

Department Of Fisheries

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1 Introduction

In the last twenty years, fishing in the marine sector has expanded rapidly due to initiatives in the 1970's. The expansion has gone on without any real control and management. This has led to a sharp increase in fishing effort.

The exact status of major fish and shrimp stocks are not known, as no recent surveys have been undertaken. However, fishermen have reported a serious decline in their catch and some have shifted from their preferred catches to other species in order to continue fishing. Mechanised boat owners and fishermen have stated that many boats are idle for long periods as it is no longer profitable to go to sea. Estuarine bag set net fishers have also voiced their concern and have stated that to ensure a catch they have put in more nets with smaller mesh sizes.

The ownership of the industry has seen a dramatic change. With the introduction of more expensive fishing methods most of the boats are no longer owned by fishermen, but by business men who then employ fishers on a catch sharing basis. Even for those fishermen not using boats, they are no longer in control of the fishing resources. Pressures from new migrant fishermen have restricted the access and this is further restricted in some areas by the actions of local "mustans".

2 Requirements for the Future –The Sub-strategy

The requirements of the strategy are to advocate a system that will lead to the sustainable management of the Marine Sector Resource.

Marine Sub-strategy Objective:

Ensuring the sustainable management of the marine sector through the allocation of fishing rights and its management to communities and relevant fishing groups and by providing the regulatory framework for this management.

At present the limited resources for the management of the sector are allocated in the areas of ease of operation i.e. monitoring the trawler sector. This is however not the area where most fish are caught, most fishermen are involved or where it is thought that the most destruction is done to stocks.

2.1 Priorities

One of the priority issues that need to be resolved is for what purpose the resource be managed. Should it be used to maximise sustainable production or should it be used to provide employment and a sustainable livelihood to the greatest number of people. In the National Fisheries Policy (NFP) 1998 it is clearly stated under article 8.3 “More priority on small-scale fisheries sector”. This is in line with the “The National Strategy for Economic Growth, Poverty Reduction and Social Development” which is one of the main instruments for government action and responsibility. However not all areas of the marine sector are accessible by the poor and can only be fished by larger vessels. The strategy should therefore start at what resources can be fished by the poor, then what resources can be fished by the less poor and finally what resources are left and can be fished using modern, commercial techniques.

This should not affect total catch, but should ensure that the bulk of the resource is available to, and can be utilized by, the poorer members of the fishing community.

This needs to be combined with conservation of the resources, including control and bans of destructive gears, and a control of the number of people involved in the marine fisheries, restricting new entrants to the sector. To mitigate effects of regulations to limit numbers of fishers there is need for support to alternative income generating activities.

2.2 *Ownership*

Over the last twenty years the ownership of a large part of the sector has slipped out of the hands of the fishermen. This has happened due to the increased cost of the boats and fishing gear and the realisation of the value of the resource.

The mechanisation of the traditional fishing boats meant that they were able to travel further and bring in bigger catches. It also meant that there was a big capital outlay to install the engine. Although funding was available through co-operatives, this did not lead to ownership of the boats by the fishermen instead it saw most of them becoming owned by the business men and merchants. The development of the industrial fishing vessels has exacerbated this problem. Even for the smaller boats many of the gears are owned by businessmen and leased out to the small fishermen.

A major aim of the strategy is to transfer the ownership back to genuine fishermen, as it can only be sustained through their concern for and management of the resource with support from the government.

The first step is a registration of fishermen and through this grant those the right to fish.

The next step is to provide the fishermen with the means to regain control of the fishery. This will involve the provision of credit through careful selection of credit providers who are able to ensure that the fishermen benefit. Part of the strategy is to pilot ways in which credit can be disbursed.

In the preparation of the strategy stakeholders have been consulted. In the future planning, it is imperative that the stakeholders continue to be involved in the development of actions to manage the resource and to limit fishing effort.

Programmes will be planned for full participation of the fisher community in all aspects of coastal fishery management line with the concept of community based fisheries management. It further requires expansion of programmes for empowerment of the fisher communities in line with the experience of the ECFC project.

