

# Responsible Fisheries: Key to Conservation, Management and Development of Fisheries in India

P.S.B.R. JAMES

(Former Director, Central Marine Fisheries Research Institute, Cochin, Kerala State, India)

Present address: No. 832/27, 3rd B main, 2nd Cross, Prem Nivas Road, Kammamahalli P.O. Post, Thomas Town, Bangalore 560 084, Karnataka State, India. E-mail: psbrjames@gmail.com

पुस्तकालय

Library

Central Marine Fisheries

Research Institute, Cochin, Kerala State, India

Fishing has been free for all in the country, for the past sixty years. The resources have been exploited rather indiscriminately, resulting in over-exploitation of majority of the resources, low fish availability, high prices, unsustainable aquaculture, environmental degradation and pollution. Fishing to-day is more complex than before, governed by extraneous influences like human activities, climate changes, consumption trends and market dictates. In this context, it would be wise to understand the tenets of the FAO Code of Conduct for Responsible Fisheries 1995 and implement the same in letter and spirit. An introspection of the current status of the fisheries sector reveals that the majority of the extant practices are not in conformity with the Code. Therefore, it is expedient, in order to retrieve the resources and restore the aquatic environment, to its original status to apply the principles of the Code.

The paper briefly reminisces the past, reviews the present, highlights certain major issues and suggests some strategies including policy issues for ushering in responsible fishing practices in the country.

## Down the Memory Lane

Fisheries resources were once abundant and easily accessible for anybody in the country. The aquatic environment was pure until recently and unpolluted. The rivers were full of water and flowed freely. The lakes were pristine and were store-houses of several species of fishes, aquatic plants and other fauna. The ponds and tanks yielded valuable food fishes. The reservoirs, full of water, harboured several kinds of fishes, but remained either unexploited or underexploited. The coastal marine waters teemed with fish and other marine animals. The bottom fauna of the seas flourished luxuriantly. Migration of fish from sea to rivers and vice-versa was uninterrupted. Schools of fish in the sea were

frequently encountered and captured. Glut conditions prevailed for fishes like the oil sardine and mackerel. Excess catches used to be buried on the beaches. Traditional fishing gears like shore-seines, gill nets, bag nets and hooks and lines accounted for a greater percentage of marine catches. Total catch and catch-per-unit effort were high for all the gears. The backwaters, lagoons and estuaries were clean, unpolluted and abounded in fish and other aquatic animals. The reefs, mangroves, seagrass and seaweed beds and other sensitive marine habitats remained virgin. Juvenile fishes and shrimp in the sea were not endangered and thrived well.

## Evolution of the Present Situation

Sixty years of intense exploitation of fisheries resources on an open access system, concomitant technological improvements and modernisation of fishing craft and gear through scientific innovations linked with demand for export and domestic consumption created a plateau in overall fish production from the wild. Indiscriminate exploitation of coastal fisheries resources greatly depleted the stocks. Large quantities of edible and non-edible components are being discarded at sea. Incessant bottom trawling in coastal waters, mainly for shrimp, not only affected the juvenile populations of several commercially important fishes and shrimp, but also destroyed the benthic fauna and flora and affected the whole of bottom ecology. Introduction of mechanised trawling also generated clashes between artisanal fishermen and those operating mechanised boats. Though adequate and sound scientific evidence was available for diversification of fishing, this was not adopted, because of the greed for shrimp. Consequently, the offshore and oceanic fisheries resources remained almost unexploited. Critical marine habitats have been extensively

damaged and some species became endangered.

Freshwater capture fisheries resources also have been gradually depleted over the years. The decline is attributed to overfishing and environmental reasons. The negative impacts include multi-purpose use of water, construction of large and medium dams across rivers for water impoundment, high rates of pollution and consequent deterioration of water quality, high demand for water for human use and its reflection on aquatic ecosystems. Original germplasm of several species was lost and wild spawn collection totally ceased. *Beels* and other wetlands have not been maintained and properly used thereby, allowing wild, unmanageable vegetative growth. The three major lakes viz., Chilka, Pulicat and Kolleru, which were rich sources of fish and shrimp, were subjected badly to human interference resulting in the destruction of their very ecology. Several other lakes in the country also faced anthropogenic disturbances. Reservoir fisheries development has been plagued with improper stocking methods, over fishing with inappropriate gears, absence of closed seasons and lack of marketing channels. The estuaries, *bherys* and backwaters constantly faced the threats of pollution, mainly from industrial sources. Population pressure was reported to have adversely affected the coldwater fisheries resources.

Freshwater aquaculture struck deep roots in the country but it mostly remained with major carps. Species diversification for culture has not been achieved, with the exception of freshwater prawn to some extent. Stealthy introduction of exotic species is not effectively controllable. So much so fishes like *Clarias gariepinus*, and *Pangasius sutchi*, besides exotic carps like silver carp found entry into tanks and ponds, causing problems. Seed, feed and fertilisers are not available at the right time and in right quantity to the



farmers. Farmers have been facing marketing problems.

