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STAKEHOLDER ANALYSIS AS A TOOL FOR FISHERIES MANAGEMENT

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After 1999: Some thoughts on BOBP as an Inter-Governmental Agency

by Kee-Chai Chong

The BOBP is a regional co-operative Programme. It plays a key role in bringing all the countries around the Bay and beyond to think individually but act collectively. Events and activities in one country or one corner of the Bay have repercussions and impact elsewhere, the Bay being a large and fluid marine ecosystem. Water binds all the coastal states. Without quality water, fisheries cease to exist for human use.

BOBP is seen by member countries as a neutral body able to bring the countries together and assist in highlighting key issues of concern to them which individually they would fmd awkward to address. The 8-month long waiting period for BOBP to resume its Third Phase was highlighted by member countries as an unnecessary void.

Therefore, a well-structured, neutral, non-profit organisation, advised and guided by a 'governing council' made up of senior fisheries policy-makers from the member countries is needed to catalyse and facilitate activities and work towards holistic peoplecentered fisheries and coastal area development and management.

It is with these aims and objectives in mind that during the Ninth Session of the Bay of Bengal Committee and the tAdvisory Committee Meetings of the BOBP, and a recommended that BOBP begin to explore the possibility of evolving into a more permanent regional fisheries institution with a broader mission (FAO 1995; BOBP 1995; 1996).

Rationale and Justification

Unlike in Southeast Asia where there are regional and international fisheries bodies relatively well established to tackle, co-ordinate and assist countries of the region on fisheries matters, there is today no similar regional or international fisheries body in South Asia to address regional fisheries issues, let alone assist individual countries on fisheries development and management. The only regional fisheries body in South Asia is the **BOBP.**

This programme is scheduled to end in 1999, unless it is extended for another term.

South Asia does have a regional political grouping called SAARC or South Asia Association for Regional Co-operation. But to the best of available information, fisheries matters do not receive much attention in its work. It is more of a political grouping for regional cooperation and trade than a technical assistance body. Anotherregional grouping besides SAARC called the Indian Ocean Marine Affairs Co-operation Conference (IOMAC) was constituted in 1987. IOMAC seeks to promote peaceful uses of the ocean in non-controversial areas such as economic, scientific and technical cooperation.

A pertinent question is the economic justification for setting up another regional inter-governmental body through the institutionalisation of BOBP, when:

• FAO/UN regional fishery bodies such as IOFC are fmding it more and more difficult to support its activities and are being merged or consolidated.

• 'Soft' monies to support international development assistance are getting more and more scarce and difficult to obtain.

• Existing regional inter-governmental bodies in fisheries, including aquaculture are already servicing and meeting the needs of their member countries.

BOBP member countries and others in the region share a common marine environment and resource in the Bay of Bengal, what is now described and referred to as a large marine ecosystem (LME). Fisherfolk and coastal communities in this LME harvest and rely on a public resource which is largely governed by an open access common property management regime. Past and present initiatives towards fisheries management have not resulted in lasting impact on the fishing communities and their households, whether these efforts were mounted at the local, national, regional or international levels. This is because no regional mechanism exists to address fisheries management on a regional basis, except for initiatives by BOBP which are mainly geared towards information exchange and sharing of learning and experiences, as well as technical/advisory assistance.

New efforts, investment and innovations are called for to develop and manage the available and remaining fisheries and coastal resources and bio-diversity on a sustainable basis. These interventions are more crucial and critical today than at any other time in the past. This is because of the growing demands for food from a largely finite resource base, and worsening scarcity of natural resources due to past unmanaged resource use. Serious theats to the LME, resource ecosystem and environment from uncontrolled pollution are another cause for concern, which needs urgent attention.



Such transboundary pollution and other adverse effects call for rapid collective intervention. Experiences have shown that it is difficult to monitor, manage and mitigate these impacts on a regional or even national level without a well-structured regional body to bring the different parties together. To be effective, the regional body must be armed with a mandate, a convention to intervene on behalf of the member

In addition, the vast and varied bio-diversity of the Bay LME and the living and non-living aquatic resources it contains needsto be protected, conserved and managed for present and future generations before they are irreversibly impaired or lost. Some countries on the two sides of the Bay LME are at different stages of economic development and growth, they have different priorities for developing and managing their respective fisheries and coastal resources. These differing priorities have to be harmonised to minimise user conflicts. Regional 'stakeholder nation' consultation and analysis through participatory planning can help resolve seemingly irresolvable conflicts in resource use.

There is a definite and clear merit in countries around the Bay pooling resources together and working together instead of at cross purposes, especially in times of rapidly declining suoDort for development. This is the **reality today. The 21st Century just three short years** away, will see a further decline in international funds for development. Developing countries must become more and self-reliant and self-sufficient in tackling their own development problems and promote greater economic growth to improve the quality of life of their population with their own resources within their national and regional borders.

The institutionalisation of BOBP by member countries takes on more importance and significance in view of the uncertain fate of regional fisheries bodies set up by FAO in the 1960s. These bodies, especially those in Asia, were set up as a regional or international forum to look after and deliberate on fisheries matters, both at the regional and national levels. But these bodies rightly or wrongly, have been viewed as driven from outside; the countries themselves do not readily identify with nor belong to them.

During the _{9th} Session of the APFIC/COMAF Meeting held in Yogyakarta, Indonesia in October *1995*, the Committee recommended that appropriate regional mechanisms be established to achieve rational exploitation and management of the fisheries in the region.

BOBP, as an inter-governmental organisation, is a sound idea worthy of institutionalisation into the 21^a Century and beyond. To be sure, the institutional

transformation of BOBP from an externally supported time-bound programme into a more institutionally stable and permanent body requires long-term sustainable commitments from constitutent member countries. Most important, such a transformation must come from within and not be proposed by outside interests. In other words, the initiative must come from member governments themselves and not just because it is an attractive idea suggested by FAO or the donor community. Projects come and go, frequently dictated by the donor community and its international

governments.

development thrust and model. The institutionalisation of BOBP meets these criteria discussed above.

BOBP today is 18 years old. By the time the present phase ends it will be 20 years old. To continue to serve member countries, the inter-government BOBP must stay relevant and establish an institutional niche for itself. It must not only react and respond to the needs of member countries, it must anticipate, create and proact to serve its membership. More than 10 years ago, the 1984 FAO World Conference on Fisheries Management and Development pointed out that developing countries must act quickly to strengthen their commitment and participation in the management of regional fisheries bodies, especially the management of fisheries resources.

BOBP's Human Resources Development Thrust and Priority

First and foremost, the inter-governmental BOBP must prioritise and chart out a widely shared vision on sustainable human resources development through sustainable resources management. South Asia houses a quarter of the world's poorest people. Member countries see fisheries as a regional issue and one of the means to achieve 'developed country status'.