2.3 *Management Plan*

For effective management of marine and coastal fisheries the management regimes are required to be divided into three principal categories, namely I) Artisanal Fisheries Management, II} Mechanised Commercial Boat Fisheries Management and III) Industrial Trawl Sector Management.

- A Marine Fisheries Management Plan will be prepared based on existing information as a precautionary measure and updated as more information becomes available
- To carry out the job of management and monitoring of marine resources, management responsibility currently vested with the marine wing of DoF in Chittagong shall be decentralized and allocated to coastal districts and Upazilas. For this there is need for institutional strengthening and a Human Resource Development (HRD)
- A Monitoring, Control and Surveillance system needs to be implemented initially using the existing staff. Staff will be deployed throughout the coastal zone to improve the flow and quality of information and simultaneously capacity need to be build to provide technical support for the Monitoring, Control and Surveillance. As resources and staff become available this should be strengthened to ensure a robust supply of information on which a revised management plan can be based. This information would include assessment of the fish stocks, determination of the maximum sustainable yield (MSY) and the maximum economic yield (MEY) and develop biological information on the important fish and shellfish species. For this surveys and research on marine fisheries would be undertaken by DoF with participation of the BFRI, concerned universities and private /NGO sector institutions. This will also utilize the indigenous knowledge of the communities for an effective and rational development and management plan.
- For effective regulatory and enforcement activities cooperation and support of Local Government Institutions are to be sought and established at Upazila and district levels.
- Communities' and fishermen's involvement must be ensured at all levels of planning and management, including MCS.

- Management regimes for the non-mechanized artisanal sector, mechanized boat sector and trawler sector shall be re-organized by specifying their fishing gear and area of operation. A new zonation will be made to demarcate operations of different types of fishing fleet, including the provision for protection of the nursery grounds within 5 meter depth of water or 5 km distance from the shore line.
- Marine Ordinance and Rules shall be revised to accommodate provisions and updated to resolve conflicts among stake-holders on exploitation of limited resources.
- Appropriate programs to identify and develop new fisheries based on the new or under-utilized fishery resources.
- Improved marketing and quality control should be promoted to maximise the benefit from the sector.
- The institutions given the responsibility should be strengthened in line with the importance of this function
- Increased co-ordination and linkages between the different institutions in the sector within the country, the region and internationally.

Management plans must include specific advice on the management of particular species. A start has been made with the development of a management plan for hilsha. However, although hilsha is the most important species in the marine sector, specific management plans need to be developed also for other commercially important species.

2.4 *Resource Assessment*

Collecting information of the artisanal catch is complicated because of scattered landings. Much of the catch is not sold as it is consumed by the fishermen and their families and what is sold is done on the informal market. A mechanism therefore needs to be developed to monitor artisanal catches.

As the activities become more commercial then more of the landed fish is sold through the formal marketing system. This allows increased opportunities for monitoring the landings of fish and using this as a base to assess the resource.

Arrangement for a shore-based catch monitoring covering all the major landing centres of Chittagong, Cox's Bazar, Bhola, Barisal, Patharghata and Khulna needs to be undertaken by the marine survey unit with support of researchers of BFRI and Universities for collection, analysis and interpretation of data to determine the status of major stocks.

Shore-based programmes should include:

- Determination of species-wise exploitation pattern
- Identification of over-exploited and under-exploited stocks
- Determination of optimum fishing efforts in different fishing areas
- Changes in species composition and abundance
- Optimum mesh sizes of various fishing gear
- Exploration of cephalopods and other shell-fish resources
- Taxonomic study of all marine fauna and preparation of field identification guide
- Determination of catch per unit effort of different gear

In addition to these monitoring activities of landings, additional survey work needs to be undertaken to support these findings and assure a more in depth knowledge of the resource. .

The need to spend large resources on assessing deep sea fish stocks should be considered only as the third priority as the immediate catch increase is not likely to justify the expense. However if the resources become available at a later stage then this should not be neglected.

