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# Enabling Better Management of Fisheries Conflicts: A Case Study in India

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## 1. Introduction

India is blessed with a vast coastal line harbouring rich marine and non-marine living resources. Millions of people are dependent on these resources for sustenance and commercial exploitation. India has a long coastal line of about 8,119km; a continental shelf of 0.5 million sq km; an extensive Exclusive Economic Zone (EEZ) of 2.02 million sq km; 1.24 million ha of brackishwater area, 1,91,024km length of rivers and canals; 3.15 million ha of reservoirs; 2.25 million ha of ponds and tanks; 0.82 million ha of *beels*, oxbow lakes and derelict waterbodies; 0.24 million ha of flood plain wetlands; 0.29 million ha of estuaries, 1.65 million ha of mangroves; swamps, lagoons, etc. (Ayyappan and Diwan 2004).

India has 3,638 marine fishing villages, 2251 traditional landing centres,1,400 small-fish landing centres, six major fishing harbours and 41 minor fishing harbours. Based on the infrastructure and facilities the different fishing crafts land their catches. The country has 138 fish landing centres with modern facilities established with support from the Union and State governments. The fisher population of India is currently 5.96 million, which includes full-time, part-time and occasional fishers.

The marine fishing sector can be classified into: 1) non-motorized artisanal sector using country craft with traditional gear, 2) motorized sector, 3) mechanized sector using inboard engines of 50 to 120 HP, and 4) deep-sea fishing with bigger boats (25m and above) and engines of 120 HP and above. In 1996, India had a total fishing fleet of 238,125 units comprising 160,000 traditional crafts, 31,726 motorized crafts (converted from traditional) and 46,918 mechanized vessels operating with different gear combinations.

Vivekanandan et al. (2003) infers that the major problem in Indian marine fisheries is inadequate fisheries management system. Considering the country's diverse and vast coastline, efforts must be specific to the fisheries' situation in each coastal zone. Though the sector has several problems, management of resources is considered as the most important. Several reports inform that the inshore fishery is stagnant and there is no further scope for exploitation. The weak extension system with inadequate manpower and other resources have made public sector incompetent to satisfy the needs and restore peace amongst the community.

## 1.a Policies

Fisheries conflicts were the primary reasons for the creation of the Marine Fisheries Regulations Acts (MFRAs) in India. To manage marine fisheries, the government of India has issued guidelines to all maritime states to formulate rules and regulations to be passed by the respective state legislatures. These guidelines are intended mainly to avoid confrontation between the mechanized and artisanal sectors rather than as suitable regulatory measures for the sustainable exploitation of fisheries resources. The guidelines were first issued in 1978 and modified in 1980. Tamil Nadu and Orissa are amongst the maritime states bordering the Bay of Bengal to have passed Marine Fishing Regulation Acts. Other states follow ad hoc measures to prevent or tackle conflicts between artisanal and mechanized sectors. These Acts entail (i) registration of all fishing vessels, including non-mechanized country craft at their respective base ports; (ii) licensing fishing vessels for fishing in specified areas; (iii) regulation, restriction or prohibition of fishing in any specific area by such class or classes of fishing vessels that may be used for fishing in any specified areas; and (iv) regulation, restriction or prohibition of catching in any specified area of such species of fish and in such periods as may be specified.

These acts have thus equipped state governments with the authority to regulate and control fishing activities in their respective states according to specific local needs. The area of operation of mechanized vessels in different states ranges from 10 to 23km. The fisheries sector in India is classified into three major groups: mechanized, motorized and artisanal sectors. Conflicts arise within these sectors due to the inequalities existing amongst and between them. Demarcation of fishing areas for the three groups is

defined. Conflicts result within the sector mainly because of fishing in areas assigned to other groups. Other conflicts arise due to social and economic factors.

Acceptance and implementation of fisheries management ideas are a slow and gradual process. It is not realistic to be too ambitious and optimistic. Nevertheless a socioeconomic approach coupled with a bioeconomic approach, handled with understanding, tact and foresight may ensure sustainability of the resources. However, it is essential to inform that the communities themselves have been in the forefront to conserve their valuable resources with social methodologies in certain parts of coastal India. Prominent fisheries management techniques, such as co-management and community-based fisheries management practices, exist in certain parts of the country.