The region is also steadily attaining the necessary critical mass of trained and skilled human-power to carry out their own work. BOBP Third Phase's *modus operandi*, which emphasises 'national execution' of Programme activities, is helping to build and strengthen national capacity andutilisation of such national capacity wherever feasible. In addition, the Programme is also helping to bring industry into the act and share the burden of fisheries management.

Towards this end, BOBP is planning to organise a Regional Consultation on Evolving Self-Financing Schemes and Mechanisms for Fisheries Management in Asia, tentatively scheduled for November 1998,

Proposed Mandate of Inter-Government BOBP

Acting on behalf of member governments BOBP strengthens sustainable fisheries management and development in South Asia in general and the Bay of Bengal region in particular, through closer co-ordination and networking with fisheries and related institutions/ organisations in member countries. It endeavours to increase the contribution of fisheries to economic security in general, and food and livelihood security in particular, and further national development goals. These broad goals are achieved through the transfer, development and packaging of relevant information, sharing of learning and experiences, devising appropriate technology and channelling human resources development toward responsible fisheries.

BOBP acts as a regional focal point to harmonise fisheries management and development to foster greater awareness, appreciation and understanding on the need

for and benefits and approaches of innovative fisheries management and responsible fisheries. It will assist in practical operation and implementation of the Code of Conduct for Responsible Fisheries as well as the Precautionary Approach to Fisheries Management, at both the national and regional levels.

Holistic Approach to Fisheries

BOBP fosters greater socio-economic development of member countries' fisheries for the benefit of fishing communities through a holistic 'process' integrating resource and environment management. Although many development projects have poverty eradication as objective, their implementation is a far cry from eradicating poverty, it fuels poverty!

The functions of the inter-government BOBP relate essentially to one of co-ordinating and networking among fisheries institutions and related bodies in the broad area of fisheries management and development. The BOBP secretariat will be administered by a multinational core staff seconded or recruited from member countries. Its operational thrust will be guided by holistic people-centered multi-disciplinary and crosssectoral approach to fisheries development and management. At present, there is no such body for fisheries management.

Besides the multi-national core staff, the BOBP work programme will also be carried out by National Coordinators in each country. They will liase between BOBP member governments.

Financing BOBP Secretariat Operations and Management

The costs of running the BOBP Secretariat and its core activities are to be collectively borne by the member governments through contributions to a common fund. Member governments will contribute to the upkeep, operation and management of the BOBP Secretariat, based on an annual rate of payment according to agreed criteria. The salaries and other fringe benefits of the multinational core staff are to be met from these contributions. In addition to cash contributions, member governments will also provide services in-kind through their respective national experts, and facilities for the Programme's activities.

BOBP will also subscribe to TCDC arrangements. Wherever feasible, it will take advantage of TCDC mechanisms and opportunities in implementing its work, as it has done in the past.

Role of the Governing Council

The Governing Council, composed of senior government policy-makers from member countries, will be the main decision-making body within the inter-governmental BOBP. It will direct and guide the work of the inter-governmental organisation. In turn, the Council will receive technical inputs from a Technical Advisory Committee (TAC) appointed by the Council. The TAC will comprise senior scientists from member countries plus an internationallyrecognised expert drawn from interested fisheries bodies from around the world. The TAC will help the Council to monitor BOBP's performance, and evaluate and advise on technical matters.

The Council will determine the annual obligatory contributions of member governments. It will recruit the multinational core staff from the region. A simple formula on annual fmancial obligatory contributions by member governments is provided by the South Asia Co-operative Environmental Programme (SACEP).

The Council can also co-opt interested donor countries and funding agencies into the Council. However, they will be represented on the governing body as associate members without voting rights A Sustainable Long-Term Presence

The Inter-governmental BOBP is a sound all-win proposition. It will harness NGOs as partners in identifying and meeting development and management needs. BOBP should continue into the next century and not fade out, just because present donor support is waning. Member governments of the present BOBP wish to proceed with the institutionalisation of the Programme into an inter-governmental organisation. It meets the criteria for institutionalisation. Member governments are committed to a sustainable long-term presence of BOBP in South Asia in general, and the Bay LME in particular.

Capital Jam in Vizhinjam!



During the southwest monsoon, Vizhinjam, 16 km south of Kerala's capital Thiruvananthapuram, offers an unforgettable sight on Sundays. You see more than 2000 motorized *vallam* (most of them motorized *vallam* **made of** plywood) anchored cheek-by-jowl in a small bay protected by breakwaters.

The amount of capital being accumulated in this place is amazing. The principal reason: a shortage of safe berth places for fishers from neighboring Kanyakumari (Tamil Nadu).

Many fishers in Kanyakumari district barely fish during the southwest monsoon. The sea is too rough, the waves too high and the surf is too dangerous to enter the sea. Unfortunately there are no safe harbors along the coast of Kanyakumari to shelter the boats. This is unfortunate since the monsoon months of June, July and August are considered to be the most productive. During these months, if the weather permits, fishers can catch fair amounts of high-valued species (e.g. prawns, squid and high quality fish) and sell them for high prices in a low-supply market.

Consequently, many plywood boat owners and crews from Kanyakumari districthave switched operations to nearby Kerala

which offers not only safe landing and harbor facilities but also good marketing outlets. Trawlers are. not seen since they are banned in Kerala during the monsoon.

If one *vallam*, including gear and outboard-engine, costs about a lakh of rupees (**Rs** 100 000) or US \$2850, then the initial investment on the purchase of 2000 *vallam* totals Rs. 20 crores or US \$5.7 million.

A few questions:

- 1. Can this relatively small geographical area support such massive investment? The number of *vallam* in the region has recently increaseddramatically although fishers have indicated that the Catch Per Unit Effort (CPUE) has **dropped over the last couple of years. How real are fishermen's** expectations **for** an increase in revenues?
- 2. Strange **but true:** busy Kanyakumari doesn't **have a safe** habour **where** its fishermen can fish their own productive **marine resources during the monsoon. Why?**

Promoting Participatory Fisheries Management Through Stakeholder Consultation and Analysis by Kee-Chai CHONG

Stakeholder consultation and analysis is a process BOBP is introducing in all its activities in member countries. The Director of BOBP explains why.

Introduction

The fisheries resource is shrinking, shrinking, shrinking – because of overfishing, over-capitalization and technological overkill, habitat degradation, pollution and overcrowding from rising population. This grim scenario is being enacted more and more around the globe. Result:conflicts and violence over access to the shrinking resource, and sharing of the resource.

Unemployed fishermen idle away their life in tea shops or cheap stalls. An idle mind is a devil's workshop, particularly when lubricated by liquor. Sooner or later, trivial differences flare up and explode into open confrontation.