2.5 *Artisanal Sector Management*

The artisanal fishermen are those that fish near the shore and largely depend on the catch for their own consumption. The value of the gear is also important. At the lowest level, this is fishing using a basic hook and line. The cost of gear steadily

becomes more expensive through cast nets, to beach seines and inshore drift nets and on to estuarine set bag nets and marine set bag nets.

For the lowest level there is possibly no need for control, but as the gear becomes more effective, then there is certainly a need for control. Due to the large numbers of fishers it would be impossible to regulate this purely through government control and thus local or community control becomes important. For the community to control fishing they must then be given rights over given areas. These rights must be consolidated through legislation. The community must however be supported in their control efforts and regulations will need to be imposed through the preparation of local management plans.

This regime includes a wide range of small ‘dingi’ boats without engines as well as a large number of shallow engine boats of 12 –22 HP that operate in rivers and near shore areas for short or day-long trips and land their catch in villages and nearby at market centres. This group operates estuarine set bag nets, beach seines, trammel nets and push nets. The exact numbers of motorised artisanal boats need to be determined for management purpose. The Marine Fisheries Rules have provisions of bringing these boats under licensing system which is currently kept suspended by the Government. For regulating fishing effort it is necessary to bring in a licensing system under DOF.

- The shallow coastal areas and the estuaries are the nursery grounds of almost all the marine fauna. The area up to 5 meter depth of water or up to 5 km from the shore line should be protected from all kinds of fishing activities in order to allow the juveniles uninterrupted migration to the sea to maintain the stock.
- The inshore area up to 10km offshore should be reserved for artisanal fishermen, however there should be no restriction on how far artisanal fishermen can venture
- The artisanal fishery will be brought under co-management or community management, administered by local government and supported by technical advice from the DoF.
- A management plan for the Upazila should be prepared allocating coastal resources to the coastal fishing communities

- An Artisanal Fisheries Regulation Committee headed by the UNOs and with representatives of Fishermen’s Organizations, Boat Owners, Union Parishad, ‘Palli Daridra Bimochon Foundation’. NGOs. SUFO/UFO/CFO shall act as member-secretary of the committee. The committee should be responsible for regulating fishing effort and allocating quotas for fishing.
- A Coastal Fisheries Officer (CFO) should to be posted in each of the 47 coastal Upazilas to monitoring boats, gear, catches and marketing of fish and advise on the preparation of management plans
- CFOs of the coastal upazilas shall be responsible for advising on the management and regulation of artisanal fishing boats operated in the estuaries, river mouths and near-shore areas
- CFOs shall be responsible for awareness building among coastal fishing communities on the need for conservation measures
- Credit should be made available so that fishermen can own their own gear and awareness of credit availability should be extended.
- Alternative income generating activities (AIGA) should be promoted to encourage less reliance on fisheries resource and enable a reduction in fishing effort. In this case the lessons learned from the ECFC project will be considered for extension throughout the coast.
- A control on destructive fishing gear must be agreed to by the fishing community and enforced.
- Existing rules and regulations need to be examined, strengthened and enforced through awareness and community responsibility. Additional enforcement in conjunction with the local administration may be required.

2.6 *Mechanised Commercial Sector*

This regime includes all mechanised commercial fishing boats that undertake up to 7-15 day long trips and land their catch in landing ‘ghats’ defined by the Department. Since these boats are operated from coastal districts, management responsibility of these boats currently vested with the marine wing of DoF will be decentralised to coastal districts. This management regime will include all mechanised commercial fishing boats operating drift gill nets, marine set bag nets and long lines in the sea up to a depth of 40 meters.

