
NATIONAL FISHERIES STRATEGY

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1 BACKGROUND

The Fisheries Sector represents one of the most productive and dynamic sectors in Bangladesh. In the early 70s the fisheries sector was dominated by small scale enterprises operating in the capture fishery sector. Since then aquaculture has become the key player in providing fish for the urban consumer and shrimp for the export market. During this period the commercial operations have expanded rapidly, from hatcheries, to producers, to mechanised trawlers and to processors. The changes are mostly to be welcomed, but concerns are growing about the effects on the environment by developments in the water sector and the ownership of the resource.

Much of the development in the 70's until the mid 90's has not been governed by Policies for the sector, nor was there any real appreciation of how other development initiatives would affect it. During this period many of the developments in the water sector damaged the inland waters, restricting fish movement and limiting the flood plain and dry season water areas. The lack of any clear objectives for the sector led to the development of the National Fisheries Policy in 1998. Since then several other Ministries and Departments have developed policies or revised previous ones, recognising the needs for fisheries to be considered during the development of water and land resources.

This strategy has been formulated to propose ways in which the policies and in particular the National Fisheries Policy can be implemented and support can be offered to guide the sector, recognising that over the next ten years the requirements of the sector are likely to change as development continues apace. It recognises the need for more support for the capture fisheries, both marine and inland, to reverse the current decline and to prevent further biodiversity and wetland losses. It also recognises the increased support needed for both promoting aquaculture, but also improving the regulatory framework to provide a structure for the continued expansion. All of this must be done from severely constrained resources and so improved working relationships need to be fostered to encourage greater ownership and management by the fishers through community or co-management. Further the cooperation and mutual support of other stakeholders must be ensured to achieve this common cause of managing the water resource of which fisheries is an integral part.

The strategy represents the compilation of eight other sub-strategies which have been formulated to give specific direction to their specific areas. These have all been prepared using a participatory approach with inputs from the Department of Fisheries and other key stakeholders such as the private sector, research bodies (BFRI and universities), other governmental agencies working in similar fields, NGOs and fish farmers and fishers.

The building block sub-strategies of the National Fisheries Strategy are –

- Aquaculture Sub-strategy
- Aquaculture Extension Sub-strategy
- Inland Capture Fisheries Sub-strategy
- Marine Sector Sub-strategy
- Shrimp Sub-strategy
- Monitoring and Evaluation Sub-strategy
- Quality Control Sub-strategy and
- Human Resource Development Sub-strategy.

2 THE NATIONAL FISHERIES POLICY

The National Fisheries Policy was approved in 1998 with the endorsement of the Government of Bangladesh. This for the first time set out the Policy framework for directing the management of the fisheries sector.

2.1 Key Objectives

The key objectives for the sector were established as:

- a) Enhancement of the fisheries resources and production;
- b) Poverty alleviation through creating self-employment and improvement of socio-economic conditions of the fishers;
- c) Meet the demand for animal protein,
- d) Achieve economic growth and earn foreign currency by exporting fish and fisheries products;
- e) Maintain ecological balance, conserve biodiversity and improve public health.

The key areas of the National Fisheries Policy were stated as:

- Policy for conservation, management and exploitation of fisheries resources of the inland open water bodies (Inland Capture Fisheries);
- Policy for fish culture and management in inland closed water bodies (Aquaculture);
- Policy for Coastal shrimp and fish culture
- Policy for exploitation, conservation and management of marine fisheries resources (Marine)
- Other related fisheries policies (Quality Control; Planning Monitoring and Evaluation; Extension; and Human Resource Development)

The development of the sub strategies followed the key areas of the National Fisheries Policy-1998, but has expanded on the importance of collaboration with other stakeholders and the development of a systematic planning, monitoring and evaluation strategy, human resource development strategy and extension strategy. These last key areas are cross cutting, but still require specialised actions and skills.

