarge the economic base of the local

economy. It can do so by helping add value to government services provided through the Department of Fisheries or Ministry of Fisheries and Livestock.

In the long run, businessmen stand to gain by adequately compensating fisherfolk—who are the primary producers—on the basis of their productivity, their labour and capital. The approach of 'prosper thy neighbour' makes everyone a winner while 'beggar thy neighbour' attitudes perpetuate envy, suspicion, distrust, and tension—which is what's happening not only in the Bangladesh countryside, but everywhere with fisherfolk in remote rural coastal areas. All the stakeholders, especially market intermediaries, must recognize their mutual dependence on one another.

Food Exports

Many Southeast Asian countries are food-deficient. Their food import requirements are growing. For example, Singapore and Malaysia, three hours away by air from Bangladesh, are not self-sufficient in vegetables, seafood or meat, besides such staples as rice and lentils etc. This offers opportunities for all enterprising exporters in the region.

Putting By—Catch to Good Use

A 1991 BOBP study has shown that some 130,000 tons of small fishes were thrown overboard every year, a high percentage of which consisted of juveniles of valuable commercial species. If these discards were instead brought ashore, they could be used as raw materials for small cottage industry activities—such as reduction into fish meal (even at the conversion ratio of *5:1,* there would still be about 26,000 tons of fishmeal), production of fish silage or slurry for animal feed, fish paste or sauce or fish-flavoured crackers, surimi or surimi-based products— which are in high demand in the region.

In the long run, the bio-econOmic preference would of course be to allow these juvenile or immature fish to grow to market size. However, for this to take place, more effort is needed to build awareness on the benefits of allowing the immature fish to grow to market size. The resulting biomass enlarges the economic base and thus generates not only primary but also secondary and tertiary income-generating activities, thereby benefiting more people.

Use Idle Boats and Gear for Aquaculture

Water is another abundant resource, as yet untapped, for creating activities and jobs, especially for self-employment. It has been observed that many country boats made of dug-out tree trunks or logs tied together—such as *vallams* and *kattumarams* in India and *balam, chandi, dinghi* and *nowkas* (Bangladeshi country fishing boats) – are no longer used for fishing and not yet put to good use. They are idle or redundant. They can be used for aquaculture. Similarly, used or partly torn fishing nets can be used to construct cages or perimeter walls for fish pens etc.

Balams and *nowkas,* which are idle or redundant but still usable as floats, can be appropriately retrofitted and rigged together as floating platforms for net cage aquaculture. Seabass, locally known as bekki *(Lates calcarifer),* a popular fish with a ready market in Bangladesh and the region, is an ideal candidate for net cage culture. Its seeds can be readily produced in hatcheries. Production technology and economics for net cage culture—worked out in Malaysia, Indonesia, Thailand and Hong-Kong—show that it can be a profitable IGO under Bangladesh conditions. In India, seabass culture in earthen ponds and net cages is carried out to diversify monoculture of shrimp, recently affected by serious disease outbreaks. Raft culture of other species such as oysters and mussels as well as seaweeds can also be undertaken, using these redundant boats as raftplatforms. These *balam* or *nowka*-based raft platforms can be towed out to sea and left there for growout, and towed back to more sheltered areas with the onset of the monsoon or rough weather.

Raising Small Ruminants

Small ruminants, such as goats, are hardy and excellent foragers, not particularly choosy in their food habits. Small ruminants have been successfully raised in countries such as Indonesia, as a supplemental income-generating activity. Mutton is a preferred source of animal protein in Bangladesh and the sub-continent, and commands a high price, especially during Muslim observation of *qurban (korban)* where animals are sacrificed during Eid-ul-Adha. Apart from modest but well-ventilated housing, the goats require no other expensive inputs. Very little animal husbandry knowledge and skills are needed as the goats do not require much tending.