- The area from 10 km off the shore up to a depth of 40 meters shall be allocated to mechanized boat operating drift gill nets, marine set bag net and long lines.
- A clear set of guidelines will be developed to categorise these boats based on length, engine size, hold capacity and length of fishing trip.
- All mechanised commercial boats, of the stipulated size and capacity shall be brought under licensing.
- To expedite the process of licensing and to remove the difficulties of boat owners in obtaining the licences the DoF shall enter into agreement with MMD for development of a joint certification system. DoF Engineers and Inspectors shall be trained on maritime science and safety at sea by Marine Fisheries Academy.
- The existing provisions in MFR as well as Marine Shipping Ordinance of 1983 will be reviewed and amended.
- A district level Fisheries Co-ordination Committee headed by the Deputy Commissioner with representatives from Fishermen's Organizations, Boat Owners Associations, Co-operative Societies, NGOs and other stakeholders shall be responsible for fishing ground management, fishing fleet management, fishing access allocation, licensing and other management activities. DFOs will act as Member-Secretary.
- DFOs shall be authorized to issue licences to fishing boats on recommendation of the FCC and following the DoF/MMD survey/certification system.
- To effectively monitor the movement and operation of fishing boats a number of surveillance check posts will be established in coastal areas including Cox's Bazaar, Sandwip, Laharhat Chanel(Barisal), Bhola , Patuakhali and Mongla.
- As requested by the fishermen and boat owners water route signalling systems may be installed at strategic points, for example at Dhalchar, Hatia, Kalagachia and Mohipur.
- All mechanised commercial vessels shall carry safety equipment as required under the vessel certification scheme.
- To promote ownership of the sector by the fishermen a credit scheme will be established to promote the purchase of the boats from the business community.
- All crew members must be registered fishermen.
- All fish caught by mechanised boats should be landed at recognised regulated landing sites.

- A programme to promote and raise quality shall be initiated for all fish landed through the certified landing sites.
- To carry out the management functions efficiently each of the 14 coastal districts shall be allocated with additional staff. These may be transferred from existing positions in the Marine Section or other positions from DoF. Additional staffing requirements should be recruited under the permission of the Ministry of Establishment under the guidelines for cadre staff.
- The organisational structure of DoF will be adjusted to include these responsibilities.

2.7 Industrial/ Trawl Sector Management

This sector is important to ensure that the resources in the deep sea are effectively utilised. . Regulation is required to ensure that the boats are limited to this area, that they do not overfish by using destructive gear, sanctuary areas are not violated and wastage of trash fish is minimised.

- An industrial vessel committee comprising of the DoF, shrimp trawlers association, fin fish trawlers association and the coast guard/navy shall be formed to help manage and regulate this sector.
- The Deputy Director of marine wing in Chittagong in collaboration with the above committee shall be responsible for regulating fishing operations by trawlers in off-shore areas beyond 40 meter depth.
- All vessels will be certified and licensed, with restrictions placed on fishing gear and areas of operation.
- Manpower required for trawl sector management shall be identified and allocated from the existing structure of the Marine Wing.
- For regulatory and enforcement activities, logistics and manpower, support of Bangladesh Navy and Coast Guard shall be sought and regularised through a Memorandum of Understanding.
- Support shall be given to the Coast Guard and Navy on technical fisheries issues and a member of staff shall be assigned as an enforcement liaison officer.
- Catch monitoring and surveillance will be undertaken through log books and certified landings.

- The coast guard/navy shall be engaged in the protection of marine reserves, mesh-size, closed seasons, breeding grounds protection and pollution control.
- Management shall consider introduction of modern long-liners, purse-seiners for operation in off-shore areas beyond 80 meter depth in “Middle” and “Swatch of No Grounds” for harvesting of demersal and pelagic stocks which reportedly remain unexploited.
- Agreement will be reached with neighbouring countries to prevent encroachment of foreign trawlers into Bangladesh waters.

2.8 Regulation and Enforcement

A major effort to conserve the resource must be in the control of the fishing effort. This can in part be through voluntary controls, but must be supported by regulations and enforcement. The enforcement of regulations becomes easier if they are based on consultations with the stakeholders.

At present there are a range of regulations, none of which are fully enforced. There is a need to examine all of these and redraft existing laws to ensure that there are no areas of confusion between the different institutions responsible for drafting and implementing laws.

To support this, the services of a legal advisor should be made available to the DoF to examine the regulatory framework of the sector and prepare amendments that would enable a simplified and more robust system to be developed.

2.8.1 Fishing licences

All fishermen will be registered and required to have a licence. Depending on the category of fishing these can be granted by the authorities at the Upazila, the District (Zila) or through the main centre (i.e. for trawlers). This is required to support ownership of the industry and to control fishing effort.