Brackishwater aquaculture remained synonymous with shrimp culture all the time. It also faced disease, environmental and socio-economic problems. Use of chemicals in farm ponds became rampant. For years, there was little diversification. Limited progress has been made on breeding and seed production of finfishes. The successful breeding, seed production and farming of mud crab is yet to take off on a commercial scale.

Mariculture technologies have been successfully developed but have not led to commercial scale ventures, except in the case of edible oyster and the green mussel. Propagation of these technologies and development of seafarming are beset with several bottlenecks, including location testing, ownership of water areas, leasing policy, multiple use of coastal areas and coastal zone regulations.

There was little diversification of the processing industry, frozen seafood being the main commodity exported. Production of value added and convenient foods is of recent origin. Quality standards, packaging and marketing strategies have not kept pace with international standards. Domestic marketing of fish and fishery products is far from satisfactory. Hygiene and sanitary conditions in the entire chain from capture to consumption need upgradation. Fish is still not available in wholesome condition in the nooks and corners of the country. Commercial production has not yet developed on a large scale for products prepared out of low value fish.

Funds provided for the sector are too meagre when viewed from the potential it offers for food production, employment, income generation and export. Institutional credit availability continues to be unsatisfactory. There is marginal availability of insurance cover. All these and other financial constraints seemed to have affected the rate of technology adoption and consequently the rate of growth.

Fisheries educational system has been developed but it has to go a long way to be meaningful to farmers and fishermen. Field problems have not

been effectively addressed to. Hands-on training facilities are however provided at appropriate institutions fully equipped for the purpose. Higher learning and manpower requirements in the country have not been matched. Centres of excellence are almost non-existent.

Fisheries extension work has remained a weak link in the entire chain of activities all along. The primary shortage is in respect of trained fisheries extension personnel *per se*.

There was no Linkage and coordination between technology development and extension activity. The economic viability of the technologies has not been critically evaluated. Transfer of technology programmes is yet to be made vibrant by involving all stakeholders.

Fishermen welfare programmes, though implemented, have not been very effective and appreciated by the clientele. Aid and assistance have not matched the requirements for enhancement of their professional skills and needs. Rescue, relief and rehabilitation of fishers at times of natural disasters which are of paramount importance to them, have not been adequate, not foreseen and provided. Political support and patronage for the sector is sadly lacking.

#### Changing Course to Responsible Fisheries

Current fisheries practices based on short-term view of economic viability are endangering the fisheries resources and the aquatic environment. The sector is facing crises in environmental, economic and social arenas, fishermen and their communities are exposed to economic and social stress. Their livelihoods are increasingly threatened with increasing natural disasters like floods, cyclones, tsunamis, climate change and global warming.

Who is accountable for responsible fisheries? The answer should be "all stakeholders involved from capture to consumption of fish". Besides several other actions required to make our fisheries responsible, the following key issues have to be considered on priority.

Marine fisheries are characterised by a weakened resource base, poor profitability, excessive labour and capital and inter-sectorial confrontations due mainly to the open access system in vogue all along, essentially confined to coastal and predominantly shrimp-oriented activities. Coastal fisheries have to be efficiently managed through permits and quotas, reduction in fishing fleet sizes, reduction in capital and labour, diversification of fishing methods, strict enforcement of mesh regulations, closed seasons and areas and total cessation of trawling in coastal areas periodically. Future focus should be on offshore and oceanic fisheries. Discards at sea will have to be saved.

Inland fisheries of the country were impacted by multipurpose use of water resources, pollution of rivers, estuaries, bherys, lakes, ponds and tanks, destructions of their ecology, encroachment of waterbodies and human interference in manifold ways. Rapid reversal of these negative trends is essential with due regard to the purity and quality of water, restoration of aquatic habitats, migration and production of fish. There is need to develop reservoir fisheries with proper management strategies.

Freshwater aquaculture, which over-concentrated on Indian major carps and some exotic carps needs immediate diversification of species to use the different niches available for fish production even under adverse environmental conditions, making use of rainwater harvesting and recirculatory systems. Culture inputs have to be made available to farmers in time to intensify production from reservoirs by culture and capture methods.

Brackishwater aquaculture which has been synonymous with shrimp culture, needs urgent diversification. Use of chemicals should be totally banned and pollution controlled. Environment friendly methods should be propagated to ward off diseases.

The available mariculture technologies have to be field and location tested, propagated and facilitated for adoption by fishermen and farmers. Policy bottlenecks for



seafarming have to be expeditiously removed.

Fish processing industry needs to diversify to produce value-added and convenience products, to improve quality standards, hygiene and sanitation and to develop domestic marketing to supply wholesome fish to the public in the nooks and corners of the country. Fish wastes have to be recycled into useful products.

Fisheries education should be made relevant to the farmers, fishermen and the industry. It should match the HRD requirements. Higher education should lead to the development of Centres of Excellence.