Governance of the coastal environment is not only complex, it has become turbulent in recent years because of the ineffectiveness of the top-down, government-driven, management interventions in fisheries.

The phenomenon of multiple-user and non-user stakeholders renders any

management intervention without the active support and participation of stakeholders intractable. For management to work, both top-down and bottom-up approaches to fisheries management are called for. This is referred to as the stakeholder approach to management; resource users act as resource managers in partnership with the government and other stakeholders.

The Process

In the hands of trained and experienced practitioners and facilitators, Stakeholder Consultation and Analysis or SCA can be a powerful analytical tool for problem-solving and for conflict settlement and negotiation. It can not only reveal the diverse interests of 'stakeholders' in a resource system but also any underlying conflict of interests. Stakeholders comprise active users of the resource system, not-so-active bystanders and "dependant" stakeholders – who include seemingly indifferent but opportunistic individuals or groups.

Although some of these stakeholders seem indifferent and do not seem to pay too much attention to resources, they are a part of the resource system. They may at any time exercise their interest in the resources and the services the resource system provides. All stakeholders are driven by their respective individual backgrounds and motivations, which are not readily apparent.

SCA provides a mechanism to bring everyone to the discussion table. Because of this, and its methodical orientation as an analytical tool in bringing out resource Use or non-use issues and problems, SCA can help resolve differences in opinions and points of view, arising from differences in perceptions, values and attitudes, concerning existing or new resource uses. 'Dissension and conflicts' can be open, obvious or not so obvious, or reluctantly expressed or manifested. By bringing all the stakeholders together to the discussion table, SCA can help to narrow down and pinpoint issues and problems as well as



threats, opportunities and options for resolving them – especially those that are frequently not expressed openly.

SCA accomplishes this by steadily forging and building a consensus. This is done by promoting closer understanding and appreciation of the differences in opinions, viewpoints, perceptions, values, attitudes, interests, motivations and positions among all stakeholders. Its real strength lies in consensus – building and/or resolution through negotiation. In the beginning, it is not so critical to secure early agreement but it is very important for all stakeholders to respect such differences and understand the other stakeholder's views and take them into account.

The success of the SCA process hinges crucially on open and honest communication and discussion among all stakeholders, by first removing any division among the stakeholders and then bringing about some early agreement about what they can agree on.

Strategic rest breaks in between SCA sessions provide opportunities for stakeholders to express views which they may not wish to openly air during the SCA sessions. These stakeholders may not wish to be openly identified yet and wish to talk privately to the facilitators or to other sympathetic stakeholders who may become a useful future ally. Such an alliance is not unknown in stakeholder consensus building and negotiated solutions. It is up to the facilitators to handle such "stakes" without revealing or giving away the identity of privately expressed "stakes". The dissenting parties may be brought together to further narrow down remaining differences, without burdening the other stakeholders.

Issues that remain unresolved can be taken up after a consensus is forged on those which the stakeholders can agree on first. In the final analysis, people should be at the center of development as provided under Agenda 21 (UNCED, 1992). Agenda 21 is the new global rallying basis for action on sustainable development and environmental protection.

More fundamentally, SCA can promote closer understanding and co-operation among stakeholders by first building such co-operation on the basis of what everyone can agree on, and then working on thorny issues and resolving them. In this incremental manner, resource use problems and conflicts are made more manageable and open to solution options. Forging consensus and problem resolution through negotiations is what SCA is all about.

There could be as many as 20 types of stakeholders in any fisheries management scenario. Some have a strong and direct stake in the availability offish. Some others have a less direct and compelling stake. Assessing the perceptions of all these types of stakeholders, getting them to meet and understand one another, and mobilizing their commitment to fisheries management, iswhat BOBP is trying to do in co-operation with member-governments.

SCA involves the following steps, methods and procedures:

1. Stakeholder identification, description and consultation

2. Stakeholder perception, attitude and behavior analysis

3. Stakeholder problem identification, description and analysis

4. Stakeholder prioritisation of problem(s) and solution(s)

5. Stakeholder mediation and consensus building

6. Stakeholder communication analysis

7. Stakeholder participation and implementation

8. Stakeholder assessment, monitoring and evaluation

Built into its problem-solving procedures and methods of conflict resolution is an implicit process of winning over the opposition (including the silent variety). The basic premise of SCA is to promote the participation of all stakeholders in human development. This is a key step in SCA, without which there is no buyin into the solutions. The so-called opposition has to identify with "what is at stake" and get involved in arriving at and implementing solutions. Therefore, instead of conificts, the stakeholders should emphasise common interests and the common good and what 'is at stake' for all of them, not for narrow or vested interests. The "sharing" of resources which is at the center of such conflicts can be discussed, negotiated and settled through the process of SCA. The alternative is disruptive with conflicts continuing; everyone loses!

One of the key features of SCA is its built-in flexibility to bring in additional stakeholders or groups of stakeholders, those who were previously left out or new ones identified as the process evolves. SCA is a living problem-solving process. It is therefore important to accurately identify and assess who the stakeholders are. Failure to do so impedes the process of negotiated settlement of problems or conflicts.

Participatory Management of Fisheries

In fisheries management, everyone in the entire market chain is a stakeholder and has a role to play in the fisheries management process. The fishermen, the market intermediaries or middle persons, money lenders, seafood processors, cold storage operators, traders (both wholesalers and retailers), officers of both government and nongovernment organizations, elected officials or politicians, homemakers and seafood consumers - each and every stakeholder can exert an impact on fisheries management. In SCA, a special effort is made to listen to, learn from and take into account local practices and knowledge including their respective beliefs and value systems.

Thus, information gathering, data collection from a cross-section of the stakeholder communities, analysis of the data and interpretation of the results take on important roles in SCA in strengthening fisheries management. It encompasses all the different methods of information gathering – from rural and participatory rapid appraisal (RRA/PRA) to completely structured questionnaire surveys.

Obviously, some stakeholders are more dominant than others because of their sheer number or the economic clout they command. Some may even claim that they are more legitimate because of their traditional position as historical users of the fisheries while others are newcomerstakeholders by virtue of their investment in the coastal zone or industrial fishing etc. For fisheries management to work, it is critical to not only manage stakeholders but also to hold together the stakeholder alliances which have been forged on the basis of either consensus building or negotiated settlement. SCA accomplishes this by bridging the problem of equal representation among the different and diverse groups of stakeholders.