- A fee based structure needs to be established for all categories commensurate with potential earnings.
- One institution should be charged with the responsibility at each level. This should be based on the appropriate committee as described earlier.

2.8.2 Boat certification

At present boat certification falls under the Mercantile Marine Department under the Marine Shipping Ordinance.

- Requirements for boat certification should be limited to mechanised commercial boats and industrial fishing vessels/ trawlers.
- Certification of mechanised commercial boats shall be organised through cooperation between DoF and MMD at each of the major harbours. In the event that MMD are unable to undertake field certification this shall be done by trained staff under the DoF.
- Necessary arrangements will be made for amendment of rules under both the Marine Fisheries Ordinance and the Shipping Ordinance in order to accommodate the process for easy and one stop licensing system.

2.8.3 Enforcement

- Shore-based enforcement programmes may be undertaken by Upazila administration and data on movement of vessels and use of gear by non-mechanized artisanal sector be collected and monitored.
- Sea based enforcement will be the responsibility of the coast guard/navy with the support of the DoF. Liaison will be established through the appointment of a liaison officer under DoF.

2.8.4 Sanctuaries, Reserves and Banned Seasons

In order to protect the breeding grounds and breeding seasons for the different species sanctuaries and off seasons will be declared. The citing of these needs to be established through a committee comprising of fishermen, researchers and DoF.

- In shore sanctuaries and banned seasons affecting artisanal fishermen should be enforced by the authorities at Upazila level.
- Offshore sanctuaries and banned seasons should be enforced by the coast guard in collaboration with DoF and fishermen's organisations.
- Monitoring of the sanctuaries and banned seasons needs to be undertaken to examine the effects these have on fish stocks.
- Sanctuaries to protect nursery grounds will be identified and prioritized for gradual legislative actions. The Upazila level Fishery officers with technical support from the Marine /Coastal Fishery Officers will implement the rules in this regard and administrative powers under the Marine Fishery Ordinance will be delegated to them.
- The Forest Department is responsible for management of the Sundarbans resources and accordingly they are collecting revenue for fishing without any

attempt to control fishing effort etc. This will be brought under management system. In this regard ICZMP (of WARPO/MoWR) integration initiatives will be required.

2.8.5 Safety at Sea

A major provision of regulating the fishing fleet must be to promote “safety at sea”.

- All registered and certified boats must carry life saving equipment for each crew member as per regulation.
- All vessels falling under the mechanised commercial boats should be equipped with radios and transponders.

2.9 *Marketing and Quality Control*

Despite attempts in the past, many of the landing sites for the marine sector are of a very poor quality. Of the sites developed by BFDC only Cox’s Bazaar and Patharghata are utilised by the fishermen. In the other ports, landing sites developed by the arotdars are utilised. These are mostly poor with little regard for hygiene. They do however offer services to the boats and are linked in with credit and other ties to boat owners and fishers.

The trawlers are worst served with no utilisable port facilities. The fish harbour in Chittagong remains unutilisable due to siltation. Although proposals have been made to renovate the harbour no funds have been secured. The priority for the renovation must be to examine ways in which the siltation could be prevented or countered in the future.

In the next twenty years it is imperative that landing sites are upgraded to ensure that quality fish can be marketed for both the domestic and export markets.

- Landing sites and wholesale marketing facilities should be regulated to ensure that fish quality is maintained.
- Merchants should be made aware of the need for improved facilities and offered soft loans to improve them,
- Constraints to the utilisation of BFDC facilities should be resolved through consultation and negotiation with fishermen and merchants,

- Market sites in major cities should be brought under regulations to ensure the quality of the fish.

2.10 Institutional Strengthening

All institutions within the sector are constrained by a lack of resources. It is therefore imperative that the best use of the resources is achieved. A first priority must be to define the responsibilities for the management and support of the sector. This is likely to change over time as decentralisation becomes more of a reality. However it is important that with the organisational changes advocated that the staff and organisations are aware of their tasks and responsibilities.