In addition to the framework established under the National Fisheries Policy the government has prepared a Poverty Reduction Strategy Paper (PRSP) which has implication for how all parts of the government should undertake activities. The government has also signed up to various conventions such as the Code of Conduct for Responsible Fisheries (through FAO), the United Nations Convention on the Law of the Sea and the Millennium Development Goals, The Rio Declaration and Agenda 21 (1992), The Convention on Biological Diversity (CBD) and The Ramsar Convention (1971). It is also partners in various international organisations that have been established to help manage the fisheries resource especially with an international perspective such as the Bay of Bengal Large Marine Ecosystem Programme. These when implemented, as intended, will also exert controls on how the resource should be managed and set targets of what should be achieved over the next ten years.

2.2 *Mission Statement*

The mission statement reflects the overall goal for the Department of Fisheries (DoF) and incorporates the objectives for the sector as a whole including all stakeholders:

Encourage the various partners and agencies utilising or supporting the management of the fisheries resource to promote its sustainable use in order to meet the objectives of the National Fisheries Policy and other policies guiding the development of Bangladesh.

Re-defined Mission Statement

The Department's mission is to support sustainable growth in fish and shrimp production with other aquatic resources as well, for domestic consumption and exports, and management of open water fisheries resources through community participation leading to equitable distribution of the benefits generated, for optimal economic and social growth in Bangladesh.

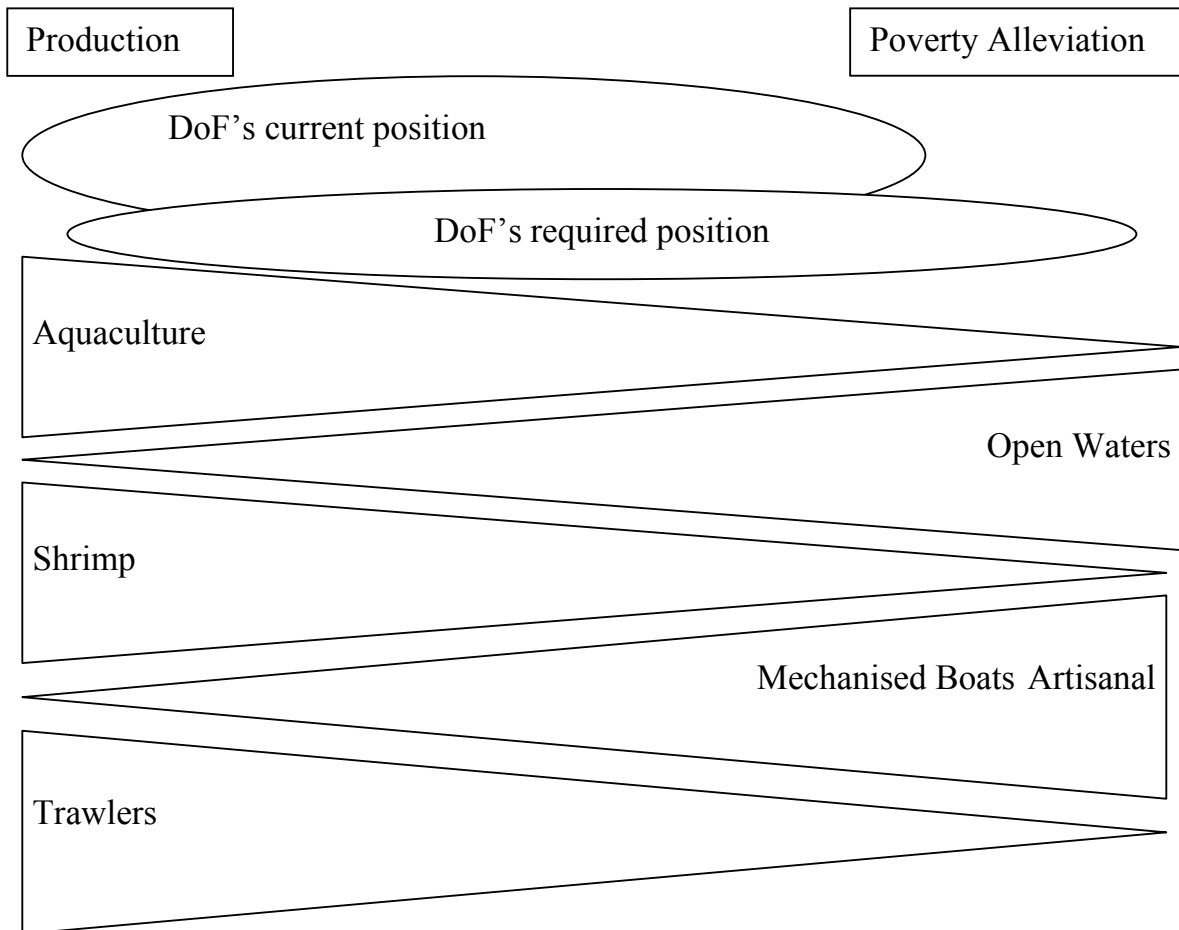
A separate mission statement for the more restricted activities of the Department of Fisheries would be:

To provide the support to the sector so that Bangladesh's fisheries resources can be managed sustainably for optimum economic and social benefits through the cooperation of all stakeholders

3 National Fisheries Strategy

3.1 Introduction

The Strategy reflects a shift in the way the sector is managed. The sector was controlled by the Government through its agents principally the Department of Fisheries. Their activities were largely ones of management and control with direct involvement in some of the inputs such as fingerling supply. The strategy advocates that their activities moves to one of fostering participation with local communities, the private sector and NGOs; the provision of advice; and establishing a regulatory framework in which the sector can function. This strategy emphasises collaboration, linkages and partnerships. The strategy also reflects current government concerns for poverty alleviation through more targeted activities.



During the last 30 years the nature of the department has changed as well and shifted away from the capture fisheries sector to one focused on the support for the aquaculture sector and the more commercial aspects of fisheries. This has enabled the rapid expansion of these sectors, but has been done at the expense of inland and artisanal marine capture fisheries which has seen an increase in the fishing effort, but a depletion of the resource and has seen fewer opportunities for the poor. The strategy offers to redress this imbalance and seek ways to support the capture fisheries, whilst still supporting the continued development of culture of both fish and shrimp.

3.2 Long Term Objective Planning

The development of the National Fisheries Policy and the National Fisheries Strategy emphasise long term objectives for the sector. To achieve these, a co-ordinated long-term plan needs to be developed. This is best achieved by moving away from project interventions and moving towards programme interventions that build up the capacity of the implementing organisations. For very specific tasks, projects may still continue to be a useful tool, but the linkages into the organisation must be stronger to ensure that there is a sustainable impact.

- Develop the core objectives to be supported and achieved during the strategy timeframe,
- Assess the requirements to achieve these objectives and establish what means of support are required to ensure that the resources are available,
- Redress the current imbalances in allocation of resources to ensure that there is a balanced approach to development,
- Change funding from annual development funding to revenue based activities to cover recurrent field based and management activities,
- Ensure that staff building up technical skills and knowledge are retained in key core areas,
- Develop the capacity of staff to take on new areas of interventions e.g. community based management, enhance the legal capacity to develop regulatory frameworks for the sector
- Develop long term monitoring and evaluation capacity to assess impacts of activities and improve long term planning of interventions.

3.3 People's Participation

The management of the resource cannot be achieved by the Government alone. This can only be achieved by involving the primary stakeholders who either own the resource i.e. ponds, gear, boats, the input supply, the marketing and processing facilities, or those who have the entitlement to the resource through leasing and user rights. For the stakeholders to achieve this they must be supported by a framework of control and regulations and by support services that are able to respond to their needs.