Chilly Cultivation

Each year, dried red chillies are in short supply in many South Asian and Southeast Asian countries, especially during festival time. Chillies are easy crops to cultivate. Since they are in demand in these countries, production and processing are relatively risk-free as far as market price, perishability and shipment are concerned. To process them, drying racks, floor space and some limited storage facilities are needed. (See box on page 24 for another income-generating activity – "There's money in mud crabs".)

Observations and Conclusions

With jobs in the countryside being scarce, marine fisheries has experienced a *50%* increase in the number of fishermen entering the fisheries over the last one and a half decades.

Humanity needs to return to old world values – people taking responsibility for their own jobs, with or without government assistance. A paternalistic approach to development must be strongly resisted in efforts to develop a broader economic base for the community and economy. Local initiative and local control in planning and management must be eiic6uraged. So also the entrepreneurial spirit.

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There's Money in Mud Crabs

Cooked in any way, even just by steaming, mud crabs, *Scylla serrata*, are relished for their delectable meat quality. Table-sized or pan-sized meat crabs are in high demand in the region. Because they are a multi-ethnic and multi-cuisine food item, any supply of mud crabs brought to the market is snapped up by seafood and specialty crab restaurants and home-makers etc.

Malaysia and Singapore are each said to import about 10 tons of live mud crabs every day from Bangladesh, India, SriLanka, Indonesia, and the Philippines. Other markets for premium grade crabs are Hong Kong, Taiwan, Japan, and USA. At present, the minimum export prices vary from US$ 6-10/kg. The latest data available show that only about 10,000 tons are supplied to the regional market each year.

Preliminary market surveys show that mud crab is income-elastic. But it is price-inelastic for price increases and price-elastic for price decreases' What this means is that when income increases, the quantity demanded grows more than the income increases; when price increases, the amount sold is not affected in any significant way; however, when price decreases, the amount purchased by consumers increases quite significantly. Given such a situation, it is estimated that the market can absorb twice as many crabs as it takes in now.

Crab fattening requires from a few days up to a month. (Crab growout on the other hand can take 3-6 months). Crab fattening is a highly profitable activity as survival rate is high (average 80%). This is because the crabs are quite hardy — post-moult soft-shelled crabs, known as water crabs (about 120-150 gm minimum weight) are used for fattening. Because they can survive in air for up to five days without any need for special handling, they can be shipped quite easily to distant markets.

Bangladesh has about 630,000 ha of mangrove and tidal mud flats which can be developed and managed for mud crab fishery. Known crab habitats can be protected, and additional areas can be designated as nursery grounds and further developed to encourage breeding and growth to market size. The average productivity is estimated at about 200 kg of mud crab per ha of mangrove area. A community-based system of management, including nursery areas, can be introduced and demonstrated under a GO/NGO partnership operation in coastal areas of Chittagong and Cox's Bazaar districts. Such a system is being taken up in Malaysia, where the Department of Fisheries and BOBP are together collaborating on community-based crab fishery management in Selinsing, Perak.

In Cox's Bazaar and Chittagong districts alone, the estimated potential mud crab resource is about 600 tons. Crab fisherfolk should be encouraged through awareness campaigns not to harvest under-sized immature mud crabs. The crabs should be allowed to grow to market size. Training on stock management and other capture-and culture-based production measures can be provided to them.

Undersized immature mud crabs presently sold in Dhaka and other urban centres can be used for culture and water crabs for fattening operations. When fattened to 750 gms and above, they fetch high prices in overseas markets. (Read BOBP/REP/51 "The Mud Crab. A Report on the Seminar on Mud Crab Culture and Trade").

Community-Based Marine Resources Management in the Gulf of Mannar Biosphere Reserve

by M Jagannatha Rao, P V David and T Shanmugaraj

A project being implemented by the M.S. Swaminathan Research Foundation is mobilizing local communities to help manage the Gulf of Mannar Biosphere Reserve in Tamil Nadu, the first of its kind in South Asia.