### 1.b Institutions and Governance

Almost always stakeholders of the fishing industry differ in their views about the management failures with respect to resource sharing and conflicts. This is due to weaknesses of the institutional design and approach. Institutions working on development of the sector, resource and conflict management are of two types: formal and informal.

The institution that takes care of the fisheries sector is mostly vested under the government in most of the Southeast Asian nations, and India is not an exception. Many countries expect to draft policies by which governance is decentralized at the community level. Apparently, informal institutions that worked effectively on fisheries management have declined in many parts of the world. Examples support for the statements that fisheries resources often managed by the community-based fisheries organizations (CBFO) supersede than the public initiatives. Often there are cases in India where the public institutions seek the help of informal institutions to work on fisheries management. With the existing weak infrastructure, manpower and economics, several nations have to plan in using the informal institutions and CBFOs in managing fisheries resources and other issues pertaining to the sector as discussed above. However, the tragedy on the loss of traditional institutions has created a great vacuum. In several nations the policy-makers are in the process of rethinking about reviving the traditional institutions for effective management of resources and conflicts.

At the grassroots level, the people's initiatives, including those by NGOs, trade unions and affected stakeholders raised up against weak implementation of rules by governments (Kurien 1978 and 1995, Kurien and Achari 1998, and Shajahan 1996).

### 1.c Objectives of the Project

The *Enabling Better Management of Fisheries Conflicts Project* envisioned promoting institutions and practices towards resolution of conflicts that are disadvantageous to poor fishers. The project likewise intended to promote conflict assessment and resolution tools as well as consensus-building methods, targeting key stakeholders. Specifically, the project also aimed at:

a. determining the best ways of communicating good practices in managing conflicts;
b. promoting key lessons and practices from earlier projects on conflict resolution and consensus building, including Participatory Institutional Survey Conflict Evaluation Exercise (PISCES) and Participatory Action Plan Development (PAPD) developed by the Bangladesh-based Center for Natural Resources Study; and
c. adapting and demonstrating results to three key countries with large number of poor people dependent on fisheries.

## 2. Project Sites (India)

Three sites were selected in India; they were the villages of Pedajalaripetta and Bheemunipatinam in Visakhapatinam District, Andra Pradesh State; and Sakthikulangara Village, Kollam District, Kerala State. Sakthikulangara was also the site identified by the Project for the PAPD field trial. The fishery profile and other details of the three sites are presented below.

### Site 1. Pedajalaripeta Village in Visakhapatinam

More than 90% of the Pedajalaripetta villagers depend on fisheries resources, which are mainly marine, for their livelihood. The village has a total of 2,136 households and a total population of 8,128, where are 3,184 males, 2,691 females and 2,253 children. Of this number, 6,459 are fishers. Fishing crafts used are of these types: non-motorized and motorized fiber boats, and wooden crafts, which describe the village's traditional and motorized types of fishing, operating in in-shore and off-shore fishing areas. Fishers often use gill nets, trammel nets, hook and line, and shore seines. The important fish species include tuna, seer fish, shark and sailfish. The village has good infrastructure facilities. There are social welfare organizations in the village. Socioeconomic problems range from social backwardness, economic stagnation, low catch/income, no gainful subsidiary occupation to lack of access to institutional finance.

**Site 2. Bheemunipatinam Village in Visakhapatinam**

Bheemunipatinam is also a marine fishing community near Visakhapatinam Municipality. The village has 8,763 households with a total population of about 42,000. The main occupation of the people in the area is related to fishing, animal rearing, fruit and vegetable vending and rural artisanal work. The landing center at Bheemunipatinam has traditional boats, mainly the stitched type. Bheemunipatinam's literacy level is 29.6% and the average income is as low as 1,205 rupees a month. The village has one primary health center, 15 primary schools, one under primary school, three upper primary school, one higher secondary school, one junior college, one girls polytechnic and one teacher training centre. Traditional and motorized boats operate in the area. The catches include seer fishes, shark and sail fish.

**Site-3. Sakthikulangara**

Sakthikulangara is an important coastal fishing village in Kollam District of Kerala. Fishers comprise the major population of the village. The introduction of mechanized boats has brought major changes in its fisheries sector, particularly in the development in infrastructures. All types of fishermen operate from this landing centre. A study indicates, however, that 64% of 1,209 families in Sakthikulangara are in debt. The total debt incurred by Sakthikulangara's fisher families amounts to Rs229.2 *lakhs*, with an average debt of Rs 29,766 per household (1 US$=Rs46).