Beginning of Participatory Management of Fisheries

In Phang-Nga Bay, Thailand, fisherfolk ceremoniously release or stock fingerlings in open waters. Elected and government officers step aside and watch from the sidelines. In the past, it was the politicians and government officers who hogged the limelight. By letting the fisherfolk take the center stage you allow them to "take possession" of the fish released and they in turn jealously guard them as if the fish are theirs. Bimonthly public hearings conducted around the Bay have fostered public attention and closer inter-change of experiences and lessons learned over the last 3-4 decades of government driven or top down fisheries management intervention. These public hearings are an excellent forum for consultation and exchange of information.

In Sri Lanka, regular BOBP - assisted SCA had brought together many ornamental fish divers, collectors, exporters and government officers to address the problems they face as stakeholders in the industry. An open on -going dialogue has been established between the industry and government. It is now working out the many conflicts and contraditictions in the rules and regulations governing the exploitation of the fishery and its export trade. The diverse group of divers and collectors is now organising itself into a union to look after their socio-economic and occupational interests.

Similarly, in Malaysia, the Department of Fisheries with the collaboration of BOBP is spearheading the government initiative in delegating certain fisheries management responsibilities to the fishing communities scattered along the "country's coastline in community-based fisheries management. At present, 30% of the Department's development budget is used up in purely enforcement activity, which can be re-allocated for other more productive enterprises such as improving the social amenities and services of fishing villages and investments in micro-enterprises in these villages. Community-based systems will improve the efficiency and performance of government investment in fisheries management. Other instances can be cited from the other member countries from around the Bay.

In Bangladesh, the process of stakeholder consultation has led to spectacular development at the highest level. Realising that a solution to the management problems posed by the set bagnet and push net fisherfolk lies as much outside fisheries as within it, a consultation is being organised in November 1997 of all Members of Parliament from coastal districts in the country. The same is also being planned for Malaysia to reach out to such elected officials to sensitize them on the need for and benefits and methods of community-based fisheries management.

In India, the process of stakeholder consultation and analysis has been conducted in all four east coast States. Coastal fisheries management, dramatised by ever - increasing conflicts between trawler operators and smallscale fisherfolk, is being closely examined in Tamil Nadu and Orissa. Aquaculture management is being studied by stakeholders in Andhra Pradesh and West Bengal. Similarly, SCA in the province of North Sumatra has paved the way for an integrated approach to sustainable development of fisheries around a model fishing village in the Bay of Tapian Nauli on the West Coast of the province.

In the Maldives, where coral reefs are a precious repository of marine aquatic resources, a national workshop on integrated reef resources management brought together a number of government ministers and department officers, besides scientists and officials and fisherfolk - even students. The workshop led to numerous recommendations, and follow-up initiatives are now on. A community learning center for the use of all stakeholders is being equipped with basic audio-visual aids and equipment to popularize participatory planning and management of fisheries and its sustainable development.

Make every stakeholder a winner!

Will the stakeholder approach to fisheries management work? Fisheries when managed will yield a bigger output then when it is not managed. Such a socially responsible stakeholder approach to fisheries management will therefore lead to socially responsible behavior and actions. Without management, output will not increase and in fact will decline even further than the present levels. Therefore SCA is not just an excellent tool for participatory fisheries management, it is the only one in which every stakeholder can be and is a winner. Fisherfolk must be helped to make sense of fisheries management through their participation by giving them pride of place in such processes. A reawakening among stakeholders on the individual and social obligations and responsibilities augurs well for the future. Finally, SCA will set new standards of practice for local governance of fisheries.

Stakeholder consultation on coastal aquaculture held in South 24 Parganas district, West Bengal, India.





to go Some reflections on food and livelihood Security amongst

Nowhere

the coastal people

of Bangladesh

The plight of the coastal fisheifolk of Bangladesh is a national problem, not just a fisheries problem. It requires the attention of national policy-makers and decision-makers, and the involvement of people of ideas and action throughout the country. It requires 'mechanisms for empowerment, for coordination between government departments and agencies, for creating new job opportunities, for speedy action.

Behind every person is a story, and behind every story an issue

Let us begin with Brajanath Jaladas. A fisherman from Puichari village of Banskhali Thana of Chittagong district, he left his village and his occupation a year ago because he could no longer make a living as a fisherman. Today he drives a cycle rickshaw in Chittagong. He hates Chittagong. He can barely make a living with what he earns, working twelve hours a day. He feels weak and ill, he misses his wife and little children and elderly mother who are back in the village.

So what is a marine fisherman, whose family has been fishing for several generations, doing in Chittagong driving a cycle rickshaw and being miserable? What are the forces that push him to this act? Therein lies a story.

Almost 20 per cent of Bangladesh lives on a narrow belt along the coast and estuaries. Visualize the people of coastal Bangladesh living in fishing villages between sea and land, on the edge as it were. Most people in such villages fish. That is not surprising; in Bangladesh, most people fish. But unlike inland fishers, coastal fishers do nothing but fish. They have no other livelihood. The fish they catch is their only entitlement to money, food and life.

The view from the beach

Ask any fisher and he will tell you that his catch of fish has been decreasing over the years. He spends more time and more effort to catch the same or less. Experts would call it "declining catch perunit effort". To people like Brajanath that translates to less earnings, hungry times, a feeling of hopelessness. The abundant fish in the bay and in the estuaries do not seem to be there any more. Over the years the intensity of fishing has increased to a point where the fish population are not able to make up what we are taking out. We are overfishing -- a combination of increasing motorization, more efficient fishing gear, mechanization and too many fishermen. One is tempted to think that perhaps over-populationis the problem; but while population plays a part it is the rate of technological intensification that has multiplied the impact of population. Complicating the matter further are destructive fishing gears : push nets that destroy by-catch of valuable species, several times the number of the shrimp fry they catch for the aquaculture industry; estuarine set bag nets that take away juvenile fish that could grow

bigger, spawn and swell the resources; trawlers that catch gravid female shrimp, thus depriving the resource of millions of future shrimps, while destroying the bottom ecology that provides food and habitat for fish; beach seines and "current nets" that catch indiscriminately. Surprisingly fishers know of the impacts these gear have. So why do they continue? Some are driven by greed, most are driven by desperation, knowing no other options and trying to feed themselves and their families.

With the coastal, near shore resources under stress, why don't fishers like Brajanath who had two estuarine set bag nets, go further into deeper waters? Well he did -- as a labourer in a mechanized gill-netter targeting hilsa. But the sea is not a open access resource any more. People with power are encroaching, and taking control of patches of sea and refusing others entrance. Pirates and dacoits roam the sea looking for easy plunder.

As if that were not enough, the ecosystem in the bay, the home of the fish, is degrading thanks to pollution. Sewage from cities and towns, pollution from industries, garbage, fertilizer and pesticides from agriculture, effluent from aquaculture, oil and bilge waste from ships and silt from all over the country find their way to the sea, turning the coastal waters into the biggest garbage bin in Bangladesh. Even if we could manage our fisheries and not over-fish them they would still be in trouble, polluted out of their habitats.