The Gulf of Mannar is the first marine biosphere reserve not only in India, but also in Southeast Asia. Designated a national biosphere reserve, the Gulf of Mannar and its 3,600 species of plants and animals constitute a biologically rich coastal region – one of the richest in all of mainland India.

Management of the Gulf of Mannar Marine Biosphere Reserve (GOMMBRE) is presently being strengthened through a project **sponsored by GEF (Global Environment Facility), UNDP and the Government of India, and implemented by the** M S Swaminathan Research Foundation.

The primary goal of this project is to improve the welfare of local, regional and national communities while restoring the ecological qualities of the area.

Threats to the reserve and its biodiversity include:

- Exploitation of natural resources such as coral and seagrass;
- Dynamite fishing and intensive trawling;
- Poaching of threatened and endangered species including sea turtles and dugongs;
- Large-scale exploitation of juvenile fish species;
- Rapid industrialization around the reserve and
- Unauthorized human settlements.

Present Threats to the Gulf's Marine Resources

In the Gulf of Mannar, the fishery is dominated by lesser sardines, silver belly, mackerel, anchovy, ribbon fish, thread fin bream, Holothurian, mollusc and naeid prawns.

The resources are exploited by a multi-gear system. While pair trawling, drift gillnet and bOttom set gillnets are operated from mechanised crafts, bagnet, boat seine, gillnet, trawlnet and hook and line are operated from motorised and non-motorised boats. However, in recent years, unsustainable exploitation due to intensive trawling including pair trawling has been a cause of great concern.

The quality of capture fisheries has been deteriorating steadily because of 'too many fisherfolk chasing too few fish,' habitat and environment degradation caused by pollution, and indiscriminate use of modern technology.

Fisheries have been under continuous stress, particularly since the start of large-scale operations.

Overfishing also takes place when unwanted species and edible sizes are caught by indiscriminate fishing technology and are discarded overboard. **It is estimated** that for every tonne of **fish landed, some 325 kg are discarded** or thrown overboard. Capture of unwanted species affects the complex food chain/web and also results in the loss of valuable potential food resources.

Resources Management

Marine resources are under increasing pressure to provide for increasing human population, employment and income for fisherfolk as well as investment opportunities for business interests. However, these are finite resources, and care must be taken to ensure their sustainability, both in biological and economic terms.