Fisheries extension work needs the greatest thrust in the country to achieve proper coordination between technology development and its adoption. Efforts are necessary to involve all the stakeholders in the process. Qualified subject matter specialists have to do the job. Feedback information from farmers, fishermen and industry has to be critically examined.

The recent uptrend in natural calamities indicates the essentiality of welfare programmes for fishermen and coastal communities to meet their livelihood requirements and professional activities. Timely warnings, relief, rescue and rehabilitation programmes have to be readily available and strengthened.

The overall impression that the fisheries sector is impoverished

should be removed and all-round financial assistance to the sector has to be provided as for other food sectors in the country.

Best scientific evidence is crucial for the development of responsible fisheries. All the national research institutes and universities have generated a good deal of information, guidelines and recommendations based on all facets of fisheries research. This valuable information should not just go into files but critically analysed, understood, and made use of for developing policies to enable the fisheries sector to play a key role for food security in the country.

### General Suggestions


Greater awareness of the Code has to be created amongst all stakeholders from fishermen to policy makers through education, training and extension activities. Mere translation of the code into regional languages tends to remain on paper only. Responsible and precautionary fisheries management is a minimum requirement for ensuring the viability of resources and their exploitation. Strong databases have to be developed for all resources. Fishers and decision-making bodies should become aware of their responsibilities in the exploitation of renewable resources. The present lack of coordination between several organisations dealing with research and development of fisheries in the country should be expeditiously addressed for ushering in responsible fisheries in the country.

Timely dissemination of innovations by R&D agencies and improvements in extension efforts for information communication will help in developing responsible fisheries. Best scientific evidence available in the country has to be respected and fully utilised, taking into account traditional knowledge of the resources and their habitats.

There is a need for closer scrutiny of environmental regulations in the context of development of responsible fisheries. A review is required of the negative effects of various regulations by the Centre and States controlling fishing activities.

Need based and community based institutions and village knowledge centres to educate fishermen on responsible fisheries have to be established. Integrated Fish farming methods have to be encouraged to benefit rural communities.

Ecosystem based fisheries management and participatory approach involving fisheries and other stakeholders and monitoring mechanisms should be adopted. Judicious use of existing water resources, rainwater harvesting, conservation and recirculation of water should be practised. The sea should be exploited for full economic use of living and non-living resources.

All fisheries issues with neighbouring countries have to be studied in depth and amicably resolved with effective coordination and understanding. 

## Coastal Management Zone draft will be allowed to lapse

As recommended by Swaminathan Panel

Bringing relief to the fishing community which feared displacement, the government announced recently that the draft Coastal Management Zone (CMZ) Notification, 2008 would be allowed to lapse on July 22, 2009

Instead, the existing Coastal Regulation Zone (CRZ) Notification, 1991, will be amended to take into account the challenges likely to arise from climate change-induced sea level rise, and the growing pressure of population on coastal resources and biodiversity.

This follows the Ministry of Environment and Forests accepting the recommendations of a four-member expert committee, chaired by agriculture scientist M.S. Swaminathan, which reviewed the draft CMZ notification.

Prof. Swaminathan drafted the CMZ document in 2005 and he now recommended that it be abandoned as it had failed to address the issues of fishermen.

"The lives and livelihood of nearly 25 per cent of our population living within 50 km of the shoreline, as well of the nearly 10 million fisher-folk, will depend upon the

decisions we take now to develop enforceable regulations for integrated attention to both ecological and livelihood security," Prof. Swaminathan said recently.

Setting out an agenda for coastal areas, the committee, has also recommended that the government check violations of the CRZ through improved space technology-enabled enforcement, strengthened institutions, and regulatory and legal reforms. It has suggested introduction of regulations to manage the proliferation of ports along the coasts with possible im-pacts on the coastline by considering the cumulative impact of these developments and a moratorium on new ports.

### Effluents Disposal

Calling for tighter standards for disposal of effluents into coastal water so that these waters do not become cheaper alternatives to inland pollution management, the committee has suggested that issues of fisheries development and re-development of Mumbai in relation to pollution be resolved.

The committee wants the government to introduce any new protection regime — such as for critically vulnerable coastal areas — after understanding the impact of conservation policies on local communities, particularly fisher families. "We are contemplating a law to ensure livelihood security for the fishing community and are in the process of setting up a National Coastal Zone Management Board and a National Institute for Sustainable Coastal Zone Management based in Chennai," Mr. Jairam Ramesh, Minister of State for Environment is reported to have said.

Strengthening protection of mangroves, inclusion of a seaward side to ensure projection from current and future threats and enhancing research and regulatory capacity at all levels are some other recommendations.

The committee includes Sunita Narain of the Centre for Science and Environment, Shailesh Nayak, Secretary, Ministry of Earth Sciences; and J.M. Mauskar, Additional Secretary, Ministry of Environment and Forests.