Moving to the edge, the meeting point of sea and land, are the mangroves, the Sundarbans that once stretched from Satkhira to Technaf, and today barely reach Borguna. These nurseries of the sea that provide habitat and food for countless species 'of fish, also protect the coast from cyclones and tidal bores, and when they flourished provided a whole variety of livelihood opportunities for the coastal peoples. Food fish, wood and charcoal, grazing for buffaloes, medicines, vegetables and fruits. All that is gone. Shrimp ponds, industries, housing, hotels and resorts, expanding villages have all eaten into mangroves. The wide range of food and livelihood opportunities were replaced with push net fisheries, to provide fry for aquaculture, for a meagre earning. Meanwhile aquaculture flourished, with no regulations or checks that could have made it a sustainable industry. All the complaints of the detractors of coastal aquaculture - soil and ground water becoming salty; pollution from effluent and bottom soil disposal; replacing agriculture. and livelihood options; providing very little employment; and earning huge profits while taking a heavy toll of the land and the sea and people - have a grain of truth.

Moving on to the land, people like Brajanath face more problems. Land is scarce. They do not even own the land on which they live. It belongs to landlords or to the government. Very few fishers own agricultural land. Government khas lands and forest lands are beyond their access for different reasons. Deprived of land and living in remote habitats, having little surplus money and no access to credit, being illiterate, often isolated by caste and religion, there are few income options on land for coastal people except the desperate options of selling their labour in cities, if they get the chance.

The fish they catch are bought by traders at ridiculous prices, because the fishers are bonded by the credit they have received from the traders. Their one source of entitlement is diluted by a market mechanism tied into credit. The poor in cities and in agricultural areas of Bangladesh increasingly have access to a variety of government services: health, family planning, agriculture, social forestry, infrastructure, schooling, electricity, animal husbandry. But coastal people do not seem to be reached quite as well, thus deprived of their rights as citizens. Such is their tragedy that even NGOs seem hesitant to work along the coast.

That is not all. It is difficult to believe that coastal people could carry any more of a burden but they do. Every year, like clockwork, there are natural disasters, floods, tidal bores, cyclones, depriving them of life and property. It would be surprising if the coastal people of Bangladesh did not find themselves feeling helpless and lost. They are trapped from both sides, from the land and from the sea, by nature and fellow human beings, and have nowhere to go. Does it mean that nothing can be done? Should we just shrug our shoulders and walk away? Perhaps a better understanding of the problems they face, the complexities and interconnections may give us a glimpse as to what could be done to give these people an opportunity to break out of their misery traps.

The nature of the problem

The people living in the numerous fishing communities along the coast of Bangladesh are not only trapped by problems in every direction, but the very nature of the problems -- their complexity, and the inter-relationship, make finding solutions that much more **difficult**.

Consider fishing. We know that increasing numbers of fishers compounded by increasing intensities of fishing are stressing stocks. We know that destructive fishing gears are adding to the crisis. We also know that pollution of various sorts from land and sea is affecting the ecosystem. So what can be done. Let us assume that, magically, we are able to manage and regulate the fisheries. It would mean that destructive fisheries are reduced and eventually removed; an overall reduction in fishing effort in the other fisheries; and pollution control and mitigation. The key is to fish less and use eco friendly gears. When you fish less you earn less. If what you earn is too little you might as well leave.

Fishers already earn little. Good management will ask them to cut back further to give the fisheries stocks time

to recuperate. Conserve today and tomorrow you will have more! As the local fisher sees it, hold back today and you starve today. Unless there are other, alternative, non-fishery related income options for fishers to take up, serious management will not be possible. Awareness will not help, nor will education: you cannot eat these. The solution to fisheries in coastal Bangladesh may well be on the land, in the availability of income options. Which brings us to the fust rule of complexity : Sdutions to problems in one sector may well be in another sector. In other words, the Department of Fisheries may not be able to manage fisheries without working with other departments and ministries.

Consider coastal aquaculture, the growing of tiger shrimp for export. Shrimp culture is growing at an incredible rate, with hardly any serious controls or regulations. Naturally there are problems and aquaculture, which with good management can be a sustainable and relatively ecofriendly industry, has got a bad name. Shrimp culture in Bangladesh depends on

caught fry, and push nets are some of the most destructive gears around, as they destroy juveniles of several valuable species. Mangroves have been converted to shrimp ponds, and of course for other activities. Mangroves are the nurseries of the aquatic world, provide physical protection against natural disasters and provide several food and livelihood opportunities. The list can go on. The point is that the present unmanaged practice of aquaculture is affecting other sectors, and costing people and government a lot of money, in terms of damages and lost opportunities. The other side of the coin is that shrimp export earns foreign exchange, provides some jobs and generates profits. If we move towards a sustainable aquaculture practice, we will not be able to pass on (or externalize) the environmental and social costs of the sector to others, and will have to instead absorb it. Would shrimp culture then be as lucrative? So the next two rules of complexity are : There is no such thing as a free lunch! Somebody somewhere has to pay for it. 'Solutions and successes in one sector can be a problem for another sector. Consider fishing again and let us look beyond the catch. True, a combination of over-fishing, destructive fishing, pollution and mangrove destruction has

stressed fisheries stocks and catches, or to be more precise, the catch per unit effort is declining. So what? Less fish for more effort translates to less earnings. Lower earnings are further aggravated by the credit-market linkage which exploits fishers. With few or no alternative income opportunities available this means reduced quality of life, and finally migration out of desperation.

There is another twist to all this. In the old days fishers fished and people used what they landed. Gears were less selective. Today people want particular fish and in cities and foreign countries are willing to pay top prices for it. So fishers target particular fish with selective gears. The combination of generally declining catches and targeting for high value species means higher fish prices which city folk and export markets pay. The downside is that the rural people, particularly the poor, lose the fish on their plates. Most Bangladeshis get up to 80% of their animal protein from fish. And we know that the per capita consumption of fish is dropping. And we know that an average is an average, there are lots of people who eat nothing or very little of fish. And their quality of life suffers. So whether you catch the fish or eat it, if you are on the wrong side of the poverty line you are in trouble, through a series of interconnected cause-effect relationships. Which brings us to the last rule of complexity : Everything affects everything else. Part solutions to whole problems do not work. It also means addressing the immediate problem or symptom may not solve the problem, unless we consider the whole picture.

We have got a glimpse into the world of people like Brajanath Jaladas, and we have tried to go beyond the story and look at the issues, particularly at the nature of the problems. The question is, should we bother about all this? After all there is no real shortage of problems. Why add another complex one to the list?

Why bother?