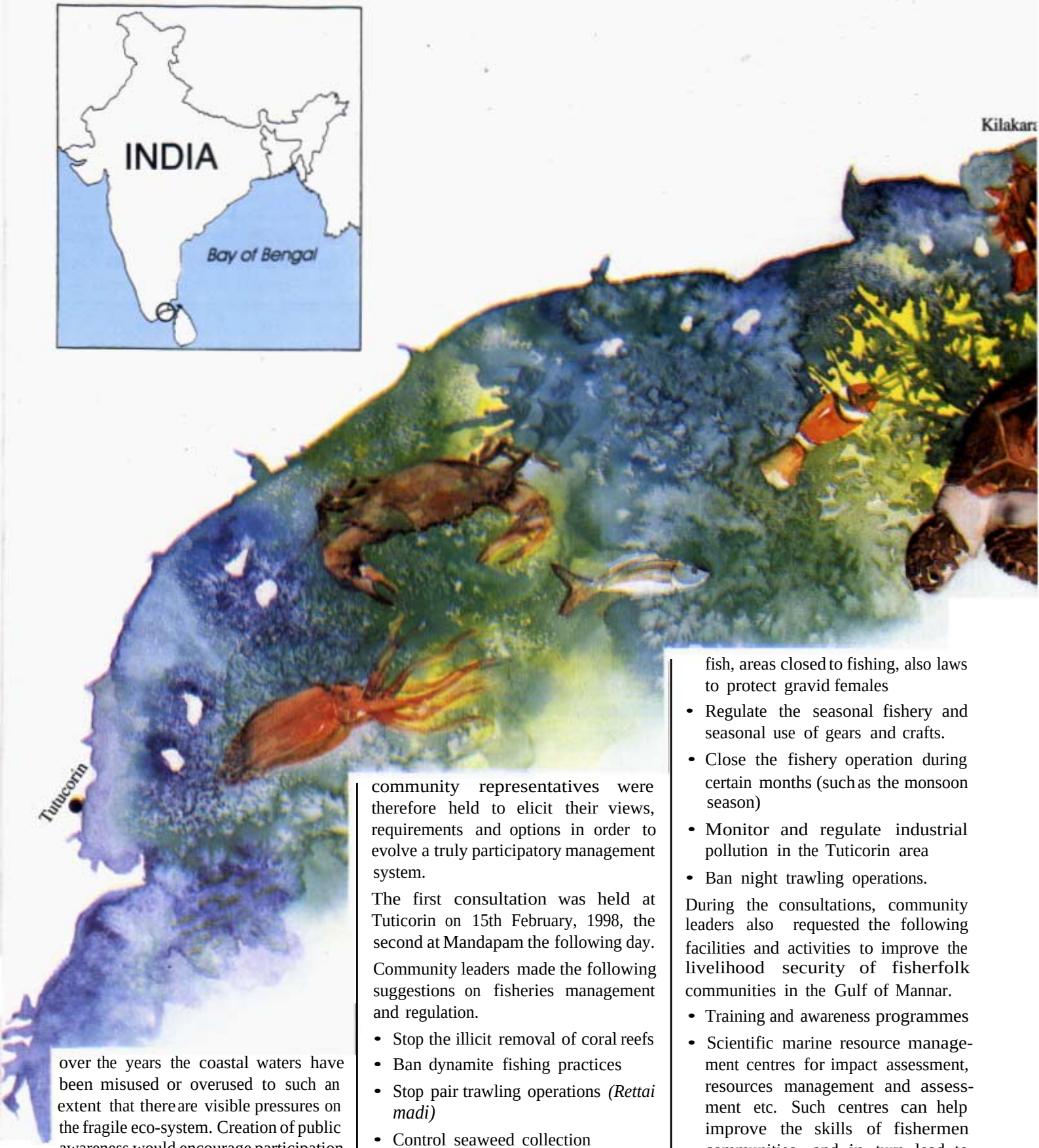
Therefore, pressure grows on the community and the government to responsibly manage the fisheries resources under their control. Fisheries management is concerned with conservation of fishery resources and the allocation of rights to exploit these resources. It may consist of agreements, interventions or regulations to control or restrict fishing activities.

Some examples of marine resources management arrangements, ranging from simple to complex, are:

- An agreement amongst fisherfolk to fish only in certain areas
- Harvesting fish only in a certain way **or time**
- Laws concerning specific gear, minimum size of fish, protection of gravid females or areas closed to fishing.
- Licensing of fisherfolk or fishing vessels
- Limitation on the number of fishing licences allocated to a fishery or area
- A quota on the total annual catch from the fishery
- Individual quotas allocated to each fisher person.

'Peoples Participation' in Management of Biosphere Reserve

There are **47 fishing villages along the** coast, of which 38 are **in Ramanatha-**puram district and nine in Tuticorin district bordering the biosphere reserve area. The fishermen from these villages depend solely on fishing for their livelihood. The fisherwomen engage in allied activities such as marketing, processing and net-mending. The various fishing gears used by the fishermen for fish capture are trawlnet, gillnet, driftnet, *olaivalai, karaivalai, kalamkattivalai,* long lines and traps. The Gulf of Mannar Marine Biosphere Reserve as an eco-system has a firm resource base, but



over the years the coastal waters have been misused or overused to such an extent that there are visible pressures on the fragile eco-system. Creation of public awareness would encourage participation of the people in the management of the biosphere reserve. It would facilitate a harmonious relationship between indigenous populations and the environment.

However, any management intervention requires the support and co-operation of the community. Two consultations with community representatives were therefore held to elicit their views, requirements and options in order to evolve a truly participatory management system.