2.10.1 Department of Fisheries

- Although management should be through the field based organisational set of the DoF, the sector must be supported by a cadre of specialist staff with skills and training in marine resource management.
- Transferred staff must receive training in all aspects of marine resource management including community mobilisation and planning, regulations and laws, information gathering and reporting; and networking and coordination skills.
- Job description should be prepared for all staff operating in the marine sector.
- A unit for environmental conservation and interdepartmental coordination should be established in DoF. This should monitor the impact of the fishery on the environment and monitor the impact of the environment on the fishery. Close collaboration must be established with the Ministry and Department of the Environment and the ICZMP of the WARPO/MoWR.
- Support from Quality Control should be sought to help develop and improve quality of fish destined for the domestic market.

2.10.2 Research

To ensure sustainability in the use of marine resources improved research is required. This will be undertaken by BFRI or the Universities depending on the resources available and the skills of the researchers.

- Research programmes need to be redefined including the priorities for the marine sector.

- Scientists need to be trained in the specific skills required for marine research.
- A cadre of marine researchers needs to be established.

2.10.3 Education and Training

For the future management of the sector it is important that a cadre of skilled staff are available to manage the sector. This will require graduates specifically trained in marine fisheries management and will require the skills of staff of the different organisations to be upgraded to cater for improved management techniques.

- Universities should further develop their courses for marine fisheries management to cater for the new demands for community participation
- Development courses should be made available to staff of the different organisations.

2.10.4 NGOs

NGOs will play a key part in the sector both in supporting the community involvement in the management of the resource, and in support for the provision of credit to enable an increased ownership of the resource by genuine fishers. They should also be involved in developing alternative income generating .

- Staff need to be recruited or trained in the skills required for the support of the sector,
- Improved coordination is required so that the skills of the NGO sector can be better utilised.

2.10.5 Local Government

The role of local government in supporting the administration and management of the resource will increase if management is decentralised.

There is therefore the need to increase their understanding of their roles and responsibilities so they can play an effective role.

- Commitment to their role in the support of local resource management is required,
- Staff should be trained to support the new role,
- Responsibility should be given to enable the enforcement of regulations to undertaken.

2.11 Co-ordination and Linkages

To manage the sector effectively it is imperative that the activities are coordinated with other activities in the marine sector. This must start at the top with the formulation of policies and continue to the grass roots levels for the administration and enforcement of the regulations required to manage the sector.

Through out the strategy a range of committees have been proposed. These need however to be co-ordinated and a major function of the DoF must be to coordinate all of these activities. In this case DoF will seek assistance and collaborative support from the ICZMP of the WARPO/MoWR.

2.11.1 Relationship with third countries and International/Regional Fisheries Organisations

The Government of Bangladesh has signed several international treaties and agreements which have an impact on the fisheries sector. It is important that actions are taken to ensure that these are complied with. One such treaty is the voluntary FAO Code of Conduct for Responsible Fisheries.

It has also joined in association with international bodies such as the Bay of Bengal Programme - IOG and Bay of Bengal Large marine Ecosystem (BOBLME) which are aimed at supporting the management of the fisheries and the environment from a regional perspective.

- Identify key obligations and ensure that they are being enforced through appropriate regulations and management structures.

Marine Sector

Objectives	Immediate Action	Possible within 5 years	Risks / Assumptions
Know more about the resource			
Establish a fisheries monitoring and assessment system	Establish a plan to collect shore based fisheries assessment. Collaborate with different institutions to help collect information; BFRI, BFDC, Universities, NGOs	Seek support for deep sea research and assessment study Examine ways of raising funds to cover recurrent costs of research vessel	<u>Government resources for purchase and running costs of research vessel is very hard to avail. Donor funds will be explored for purchase of a research vessel and undertake stock assessment survey and develop a rational management and development plan. Else,</u> Overfishing will lead to decline in industry with many poor severely affected.
Undertake research activities in support of fisheries monitoring system	Establish needs in research priority agenda and fisheries forum Assess impact of different fishing gears and technologies	Quantify impact of different fisheries methods on conservation	Capabilities of research bodies to undertake fisheries research is improved
Manage the Fishing Effort			
Increase participation of fishermen in management of resource	Involve different categories of fishermen during preparation of management plans etc	Formalise role of fishermen groups in management	Unless communally managed it will be impossible to enforce any restrictions in fishing effort
Increase ownership of the marine sector by the fishermen	Examine ways to strengthen the different fishermen's associations/ organisations	Examine credit options for fishermen to purchase their own fishing gear (nets / boats/ etc)	Sustainability depends on the protection by those who directly rely/own on the resource
Establish a licensing system for	Pilot licensing systems	Expand licensing scheme nation	MMD and DoF cannot agree to