Let us list the reasons

1. A very large number of people live on the coastal zone depending directly or indirectly on fishing.

2. People of Bangladesh get 70-80% of their animal protein from fish. A crisis in fisheries will translate into a nutritional crisis adversely and preferentially affecting the poor. 3. Coastal fisherfolk depend almost entirely on fishing for their livelihood. A crisis in fisheries will bring their livelihood security into question.

4. The sustainability of coastal ecosystems and the rich biodiversity of the area may be at risk, with implications that we may not even know about.

5. With livelihood andfood security at risk health problems will increase, with associated high costs to the people and the nation.

6. The adverse impacts of natural disasters may be accentuated.

7. With no livelihood options on the sea and on the coasts people will be forced to migrate to cities, generating a whole new set of problems.

What can we do, and more Importantly, how?

It will not be easy, but enough experience and knowledge exist to make a good beginning. The problem is that most solutions and tools are of a high-focus, single-sector nature, and as we have seen we are dealing multi-sectoral complexity. The problems that have been described and issues that have been raised are not fisheries issues, they are national issues and problems that need national solutions. There is justification for Bangladesh to specially focus on the problems and development options of the coastal areas and peoples. And, there is defmite need for more holistic and integrated approaches to address the needs and concerns of the peoples of coastal Bangladesh.

We do not have all the answers, but we do believe that as we talk through and think through the issues, concerns and problems with all those who have a stake in these areas and activities, ideas and solutions will emerge.

This understanding of the crisis of coastal peoples emerged from the ongoing work of the Department of Fisheries, the Bay of Bengal Programme of FAO's Coastal Fisheries Management Project, and the Post-Harvest Fisheries Project of the UK's Department for International Development. We need you, the reader, the political leader, the decision maker, the scientist and the citizen to show us the way. Not only by telling us what to do, but, more importantly, by telling us how to do it. The very means of coming together and evolving processes that Bangladesh as a nation should to address the needs and concerns of its coastal peoples.

How do we bring about 1. empowerment? There is an urgent need to manage fisheries and aquaculture. We have to be precautionary and start immediately. Fisheries and aquaculture management cannot be done without the active involvement and participation of all the stakeholders of the sector. It cannot be done without providing alternate income options to help people get out of fisheries, reduce fishing effort and improve their quality of life. This requires real decentralization and devolution of powers to local communities and stakeholder groups.

2. How should co-operation and coordination be evolved? All the problems are inter-connected. Government agencies, departments and agencies have each their own objectives, agendas, budgets and ways of functioning. This often makes it difficult for them to address complex inter-linked and multi-disciplinary problems such as in coastal areas. How should real coordination and co-operation be evolved?

3. *How can we choose between alternative options?* At every stage of development we have options to choose from with different outcomes and impacts, some good and some bad. That is obvious. But clear policies and guidelines are needed to help make the right choice.

4. How can we speed up processes to meet the needs of the times? Problems **are growing rapidly and interacting** synergistically to compound matters. There is a certain urgency to address these problems while they are still answerable.

These are difficult questions, but answers are needed. Perhaps it is appropriate to end with an old saying.

If I am not for myself, who will be

for me? IfI am only for myself, what am I? If not I, then who? If not now, when?

This article is a modified version of a presentation to be made at a consultation of senior decision makers to be held in Dhaka, in November 1997, to address thefood and livelihood security concerns of coastal people of Bangladesh. (Prepared by Rathin Roy in consultation with colleagues in the Department of Fisheries and the Post-Harvest Fisheries Project of DFJD-UK).

BOBP in the Field

A summary of recent BOBP-supported work in member-countries

Bangladesh

In Bangladesh, BOBP seeks to improve management of the estuarine set bagnet and push net fisheries, both of which are resource-damaging, in selected coastal areas. The following activities were carried out recently.

•. The Marine Wing of the Department of Fisheries has completed an analysis of areas and seasons in Chittagong and Cox's Bazar districts where closures of the ESBN fishery can be undertaken with voluntary compliance and co-operation on the part of fishermen.

• Preparations are on for a consultation of senior decision-makers

concerned with coastal development. It will bring together Ministers and Members of Parliament plus senior administrators and technical staff of the ministries concerned. The consultation, to be sponsored by the Department of Fisheries, BOBP and the DFID (Department of International Development, UK) will discuss issues and concerns related to food and livelihood security. It will be held in November.

• Preparations are on for a national consultation to help evolve a policy and strategy for sustainable coastal aquaculture. It is being sponsored by the Department of Fisheries with support from BOBP.

Fish for nutrition: Indonesian boy cycles home with fish he bought directly at landing centre.



India

BOBP is assisting coastal fisheries management in the two east coast states of Tamil Nadu and Orissa, and coastal aquaculture management in two other states (Andhra Pradesh and West Bengal).

The project strategy in the four states is similar, and consists of the following steps: training of fisheries officials in identifying stakeholders, and analysing their perceptions of problems and solution options; field work by fisheries officials and meetings with stakeholders; analysis of the findings of field work; drafting a workplan of solution options for problems.

* In Andhra Pradesh, trained staff carned out field work on stakeholder studies and discussed their findings at a follow-up workshop. Workplans were defined for the future. A cluster of aquaculturists was identified who would help work toward sustainable aquaculture. (The area of operation in Andhra Pradesh consists of three districts: East Godavari, West Godavari, Krishna.)

* In West Bengal, work is being carried

out in North 24 Parganas, South 24 Parganas and Midnapore districts. Stakeholder analysis has been completed in North-24 Parganas, and an excellent reporthas been prepared. Staff in all three districts are to develop district-wise budgets and workplans.

* In Orissa (Cuttack and Baleshwar districts), field work for stakeholder studies has been completed.

* In Tamil Nadu, a follow-up workshop

to discuss the findings of stakeholder analysis has been held in both Chennai andKanniya Kumari districts. Fishermen of the volatile Kanniya Kumari district have prepared a list of recommendations on fisheries management. The Tamil Nadu's Government's strong support for implementation of activity in the state is reflected in the allocation of Rs 1 million to supplement project work for 1997-98.

Indonesia

The Programme seeks to facilitate improved management of mariculture, anchovy liftnet fishery and small-scale fisheries in the Tapian Nauli bay of North Sumatra province. The idea is to evolve model fishing villages to undertake community-based fisheries management.

• Field work is being carried out for a study on the values, perceptions and attitudes of fisherfolk and other stakeholders. It is expected to be completed this year.

• A consultant from Malaysia has been identified to provide technical assistance on the anchovy liftnet fishery – improving the quality of processed anchovy aboard fishing craft and on land.