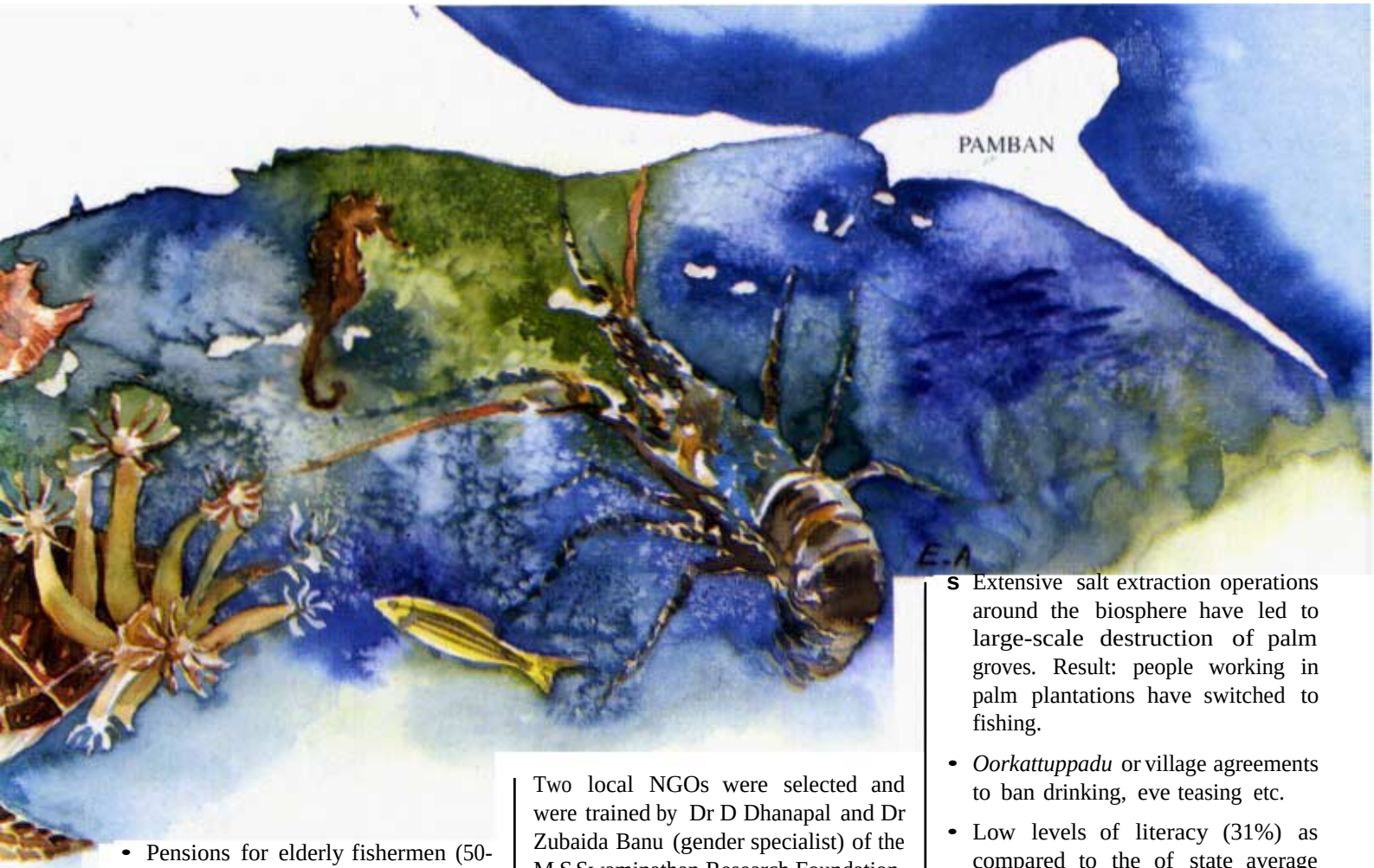
The first consultation was held at Tuticorin on 15th February, 1998, the second at Mandapam the following day.