Objectives	Immediate Action	Possible within 5 years	Risks / Assumptions
all fisheries activities	Collaborate with MMD to find a simplified method for registration, inspection and licensing	wide Engage local government in establishing licensing system for coastal Artisinal fisheries Establish system on a service charge / revenue split basis so funds can be used to cover expenditure of running system	simplified system
Improve enforcement of regulations and controls	Establish stronger links with Coast Guard <u>and Navy</u> . Establish position of coast guard liaison officer	Examine models for community management and enforcement of local management plans	Enforcement must go hand in hand with increased community management enforcement by coastguard alone would be impossible.
Prepare a management Plan for the Marine Sector	Establish zones for different fishing efforts	Establish strict limits for fishing efforts in each of the zones Rationalise support services and posting of staff	Failure to establish fishing zones will lead to increased growth of commercial fleet at the expense of smaller boats increasing in equity and job losses.
Improve the value and quality of the catch			
Improve marketing facilities for all marine catches, for both local markets and export markets	Examine all fish landing centres and markets and determine their condition, management and usage Develop a plan for their improvement through consultation with fishermen, merchants and officials	Seek funds for the improvement of landing and marketing facilities Work with local government to improve management of existing facilities and overcome problems limiting the use of sites not utilised	Losses due to spoilage reduce the nutritional and economic value of the fish. Failure to act now will mean lower prices for the fish resulting in lost income for fishers and merchants alike
Quality control measure enforced	Fishermen and merchants given	Inspection system established to	Consumers will start to demand

Objectives	Immediate Action	Possible within 5 years	Risks / Assumptions
for fish destined for domestic market	training on improved quality. Public made aware of need for better quality and how it can be assessed	improve quality of landed fish and fish sold through major markets.	higher quality fish. System must be in place to respond to this need. Need collaboration with other institutions.
Coordinate the management of the resource			
Review the roles and responsibilities for the key institutions in the Marine Sector	Increase co-ordination between all institutions involved in the marine fisheries sector Assess current function of BFDC and revise according to new sector needs	Clearly defined responsibilities established with limited overlap of roles and resource duplication	Funds to procure resources and undertake Govt activities will become increasingly scarce. Govt will ensure better harmonisation of resource usage
Strengthen the support services for the management of the fisheries sector	Undertake analysis of staff capacity and numbers Prepare training needs and implement training	Marine cadre of staff established who have career paths parallel to inland staff, but can remain in area of expertise. Increased role for coastal UFOs in co-management of coastal fisheries	Sufficient staff are assigned to the marine sector to enable its effective management
Review and revise policies and laws for the management of the Marine Sector	Form high ranking committee to examine current policies and laws	Areas of policy and law conflict are resolved and strengthened	Inter departmental power struggles limit effective cooperation
Poverty Alleviation			
Discourage further influx of poor trying to gain livelihood from marine sector	Mass awareness campaign Examine options to restrict migration to marine sector	Poor communities are able to control resource use by having control over coastal fishing areas.	Failure to control migration into coastal fishing communities will lead to over exploitation of the resource and its collapse
Examine options for alternative	Work with local government and	Shift away from marginal	Failure to reduce fishing effort

Objectives	Immediate Action	Possible within 5 years	Risks / Assumptions
income generating opportunities	NGOs in search for IGAs Value added activities for fisheries, i.e. PL nursing, fish processing, fish meal production, crab fattening	fisheries activities Alternative incomes developed to reduce need to over exploit the resource.	will lead to a dramatic decline in the industry