Malaysia

Pursuing the goal of sustainable coastal zone management, Malaysia is developing and testing methodologies and approaches through the Pulau Payar Marine Park in Kedah State. The Park has been chosen as a model for a Special Area Management Plan (SAMP) that integrates the management of land and water. SAMP will assess the effect of the Park on the area's marine resources and on the livelihood of fishermen.

The following activities have been carried out:

- Survey orientation and training of Department of Fisheries staff at Kedah was undertaken for a socioeconomic baseline study. It provides yardsticks for the measurement of change in communities where SAMP is implemented. (The orientation related to training in survey objectives, interview techniques and sampling methodology.)
- Survey orientation and training was undertaken for staffin Kedah to help them carry out the VPA (Values, Perceptions and Attitudes) study of fishermen in Kedah.

Maldives:

The project facilitates the development of a model for participatory communitybased integrated reef resources management in a pilot exercise that focuses on Vaavu, Meemu, Faafu and Dhaalu atolls. Recent activities are as follows:

• BOBP and Maldives staff made an extended field trip to four pilot atolls to hold discussions with atoll chiefs and atoll development committees, and determine the

priorities for each Atoll and evolve implementation mechanisms.

- MOFA (Ministry of Fisheries and Agriculture) and MRS (Marine Research Section) are developing sector-by-sector management plans based on information collected at the atoll level. These plans will be presented to a workshop that will bring together technical stafffrom all departments, atoll chiefs, atoll development committee representatives etc.
- Preparations are underway to prepare a comprehensive "Fishes of the Maldives" identification catalogue. It will be published later in the year jointly by BOBP and MOFA.
- A proposal is being developed to establish a GIS database to facilitate implementation of the IRRM (Integrated Reef Resources Management) programme.
- Preparatory efforts are under way to establish an atoll learning centre in Meemu atoll to facilitate awarenessbuilding. As part of this exercise, the development capacity of MRS to prepare awareness materials will be upgraded. Plans and budgets are being evolved.

Sri Lanka

To conserve critical aquatic habitats such as coral reefs, mangroves, seagrass beds, etc., the Project seeks to facilitate and enable improved management of the ornamental fish sector in Sri Lanka, through awareness-building, strengthening the institutional capacity of the agencies concerned, and technical assistance. (See *Bay of Bengal News*, December 1996).

Recent activities:

- A stakeholder consultation organized by BOBP and MFARD brought together senior administrators and technical staff of 15 government agencies concerned with the ornamental fish sector to discuss issues and concerns and invite suggestions.
- The Live Fish Exporters Association of Sri Lanka has set up a fund to support research and development in aid of improved management of the ornamental fish sector. It hopes to build the fund by charging a cess of half a US dollar on each box of ornamental fish exported.

- Discussions have been held with the Live Fish Exporters Association of Sri Lanka about the modalities of a SWOT study of the ornamental fish industry.
- 12 staff of the Department of Fisheries and Aquatic Resources Development were trained in the conduct of a regional study on the VPA of fisherfolk and other stakeholders towards fishery resources, fishing practices and fisheries management.
- The DFAR is persuading collectors and divers in the ornamental fish sector to register themselves. It has mounted a multi-media campaign for the purpose.
- The DFAR has finalized an identification catalogue of ornamental fish for use by the Customs.
- The various stakeholder consultations are expected to culminate in a national stakeholder meeting late in 1997. The concept of a management advisory committee will be raised for consideration.

Thailand:

The project is developing communitybased participatory approaches to the management of fisheries and aquaculture in Phang Nga bay, along the Andaman Sea coast of Thailand. (See *Bay of Bengal News*, March 1997). Recent activities:

- Public hearings have been held with fisherfolk.
- Billboards have been constructed to improve information dissemination among Phang Nga bay fisherfolk.
- Spawning cages have been constructed into which fisherfolk will release female gravid crabs which they have captured by mistake. Eggs released by the crabs will be nurtured while the spent crabs will be sold. The proceeds will help fund management measures.
- Rehabilitation work has been taken up on denuded mangrove areas and seagrass beds.
- Training and orientation of fisherfolk has been undertaken for the Regional Survey and Study on the Values, Perceptions and Attitudes of Fisherfolk and Coastal Stakeholders Towards Ownership of Fisheries, and its Exploitation, Management and Sustainability.

TOWARDS SUSTAINABLE FISHERIES IN BANGLADESH

Set up fish sanctuaries, ban jatka during the jatka season

by Kee-Chai Chong and Md. Mokammal Hossain

The BOBP has proposed a project to set upfish sanctuaries in Bangladesh, and to banfishing for juvenile hilsa in major rivers and coastal waters that migrate to the sea during the hilsa breeding season. The goal of both activities is a stronger and more sustainable fishery in Bangladesh. This article discusses facts and features of the proposed project.

In the past, resource conservation and management issues in Bangladesh suffered neglect because of the imperatives of agricultural, economic and industrial development. In fact, any preoccupation with resource conservation was considered a luxury in the face of continuing and widespread poverty and hunger.

A mechanism for resource conservation existed at the village level in the distant past: community-based management systems evolved at the local or grassroots level, supervised by village or community heads. However, this function and this authority were gradually taken over by the government.

In forestry and agriculture, forest reserves and land reserves were established long ago to protect and conserve these resources from human encroachment. Likewise, agricultural zoning allocated land resources according to land use capability. But in fisheries, the practice of bio-reserves or sanctuaries to protect resources was not taken up.

Why fish sanctuaries? To provide a haven for broodstock and juvenile fish

Broodstock, particularly of hilsa and major carp species, is considerably overfished in Bangladesh. One reason is that they congregate together while spawning, another reason is the low water level during some winter/summer months. As a result, the broodstock are more vulnerable to fishing effort. The high mortality of the broodstock before they have a chance to spawn reduces their abundance in the succeeding year, thereby bringing down recruitment and overall production. Some local species as a result have become extinct. There is thus an urgent need to protect the broodstock of these major carps by establishing fish sanctuaries and bioreserves in breeding and spawning grounds.

Why ban *jatka* fishing? To improve catches of adult hilsa

The hilsa fishery is strategically important to Bangladesh's food supply;

this single species contributes a third of the country's total fish production. But the fishery is badly affected by the massive harvesting of juvenile hilsa or *jatka* during February-May each year, while they are migrating **down rivers to** the sea. If these juveniles are allowed to mature, at least to first breeding, the total catch of adult hilsa would increase. **A complete ban on** *jatka* fishing in the

The proposedfish sanctuaries in Bangladesh will contain protective structures of concrete and metal infishing grounds. These canfoul up fishing gear. They will therefore discouragefishing.



major riverine downstream migration routes from February to May is therefore urgent.