Community leaders made the following suggestions on fisheries management and regulation.

- Stop the illicit removal of coral reefs
- Ban dynamite fishing practices
- Stop pair trawling operations *(Rettai madi)*
- Control seaweed collection
- Permit fishing boats (mechanised and non-mechanised) beyond 500m from the island shore
- Allow trawling operations three nautical miles away from the shore and at 60 metre depth in the high seas
- Consolidate and enforce laws that specify gear and minimum sizes of fish, areas closed to fishing, also laws to protect gravid females
- Regulate the seasonal fishery and seasonal use of gears and crafts.
- Close the fishery operation during certain months (such as the monsoon season)
- Monitor and regulate industrial pollution in the Tuticorin area
- Ban night trawling operations.

During the consultations, community leaders also requested the following facilities and activities to improve the livelihood security of fisherfolk communities in the Gulf of Mannar.

- Training and awareness programmes
- Scientific marine resource management centres for impact assessment, resources management and assessment etc. Such centres can help improve the skills of fishermen communities, and in turn lead to sustainable management of the Gulf of Mannar.
- Loans to buy alternative gears such as crab-net, gill net, long-line, hook etc. wherever necessary.
- Training programmes for fish pickle preparation, fish drying, and marketing linkages.



- Pensions for elderly fishermen (50-58 years).
- Free rations during the off-season and during closed seasons.
- Training and financial support for seaweed culture, mussel culture (mollusc) and other diversified activities.
- Financial support for alternative employment for fisherwomen.

Mechanisms for Community Participation

Community representatives made the following points about community participation in resource management.

- External support may be provided to existing village-level organizations or societies to strengthen them technically and financially.
- Village-level societies may in turn extend full support for conservation and management of the biosphere reserve and preservation of the environment of the Gulf of Mannar.
- Societies may extend loans for fish harvest, processing and marketing activities at low interest.
- Resource use and regulation activities may be implemented through village-level societies.
- Community development activities may be taken up through village-level committees.

Two local NGOs were selected and were trained by Dr D Dhanapal and Dr Zubaida Banu (gender specialist) of the M S Swaminathan Research Foundation. Using RRA techniques, they analysed the socio-economic conditions of the community living around the Gulf of Mannar biosphere.

Key issues that emerged out of the pilot study:

- Population is increasing around the GOMMBRE because of large-scale migration from inland areas to the coast to take up employment opportunities connected with fishing (e.g packing, motor boat operations, etc).
- The size of families is large. Many families have 4 to 5 children in the age group 10 - 20 years.
- The age of entry into fishing is very low - sometimes as low as 10 years.
- Alarmingly extortionate private credit practices, with interest rates ranging from 72% to 120% per annum. Besides, creditors appropriate a certain percentage of the borrower's catch every day, until the principal is repaid. This works out to about 70-80% interest per annum.
- Inept and ineffective fishermen co-operative societies.
- A mental block afflicts certain fishermen – they believe they cannot do anything other than fishing.
- Extensive salt extraction operations around the biosphere have led to large-scale destruction of palm groves. Result: people working in palm plantations have switched to fishing.
- *Oorkattuppadu* or village agreements to ban drinking, eve teasing etc.
- Low levels of literacy (31%) as compared to the of state average (64%).
- Very low average annual income, and high incidence of indebtedness.
- Only 37 per cent of the fishermen own their own means of production, the other largely depend on traders and mechanised commercial trawlers for support.
- More and more women are unemployed, because of centralised fish landings. Result: social tensions and gender inequity.
- Intermediaries at various levels in the trade grab a big share of the money paid for fish.

Conclusion

The Community-Based Marine Rçsource Management Programme seems to be gaining momentum. There's a unified work force. The community of the' biosphere area feels that with the support of government agencies, better decisions can be made on planning, allocation of areas within the Gulf of Mannar for certain uses, fishing gears, and zoning schemes within the areas.