## 3. Methodology

### 3.1 Application of PISCES

The Project made use of PISCES methodology developed by Bennett and Jolly (2000) and employed timelines, institutional wheel and semi-structured interview schedule to collect information useful for evaluating fisheries conflicts.

**Timelines.** Timelines are used to get a clear idea of what events in the past are considered important and how they occur in sequence. In the study sites, conflicts that occurred during the British period to the present were recalled. Such conflicts were drawn over the timeline. The inferences on the timelines indicated that the conflicts in fisheries resources date back to 1970 and were mostly between the traditional and mechanized fishers. Conflicts involved burning of boats and over the rights of traditional fishers. The inferences were used in the later part of Project activities, specifically in analysing conflicts at different parameters.

**Institutional Wheels.** Institutional wheels were used to identify the relationships amongst different stakeholders within the community. The stakeholders and institutions identified through the institutional wheels were used to collect data on attitudes related to fisheries conflicts. The interrelations amongst institutions working in the area were identified. Key stakeholders identified were the government, local government bodies, voluntary action groups, NGOs, community-based fisheries organizations, fishermen's associations, etc.

**Semi-structured Interview Schedule.** The semi-structured interview schedule was administered to collect information regarding the fisheries conflicts in the sites. The tool helped the team in identifying these conflicts and in cross-checking identified conflicts with other social methodologies of the project.

### 3.2 Stakeholder Consultations through Country Planning Workshop

Through stakeholder consultations in a national workshop, the Project designed communication planning matrices for the two most important conflicts identified in Sites 1 and 2, reflected as follows:

**Table 1. Communication planning matrix on conflicts between traditional and mechanized fishers in Project Site 1**

| Communication Partners (Who?) | Objectives (Why?) | Content (What?) | Communication Channels (How?) |
|---|---|---|---|
| Traditional fishers | Improve knowledge | Non-availability of resources | Face-to-face contacts<br>Village meetings |
| Mechanized fishers | Change behaviour | Adherence to mesh regulation code and to MFR act | Village meetings<br>Forming committees<br>Group discussions |
| Village head | Facilitate mediation | Amicable solution | Personal meetings |
| State Department of Fisheries | Enforce policies | Better policies and their enactment | Circulars<br>Mass media<br>Training Programmes |
| NGOs | Create awareness | Educate on the policies | Discussions<br>Printed literature |
| Researchers | Conduct study | Better insights on the conflict | Workshops<br>Training programmes |
| Media | Create awareness | Unbiased reports on the conflict | Print and electronic media |

**Table 2. Communication planning matrix on the conflicts between traditional fishers and promoters of tourism in Site 1**

| Communication Partners (Who?) | Objectives (Why?) | Content (What?) | Communication Channels (How?) |
|---|---|---|---|
| Traditional fishers | To create awareness, increase their knowledge level and understanding | Their rights and the provisions of the law | Interpersonal<br>Village-level meetings/forums |
| Promoters of tourism | To understand their problem and change their behaviour | The reality and impact on coastal fishers | Meetings<br>Committees<br>Common forums |
| Shore Area Development Authority | To take appropriate decisions and enforcement | Statutes and provision of the law | Letters<br>Circulars<br>Telephone<br>Press releases |
| Pollution Control Board | To take appropriate decisions and vigilance | Statutes and provision of the law | Letters<br>Circulars<br>Telephone<br>Press releases |
| Village head/leader | To facilitate mediation | The rights and privileges and provision in the law | Interpersonal<br>Meetings |
| NGOs | To create awareness and educate fishers | The rights and privileges and provision in the law | Printed literature<br>Circulars |
| Researchers | To study the problem in detail | Present situation and future outcome | Workshops, seminars and meetings |
| Media | To create awareness | On regulatory rules and regulations | Print and electronic |