The establishment of fish sanctuaries and bioreserves as well as the participatory enforcement of a phaseby-phase ban on fishing for *jatka* and other juvenile fish of commercial importance will go a long way toward sustaining **the fisheries in Bangladesh**. Under the proposed scheme of participatory management of such fisheries, fishing communities and other stakeholders will be part of the decisionmaking processes for management of these fisheries.

THE FISH SANCTUARY PROJECT

The development objective

Rehabilitation and enhancement of living aquatic and fisheries environments in Bangladesh and the conservation and protection of natural fish stocks. These objectives are in line with the stated objectives for fisheries in the government's Fifth Five-Year Plan. The proposed programmes would strengthen the capacity of the Department of Fisheries to carry out fisheries management and to support communitybased management. It would also initiate collaboration between various ministries (specifically, the Ministries of Water, Land and Forestry) concerned with the environment and ensure that these ministries incorporate fisheries criteria into their development planning.

Immediate Objectives

 Identify key locations of all major broodstocks, particularly their wintering and breeding/spawning sites.

Devise structural measures to reduce fishing effort to an acceptable level, and eliminate it entirely in fish sanctuaries, if feasible.

Educate loëal fishing communities about the need for setting up fish sanctuaries /bioreserves.Devise nonstructural measures based on community participation and management to protect and conserve fisheries resources in these sanctuaries, supported by DOF monitoring, control and surveillance.

— Formulate an operational plan and implement



Under the proposed fish sanctuary project, local fishing communities will be educated about the need for sanctuaries

Outputs

• A comprehensive geographical information base on all major wintering and breeding sites of critical broodstock.

• Protective structures of *katha*, concrete and metal in fishing grounds that will comprise a part of the sanctuary. Such structures can foul up fishing gear and render their operations difficult. Such structures have been effectively installed in the Gulf of Thailand, also in the Philippines. These structures would serve as "sleeping guards" in the declared sanctuary/bioreserve areas.

• The project would empower local fishers and stakeholders and give them the mandate to protect broodstock and the concrete and metal structures. The community would provide trained fish guards as a form of community-based management. They would work in co-operation with the Department of Fisheries that would be responsible for monitoring, control and surveillance.

Activities

Field studies: **The Department of** Fisheries (DOF) would need to set up a special planning and management unit to implement the fish sanctuaries project. This unit would carry out field studies to identify all localities (breeding and spawning grounds) that require sanctuary status. To win the support and participation of rural fishers, the project would have to educate them about the needs, purposes and benefits of the fish sanctuaries.

Pilot activities must be carried out to test the effectiveness of different structures in the sanctuary grounds to keep fishing gears out, also the way these structures are deployed. The DOF fish guards would need to be trained to carry out monitoring, control and surveillance activities and to assist local fishing communities in enforcement.

Awareness-building: A sustained, comprehensive education and awareness-building campaign should be carried out among all possible stakeholders in the concerned fisheries about the needs and benefits of fish sanctuaries or bioreserves, including techniques and methods of sanctuary operations and management.

This activity should reach down to the school level, including rural youth, employed or unemployed. The school curriculum should be revised as appropriate.

Educating fisherfolk alone will not be enough. Market intermediaries who buy and distribute juvenile fish should also be persuaded not to do so. Consumers, particularly housewives who do the buying for their households, must be sensitized not to buy under-sized or juvenile fish because it is they who create the demand and the incentive for catching such juveniles through their purchasing power.

Setting up national, thana, union and division management committees: A multi-tiered system of sanctuary operation is needed to encourage a participatory and consultative community-based management system.

Inputs

International donor inputs required for the fish sanctuaries programme would include (a) equipment to carry out field studies and design the sanctuary programme (b) design and construction of fishing gear-fouling structures (c) education and awareness-building programmes in both rural and urban areas (d) training of fish guards and (e) supply of patrol speedboats. A nationwide programme is projected to cost US \$ 600,000.

Responsibility for detailed project preparation

Detailed project formulation would require extensive and comprehensive field site visits to existing critical wintering and spawning grounds and preparation of a complete biological, ecological, sociological and economic profile of fisheries, including the user groups.

A special task force would review this basic study. The task force would include representatives from various fisheries and other government agencies, relevant Flood Action Plan (FAP) projects, and individual fisher groups active in the proposed sanctuary and bioreserve areas.

THE*JATKA* FISHING BAN PROJECT

The immediate objectives of this project

• Establish, through field surveys, the downstream migration patterns of juvenile hilsa and the level of fishing mortality they suffer.



• Educate local fishing communities about the need for and the benefits of a phase-by-phase ban on *jatka* fishing. Devise non-structural measures based on community participation and management to enforce the ban.

• Strengthen community-based enforcement of the fat/ca ban with DOF enforcement capability. It would introduce a MCS (monitoring, control and surveillance) programme for all major rivers and important secondary rivers, including coastal waters, during the fatka season.

The expected outputs of the *jatka* fishing ban project are:

• A comprehensive report on the migration pattern of *jatka*.

• An information base on the deployment of fishing gear-fouling structures in all large and important secondary rivers, their estuaries as well as coastal waters where jatka congregate in large numbers.

• Awareness-building among fishers and stakeholders to encourage their acceptance of the ban on *jatka* fishing. The DOF would operate its own monitoring, control and surveillance system to enforce the *jatka* ban.

Activities

The project would require a comprehensive field study over several

fat/ca seasons (February to May) to collect the required information on *fat/ca* migration and fishing effort. Historical data collected by the Bangladesh Fisheries Resources Survey (BFRSS), the Fisheries Research Institute (FR!) and experienced DOF field officers should also be collated and analyzed to add a historic dimension to the database.

An education programme should be carried out to educate *far/ca* fishers about the need for the ban and the greater benefit they could expect by harvesting adult hilsa. A process should be developed for incorporating fishers and other stakeholders into a DOF-operated monitoring-control-surveillance system to enforce the *fat/ca* fishing ban.

The DOF should be equipped with a sufficient number of speedboats for effective enforcement of the ban.

Extension of **the** ban to other species

As the *fat/ca* fishing season lasts from February to May each year, the ban should cover this period. The experiences and, lessons derived from the *fat/ca* fishing ban would enable extension of the ban to juveniles of other commercially important species as well.

Inputs required for the *jatka* fishing ban project would include equipment to carry out field studies, awareness-building education programmes in rural and urban areas, and supply of patrol speedboats.



Bay cf 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, Sn Lanka and Thailand. The Programme plays a catalytic and consultative role : it develops, demonstrates and promotes new methodologies, techniques, technologies or ideas to help improve the conditions of small-scale fisherfolk communities in the member countries. The BOBP is sponsored by the governments of Denmark and Japan, and by member governments in the Bay of Bengal region. The main executing agency is the FAO (Food and Agriculture Organization of the United Nations.)

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