Other subjects that call for consensus and action are: setting objectives for multiple use of the Gulf's resources;

(Continue on page 28)

Publications during the BOBP's III Phase

Here is a list of BOBP publications out during the Programme's III Phase. Copies are available on request at the BOBP office. Nominal cost is charged for workshop reports.

Newsletter, Bay of Bengal News

September 1995, March 1996, June & September 1996, December 1996, March 1997, June 1997, September 1997, December 1997, March 1998, June 1998.

Reports and manuals

BOBP/REP/70	Report of the 19th Meeting of the Advisory Committee. 16-17 January, 1995, Jakarta, Indonesia.
BOBP/REP/71	Towards Sustainability : Needs and Concerns of Aquatic Resources and Fisheries in the Bay of Bengal Region and Project Ideas to Facilitate Their Sustainable Management (A report submitted to the IOFC Committee for Development and Management of Fisheries in the Bay of Bengal)
BOBP/REP/72	Sri Lanka/FAO National Workshop on Development of Community-Based Fishery Management. *3-5* October, 1994, Colombo, Sri Lanka.
BOBP/REP/73	Report of the 20th Meeting of the Advisory Committee. March 26-29, 1996. Pulau Langkawi, Kedah, Malaysia.
BOBP/REP/74	National Workshop on Fisheries Resources Development and Management in Bangladesh. 29 October-i November, 1995. Dhaka, Bangladesh.
BOBP/REP/75	Report of the 21st Meeting of the Advisory Committee. 12-13 February, 1997. Bangkok, Thailand
BOBP/REP/76	Workshop on Integrated Reef Resources Management in the Maldives. Male, Maldives, 16-20 March, 1996.
BOBPIMAG/21	Fishes of the Maldives
BOBPIREP/77	Report of the 22nd Meeting of the Advisory Committee. 23-24 September 1997, New Delhi, India
BOBP/REP/78	National Workshop on Community-Based Fisheries Management in Thailand. 14-16 February, 1996. Phuket, Thailand.
BOBP/REP/79	Carrying Capacity of Pulau Payar Marine Park, Malaysia. by Li Ching Lim
BOBP/REP/80	Report of 23rd Meeting of the Advisory Committee. 27-28 March, 1998, Negombo, Sri Lanka.

Other Publications

Regional Workshop on the Conservation and Sustainable Management of Coral Reefs — report of a workshop organized jointly by the M.S. Swaminathan Research Foundation and the BOBP. 15-17 December, 1997.

Brochure on BOBP

Miscellaneous awareness materials on fisheries management:

1. Brochures

Emerging trends and prospects in fisheries management

2. Posters

I am a steward
Our sea, our wealth
A brief history of world commercial fishing
A simplified model of how fish stocks can be managed
Ghost fishing
Marine resources of the Maldives

3. **Postcards** Our sea, our wealth

4. Video Shanmugham's dilemma. (Street play presented by fisherwomen of Kasimedu, near Chennai)

5. **T-shirt** Save our seas

6. Ornamental fish identification cards in colour for divers, exporters and fisheries and Customs officials of Sri Lanka.

Community-Based Marine....

(Contd. from page 27)

and finding sustainable activities that will not harm the ecosystem. In addition, trawling was seen as a major concern affecting the sustainability of small-scale fisherfolk. Trawlers need strongly defined borders between themselves and the small-scale fisherfolk. Strict controls of the trawls by the Department of Forests and the Department of Fisheries were seen as a major part of the solution. These controls would keep trawlers out of the banned 3 nautical mile zone and the prohibited areas of the Gulf that had been set aside for small-scale fisherfolk.

The Government should provide economic and other infrastructure facilities to these communities through society or village-level organizations to imprpve their livelihood and ensure sustainable development of marine living resources in the Biosphere Reserve.

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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, by member governments in the Bay of Bengal region. The main executing agency is the FAO (Food and Agriculture Organization of the United Nations.)

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