**Table 3. Communication planning matrix on the conflicts between mechanized boat operators and traditional fishers in Site 2**

| Conflicts | Stakeholders | Objectives (Why?) | Content (How?) | Method |
|---|---|---|---|---|
| Mechanized boat venturing in 8km inshore waters | 1.Traditional fishers<br>2.Mechanized boat owners<br>3.Government | 1.To fish beyond 8km and 30m-depth zone<br>2.To stick to inshore waters and is united<br>3.To strictly impose exiting laws | 1. Strictly follow the law and restrict beyond 8km zone<br>2. Be united and oppose violation of the law<br>3. Punish violators | 1. To approach the boat operator association with written complaints<br>2. To inform the department about the various violations with written complaints<br>3. To strengthen unity through community gathering<br>4. To inform higher authorities about government negligence |
| Collection of prawn brooders | 1. Traditional fishers<br>2. Mechanized boat owners<br>3. Hatchery operators | 1.To increase catch<br>2. To refrain from treating brooders as target catch<br>3. To refrain from buying wild brooders | 1. Collective effort to avoid brooder catch transportation by traditional boats<br>2. Not to target brooders<br>3. Use captive brooders | 1. Community meetings<br>2. Stop transporting the live brooders<br>3. Government to encourage captive brooder production |
| Mesh-size regulation | 1. Fishers<br>2. Government | 1. To stop juvenile fishing<br>2. To pass relevant law | 1. Self- awareness<br>2. Optimize mesh size for all gears | 1. Community meetings, mass media<br>2. Research to optimize mesh size |
| Use of ring seines | 1. Fishers | 1. To pass relevant law | Self-awareness | Banning by the community, mass media |
| Discharge of effluents | 1. Fishers<br>2. Industries<br>3. Government | 1.To deplete catch<br>2. To treat the effluents<br>3. To monitor the ETPs | 1. Filing complaints against the industries<br>2. Discharge of treated effluents<br>3. Strict monitoring | 1. Protect rallies, written complaints<br>2. Meetings, mass media<br>3. Written complaints, penalties |

*Mechanized boats encroaching into the area within the 8km zone earmarked for traditional fishers is one of the most important conflicts. Mechanized boats fishing in these areas, primarily to reduce cost of their operation, cash in on the rich resource of inshore waters. To help prevent this exploitation, the government should strictly enforce existing laws and punish law violators. Apart from this, written complaints should be sent to the boat operators associations, copy furnished to the State Department of Fisheries to inform them of such violations. There should also be calls for unity amongst community members and if there is any negligence on the part of the local government, stakeholders should inform higher officials on the matter.

*Collecting prawn brooders by traditional as well as mechanized fishers also causes conflicts in the study sites. To stop this conflict from recurring the people must be made aware of the conflict by organizing community meetings on the need to avoid brooders as target catch and also to avoid buying wild brooders. Collective effort should be then be made to avoid capture of brooders and to stop transport of live brooders. The government should also discourage captive brooder production.

* Fishers' indiscriminate use of mesh-size nets is also reason for conflicts. The object for preventing this practice is to stop juvenile fishing. The fishers themselves should be made aware of the ills of using these nets. Pertinent laws must also be enforced. Community meetings and mass media and can help prevent this conflict.

*Use of ring seines is another reason. Fishers should likewise be made aware of this problem through community meetings and through the use of mass media with information from stakeholders on the ways and means to avoid such conflict.

*Discharge of effluents from industries is certainly a source of conflicts. Pollutants caused by these discharges deplete fisheries resources, especially potential fish catch. It is imperative then to conduct strict monitoring on the discharge of treated effluents and also to lodge complaints against the industries guilty of discharging effluents. Mass rallies, written complaints, meetings, mass media and penalties were some of the means perceived by the stakeholders to keep the conflict in check.

## 4. Nature, Types and Causes of Conflict

The nature of fisheries conflicts was identified through the country planning workshop held in Visakhapatinam, Andrapradesh. Major conflicts identified in the study area were due to resource sharing and indiscriminate fishing practices of certain groups of fishers. Specifically, the conflicts were due to the use of small mesh-size nets, trawling in breeding grounds, and weak marketing structure. Intrusion of mechanized boats into the traditional fishers' area was one of the most common conflicts in the study site and part of adjoining fisheries. Pollution due to effluents and oil spills from different types industries naturally caused conflicts. Conflicts between promoters of tourism and traditional fishers also prevailed in the study sites.

Conflicts occurred when there were prohibitions on juvenile fishing, catching brooders, buying wild brooders, and on restricting mechanized boats to fish in inshore waters, amongst other prohibitions. Concerns on the death of living resources and decrease in catches due to oil spills and discharges of effluents led to conflicts. Tourism promoters and traditional fishers were in conflict as the latter argued that tourism led to displacement of fisheries from the coastal areas.