To manage the capture fisheries, those reliant on the resource for their day to day livelihoods must be given the use rights through leases which assert their right. Common property resources which do not currently have leases i.e. lease free, should come under a leasing system to determine use rights over the resource, but these should be set at a low rate which recognises that its function is to control access and not be a means of levying government funds. Through these leases the community would be given the responsibility to ensure the sustainable management of the resource such as beels, rivers, estuaries and the in-shore coastline. Continued access to these resources would be dependent on their ability to manage the resource effectively. This implies a degree of decentralised planning and decision making. The strategy acknowledges that currently there is little practical move to decentralisation, but envisages that in the time frame of the strategy pressures placed for this to happen will increase and increased decentralisation is a likely development

- Communities must be given use rights of resources through leases aimed at controlling access rather than raising revenue,
- Planning and decision making should be devolved to Upazila level for all aspects of local fisheries management and resource utilisation,

- Support services should be given depending on expressed local needs,
- Development should still be under the general guidance of national policy,
- Communities must be supported at the local level, by the Upazila based government administration and activities coordinated through the Upazila Development Coordination Committee.
- A sub committee capable of providing technical advice on the management of the fishery resource, the Upazila Fisheries Committee should be established with technical advice being given by the UFO and other key technical staff.
- The management of larger fishery resource should be co-ordinated through collaboration of Upazila Fisheries Committees for such issues as large rivers and water bodies;
- Development of zonal policies for mechanised boats that can operate at greater distances should be co-ordinated at District Level.
- Stakeholders must actively participate in certification for industry standards for hatcheries, processing plants by establishing self regulating authorities in conjunction with more formal registration requirements.

3.4 Coordination, Collaboration and Support for the Fisheries Sector

Increasingly it's understood that the fisheries sector is not isolated, but an integral part of a much wider natural resource. Many different ministries claim responsibility for managing the resource including Ministry of Water Resources, Ministry of Land, Ministry of Environment, Ministry of Agriculture, Ministry of Fisheries and Livestock and Ministry of Local Government and Rural Development, through their Union and Upazila representatives. To coordinate policy and national planning there is a need to:

- Establish a Ministerial level National Resource Management Committee to coordinate policy and national objectives for the natural resource sector including fisheries.
- This should be supported by a Fisheries Management Executive Committee responsible for co-ordinating technical issues at the secretarial level.
- At national level inter departmental co-ordination should be established through the nomination of focal persons to ensure a continuity during discussion and collaboration,
- Co-ordination of activities at the field level should be through increased integration under the Upazila Fisheries Committee with the UDCC.

Other key areas of support in the management of the resource are also assisted by a wide number of organisations requiring collaboration and coordination including

- The Marine trawlers and industrial fishing boats through a national committee
- Mechanised boats should be managed through district level committees which should also have an apex organisation for national coordination,
- Increased coordination of the shrimp industry is required through organisations covering all aspects from hatcheries to producers to processors to ensure that external demands placed on the industry can be successfully met,
- An association of suppliers to the aquaculture sector should be established, supporting other associations developed to support the interests of the farmers and the private sector in this key area,
- The establishment of a forum to enable the concerns of community based organisms to be represented to policy makers should also be established.

As the private sector grows and the number of associations proliferate representing the interests of the wider fisheries sector then key “Apex” associations are required to ensure linkages into policy level discussions.

Much of the fishery sector is intricately linked into a much wider ecosystem with the rivers originating outside of Bangladesh and the marine resources linked into the resource management undertaken by India, Myanmar and Thailand. Collaboration is required with the international community to ensure that the resources which cut across the national boundaries can be managed for all concerned parties:

- Ensure that the Joint Rivers Committee understands the concerns of the fisheries sector on any plans to control or divert the flows of rivers especially during the dry season.
- Ensure that the interests of Bangladesh are represented in the Bay of Bengal large Marine Ecosystem programme
- Ensure that the Economic Exclusion Zone is clearly defined and that neighbouring fishing fleets honour the boundary.

Linkages are also strong through international trade. This may be primarily in the shrimp sector at present, but opportunities exist for other fish products. It is therefore essential that:

- Systems are developed to engage with the international community on issues of trade and international standards,
- National interest are voiced in the changing demands of the export industry to ensure the sector remains competitive,
- Stronger internal links with commerce and trade departments and ministries are forged to support the export sector.

3.5 Regulatory Framework

The fisheries sector has expanded rapidly over the last twenty years, but this has largely been unregulated, despite the existence of a number of regulations. If however the sector is to continue to grow and be managed for sustainable development it will require regulations to be drawn up that will be accepted by the sector. The challenge for the period of the strategy will be to draw up regulations and identify ways in which these will be implemented to give the guidance required. This requires an increased acceptance for the needs for regulations by the private sector and a willingness to take a major portion of the responsibility for implementing them, as Government resources are unlikely to be sufficient to even attempt this task.

Some areas of the sector are more reliant on the need for tight regulations as they need to support access rights of the poor or need to control quality to meet the demands of consumers i.e. shrimp exports and local fingerling supply.

- Promote dialogue in the various sub-sectors with all stakeholders and identify key areas for preparation of regulatory frameworks
- Formulate committees to develop required regulations ensuring stakeholder ownership an identifying means of implementation.
- Ensure that regulations enhance policy declarations and provide guidance to policy implementation.

- Establish means for promoting self regulation in line with market forces i.e. quality assurance in the shrimp sector or
- Establish legal capacity to support the development of regulations and ensure the enactment of laws in the support of regulations,
- Develop a regulatory framework that would enable and recognise the systems of community based co-management promoted under this strategy and that will support the long term access to fisheries and their sustainable use by local communities,
- Developing enabling regulations that provide a framework for and recognise the preparation of local fisheries management plans through fisher participation with appropriate technical advice
- Take into account national directives which have been developed to provide an overall framework for the conservation and management of the resource

The regulatory framework is also supported by international conventions such as the United Nations Convention on the Law of the Sea and the FAO Code of Conduct for Responsible Fisheries. The code although voluntary takes into account various laws including the UN Law of the Sea and should be followed as closely as is possibly by all who have endorsed it.

- The Code of Conduct for Responsible Fisheries should be developed so that it is applicable for the local conditions prevalent in Bangladesh,
- All stakeholders should be informed of the contents and the implications of the code and international laws.

3.6 Pro-Poor

Fisheries has traditionally been a refuge for the poor, but the move away from low technology capture fisheries with the development of aquaculture; the development of hatchery produced fingerlings and prawn larvae; the mechanisation of boats; the increased cost of fishing gear; and the overall increase in the value of the resources, have reduced the opportunities for the poor. It is likely that the poor will have even less opportunities in the future, especially the opportunity for the poor to gain access to unallocated resources, unless specific actions are taken.

Some benefits will undoubtedly accrue to the poor from the development of the fisheries sector by the wealthier, but the share of the benefits will be heavily in the favour of the rich entrepreneur who has managed to gain access to what was often a common resource.

The concern therefore must be to ensure that poor, who currently have access, are not excluded and are able to benefit from advice, access distribution and credit.

The poor must also be given opportunities to supplement their income from fishing through other livelihood activities and if possible be offered opportunities to seek a livelihood that is not dependent on fishing, as the resource as it stands cannot support all who wish to gain a livelihood from it.

- Ensure that the poor retain their traditional access to the resource through community leasing (inland capture fisheries) or allocation of fishing rights (marine),
- Support the poor in gaining management control of the resource through the formation of community based organisations,

- Promote the ownership of fishing resources by the poor and break the control exerted over the poor by elites and money lenders,
- Develop pro poor extension packages that enable these groups to benefit from new technologies and which can be utilised in small and poorer resources i.e. nursing PL, quick maturing species, low water requirement species etc.
- Examine options for enabling poor to gain access to credit to enable them to participate in fishing activities,
- Link in with other agencies and develop alternative income generating activities to support the livelihoods of the poor.

The Poverty Reduction Strategy Paper has recognised the key role that fisheries has to the rural sector. This strategy support the key objectives laid out in the PRSP and because of its more focused nature provide clearer guidelines on how fisheries can best achieve these goals.

3.7 Gender

Fishing has always been perceived as a male dominated sector. However the quiet role of many women in the sector is slowly being understood. Recent interventions have targeted women and shown that they can offer more to the sector if properly supported. Women also require more from the sector as they seek to either support the family income through fisheries activities or even rely on it to a greater extent for those families that are female headed.