There had been discussion on the methods to avoid these conflicts. One such method, as suggested by the stakeholders, was to submit written complaints to the boat operators' association as well as to inform the state fisheries department. Another method suggested by the stakeholders was to restore peace through community gathering. Traditional fishers and mechanized groups should exert efforts together to avoid brooder catches. The stakeholders suggested that preventing these conflicts should be through community meeting, by stopping the transport of live brooders and with the government discouraging captive brooders. Fishers should be self-motivated and laws should be enforced properly. Holding community meetings, using mass media and conducting research were considered important in instituting preventive measures to avoid conflicts. The stakeholders likewise considered mass rallies, written complaints, and imposing penalties as some of viable methods to help avoid conflicts. There should be strict monitoring of the discharge of effluents.

The workshop consolidated the fisheries conflicts based on the following typologies:

| | |
|---|---|
| Type I | Access to designated fishing zones |
| Type II | Poor enforcement |
| Type III | Gears and advance technology, and encroachment of fishing grounds for traditional fishers by commercial fishers |
| Type IV | Traditional fishers and prawn broodstock fishers |
| Type V | Lack of proper management and enforcement by authorities |

* Typologies are based on Bennett (2002).

## 5. Attitudes towards Conflict Resolution

Attitudes vis-à-vis fisheries conflicts were identified according to the types of stakeholders, such as:

1. Primary stakeholders (who are directly related to fisheries sector, exploiting the resources)
2. Fisheries managers (who have the stake in the fisheries sector and responsible in managing fisheries conflicts)

The attitude statements were selected based on the five frames of references discussed during the international workshop held at Mitraniketan. Pilot testing was conducted to test the interview schedule for its validity and reliability. The tool was modified based on the inferences of the pilot survey. The data on the attitude on fisheries conflicts were analyzed with simple percent analysis

The Team selected two important topics for interventions based on the project objectives after conducting the attitude survey. Two community workshops were held at the sites, covering such topics as Marine Fisheries Regulation Acts (MFRA) and the FAO Code for Responsible Fisheries (CCRF). The MFRA of

Andrapradesh had important information that required dissemination but the diffusion process was rather slow, which was found to be one of the reasons for the incidence of fisheries conflicts. The contents of the MFRA discussed were:

1. Zoning of fishing areas for different groups of fishermen
2. Banning different illegal fishing practices
3. Registering of the boats
4. Utilizing institutional and other facilities for peace restoration

The second intervention was with the CCRF. The information dealt in detail included the following:

1. Overcapacity and overfishing issues
2. Ban on different illegal fishing practices
3. Importance of the Marine Protection Areas
4. Industrial pollution and its impact on fisheries
5. Destruction of mangroves and other breeding grounds
6. Use of chemicals and antibiotics in aquaculture
7. Impact of tourism on fisheries
8. Use of research data on fisheries
9. Save sea for your future generation

**6. Communication plan**

Identification of the best communication strategy for resolving conflicts in the project sites was analysed through community workshops. The best communication strategy for resolving conflicts was identified using the communication channel identified by the stakeholders themselves with the developed communication planning matrix**.**

The main communication channels identified in the national workshop were face-to-face meetings at the village level, informing through circulars, mass media, training programmes, workshops, written complaints, community assemblies,etc.

The various communication channels through which the conflicts were to be resolved were discussed and analysed through a participatory mode. The ranking method was used to collect information related to the best communication channels used, as reflected below:

| **Communication Channel** | **Ranking** |
|---|---|
| Face-to-face meeting | 3 |
| Circulars | 4 |
| Mass media | 5 |
| Trianing programmes | 2 |
| Workshops | 2 |
| Written complaints | 1 |
| Community gathering | 3 |

The communication channels suggested by the stakeholders were ranked based on their preference, with written complaints in the top rank. The reason for suggesting this channel could be due to their earlier successful attempts in combating conflicts by writing complaints to the relevant authorities.

The second most prioritized communication channel was training programmes and workshops. The experiences of the stakeholders in acquiring knowledge and skills through training and workshops would have been due to their participation in these activities. The third best communication channel identified by the stakeholders was community gathering. The other channels perceived by the stakeholders in the process were media and circulars.

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