- Target extension activities to enable women to benefit from training and provide access to knowledge.
- Ensure monitoring systems collect gender disaggregated data to track progress on gender targets laid out in the Poverty Reduction Strategy Paper.
- Identify opportunities where women can provide useful inputs to the development of the fishery
- Identify opportunities for women to add value to fishery products
- Increase the number of women employed by the support agencies and develop their linkage with women.

3.8 Alternative Income Generating Activities

A growing realisation is that the fisheries sector cannot continue to support the numbers of people currently trying to earn a living from it especially if they have limited access to resources. There is a need therefore to work with agencies that can provide support in the identification of other opportunities and supply training and resources to enable these people seek an alternative income. Some of these may be fishing related, but increasingly they will have to be outside of the fishing sector.

- *Identify and provide alternative income activities to enable poor users the opportunity to diversify their livelihood beyond fishing, thus reducing the pressure on the fishing resource.*
- *Seasonal Safety Nets: To ensure that seasonal restrictions on fishing in the interests of sustainability do not push households into poverty or cause additional hardship, additional income sources and support services will be developed.*

- Work with support agencies to identify income generation activities for closed seasons and times with low fishing income,
- Identify and promote the use of fishing gears and methods that are less destructive i.e. catch species that are not at risk of over fishing in these seasons.
- *Alternatives to fishing: To improve the access of poor fishing households to public and private sector services resources and opportunities so that they can move away from fishing for an income.*
 - The Upazila Fisheries Committees will through the respective Upazila Development Coordination Committees make links with and raise this issue with government agencies, NGOs and private enterprise working in the locality that may be able to help poor fishers develop alternative livelihoods through skill development, training, credit, etc.
 - Service providers should ensure that they match the capacity and hopes of the target people and that any enterprises they are encouraged to adopt have viable markets and returns such that they will improve their living conditions.
 - Where needed at the national level, links will be made between service providers and support agencies.

3.9 Environmental Management

To ensure that the environment and the biodiversity of the fisheries of Bangladesh are conserved through adopting appropriate ecosystem management regimes

The fisheries sector is intricately linked into the environmental system, with a potential for the sector to negatively impact on the environment and for the changes in the environment to negatively affect the fisheries sector. There is therefore a need to ensure that potential changes to the environment are studied and the way these may be mitigated before any development is undertaken so that the fisheries sector is not negatively affected. In particular a biodiversity assessment survey is required.

- Identify the impact that Fisheries has on the environment and the environment has on it and develop plans to mitigate negative aspects of these.
- Through improved monitoring of water quality and pollution ensure that the causes of pollution within the vicinity of fisheries are identified and actions are taken to redress these and identify other industries that have enhanced pollution threats during the dry season which may also impact of the water quality of fisheries.
- Support the Department of the Environment to ensure that national water standards are met in all water bodies and that the terms of industries Environmental Clearance Certificates are fully complied with through field based technical support. Work with lobbying agents and international buyers to ensure compliance with international codes of conduct.
- Assess the potential impact on ecosystems in terms of their importance for sustaining biodiversity, including their regional and global significance,
- Develop an inventory of key fisheries and conservation areas detailing their extent and quality and support the conservation of these critical habitats, especially dry season wetlands, through the declaration of national sanctuaries or areas of critical ecological importance.
- Monitor the loss of water bodies through siltation and with the support of other water management agencies develop plans to reduce impact of siltation or through remedial

measures such as habitat restoration, mitigate against losses in connectivity and dry season refuges.

- Develop ecosystem approaches to conserve the integrity of wetlands and prevent loss of habitat through agricultural and land use practices that minimise soil erosion and sedimentation.
- Encourage adoption of crops that have reduced dry season irrigation demands to reduce the loss of dry season surface water.
- Encourage advocacy and lobbying by influential institutions and NGOs for the conservation and protection of the resource to ensure awareness and compliance with policies.
- Develop systems to improve the quality and quantity of information on national wetland ecosystems which will enable the improved planning and management of wetlands.
- Enhance collaboration between national and international institutions for the implementation of relevant treaties and conventions.
- Improve local institutional capacity in wetland and ecosystem management
- Ensure local regulations support the conservation of wetlands.

A key task of the strategy is to ensure that the biodiversity of the sector is maintained. With the rapid loss of habitat this poses a serious challenge, but with careful management and ensuring the concerns for the environment are adhered to then they can be achieved.

- Future projects and activities within the fisheries sector should be assessed for their potential impacts on the environment and biodiversity at the initial stages of project planning, according to an agreed process/ assessment framework.
- Establishment of a biodiversity information system and data base to facilitate inter-sectoral/interagency cooperation and coordination.
- Ensure compliance with National Biodiversity Policy

4 The Sub-Strategies

4.1 Inland Capture Fisheries Sub-strategy

To attain sustainable management of the Inland Capture Fisheries for the local fishing and user communities through collaboration of all concerned partners.

The Inland Capture Fisheries has seen its pre-eminence give way to aquaculture as the resource has declined in area and productivity. This cannot be reversed, but through improved management with the goal of stabilising the resource and by allocating it for the use of the traditional fishing communities then the inland capture fisheries can continue to be a source of income for a large number of the rural poor.

- The management of the inland capture fisheries must be for the benefit of local communities and should be planned and administered with the objectives of the inland capture fisheries strategy as the goal and be supported by the collaboration of all concerned partners.
- The utilisation of the resource should be planned to reflect the international, national and local dimensions of the resource
 - International commitments should ensure that cross border flows support the dry season needs for water of the fishery and ratified conventions in the support of the aquatic environment are implemented
 - National planning to ensure that through the collaboration of policy makers and key national implementation agencies, fisheries interests are reflected in all policies and considered during all development activities
 - Local interests are supported through organisational changes that allow communities to manage the local resources with the institutional support of local government and support agencies.
- Access to the resource should support community management initiatives, with leasing policy supporting community access rather than revenue generation.
- Access restrictions are needed to ensure management control over the resource and prevent over fishing
- Leasing management should be administered at the Upazila level by the local representative of the Ministry of Land with the support of a Fisheries Committee, the member secretary of which should be the local UFO
- Empower fishing communities, guided by sound advice from appropriate government agencies, to take a leading role in making and implementing decisions on local resource use to ensure the long term future of their fisheries; and for these community bodies to be recognised with long term access rights
- The environment and the biodiversity of the inland capture fisheries must be conserved through adopting appropriate ecosystem management regimes particularly in areas deemed to be of critical importance
- Ensure the sustainable management of water bodies and their ecosystem through improved community planning and appropriate management interventions encouraging the establishment of sanctuaries, control of fishing effort, habitat restoration, stocking and other management measure.
 - Establish protected areas (sanctuaries) that will enhance natural recruitment for fisheries and help conserve endangered fish species

- Enhance production through stocking of fingerlings in areas where natural recruitment is unable to support the productive potential of a water body
- Improve conditions that would enhance the fishery by improving the environment or the connectivity to promote natural recruitment and dry season survival
- Control fishing effort so that a maximum sustainable yield is established and adhered to.

4.2 Marine Sub-strategy:

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.

The marine sector has seen radical changes over the last twenty years with a dramatic increase in fishing effort. This has been due to the introduction of industrial fishing boats, the mechanisation of traditional boats; and the increased numbers of people involved in the artisanal and shore based fishery. This development has largely gone on uncontrolled with no real management of the resource. There is no clear knowledge of how the sector is coping except anecdotal evidence that the fishery is in decline. The ownership of the resource has also increasingly moved out of the hands of the fishermen into the hands of the wealthy businessmen and traders. These issues need to be addressed to ensure a sustainable utilisation and management of the resource.

Allocation of Resources

- Access to the resource should be allocated on a priority base to poor shore based fishermen, then to offshore fishermen with restricted ability to travel and undertake long duration trips, and finally to commercial fishermen who have access to the remainder of the marine resource
- Establish a register of fishermen to ensure that resources are fairly allocated
- Identify and allocate resources to be fished by poorer sector. Formulate management plans for sustainable management of the resources
- Seek support from local institutions to support the management of the resource,
- Grant access rights to registered fishers to enable a control on fishing effort.

Ownership of Resources

- The Government should seek ways to reverse the trend of ownership transferring out of the hands of genuine fishermen and promote their ownership of the resources, the gear and the boats.

Resource Base

- Establish a marine resource baseline which clearly assesses the current status of the resource and establishes a monitoring system to update information required for the management of the resource,
- Link in with other stakeholders to expand the source of information including community monitoring, collection of data from the local landing centres and improved sample surveys by agencies such

4.3 Shrimp Sub-strategy:

A shrimp sector recognised internationally for its high quality shrimp produced using socially responsible and environmentally sustainable production methods, with support to all stakeholders to ensure its development to its full potential.

The shrimp sector has the potential to increase its importance to the national economy and offer farmers, merchants and processors the chance to earn good returns on their investment. All of this crucially is dependant on the industry's ability to produce shrimps that are competitively priced and are accepted on the international market for their quality and the way in which they are produced. These issues must be addressed to secure the future of this sector.

Within the strategy, a series of specific objectives have been developed relating to: a proposed regulatory framework; support measures for industry; collaboration and participation of stakeholders; structures, staffing and resources; and planning, monitoring and evaluation.

4.3.1 Regulatory framework

The rationale for developing a more comprehensive and updated regulatory framework is threefold; to ensure that Bangladesh positions itself proactively to meet current and forthcoming international standards on food safety and traceability, that the industry is economically and environmentally sustainable, and that all aspects of the supply chain operate in a socially responsible manner ensuring benefits to all local community members.

The regulatory framework therefore provides a set of standards, legal and administrative procedures which will foster good management of shrimp production in Bangladesh in order to maximize the economic development for the country whilst ensuring an equitable distribution of benefits and sustainable use of natural resources. The regulatory framework deals with all areas of shrimp sector development including: production, quality control, marketing and export, environment and social aspects, and for effective management, requires strong interaction and coordination involving several GoB organisations. The regulatory framework is not just a government set of laws and rules, but an industry lead set of guidelines to determine good practice. However in order for the regulations to be enacted there is a need to provide support both to those that will be governed by the regulations and those seeking to enforce them. These therefore become an integral part of the regulatory side.

The overall goal of the **regulatory framework** is:

In support of the Private Sector ensure the development and implementation, by all stakeholders, of a legal and regulatory framework that will lead to sustainable and equitable development of the shrimp sub-sector.

- To put in place the regulations to ensure the sustainable increase in the supply and value of shrimp from culture systems enhancing earnings for farmers, improving the socio-economic conditions of local communities in shrimp farming areas and increasing foreign exchange earnings.
- To ensure that shrimp production takes place only in areas where the prevailing agro-ecological conditions are suitable and that it does not adversely affect the interests of other land and water user groups or cause environmental harm.
- To develop a management plan that regulates the collection of wild fry to conserve the resource whilst balancing the needs for livelihood protection of shrimp fry collectors.

- To establish a sustainable hatchery sector which through registration and certification ensures quality management of the hatchery process and ensure adequate production of post larvae which meets, and is responsive to, the growers' demands for quality (with assurance of health and viability), without causing detriment to the environment.
- To develop a sustainable management plan for brood stock collection that ensures hatcheries are able to produce quality post larvae to meet the needs of the sector without causing detriment to the environment or wild stocks.
- To regulate and stabilise the marine shrimp trawling efforts to sustain its viability whilst ensuring that marine resources are conserved through compliance of regulations and the control of artisanal ESNB fishing.
- To raise export earnings by improving the quality of shrimp products to ensure that shrimp is produced in compliance with the food safety or HACCP rules, the Human Rights and Labour rules and environmental codes as well as, improving the traceability of shrimp products at all points of the value chain from hatchery through to farm, marketing, and processing factory.

4.3.2 Support to the Industry

The industry is controlled by the private sector, and its growth can only be directed through support and the regulation of its activities. This can either be by the industry itself or by support and controls provided to the industry by the government and other support services such as educational institutes and the NGO sector. The overall goal of **supporting industry** is:

In support of the Private Sector, provide the services that will lead to a sustainable and equitable development of the shrimp sub-sector.

More broadly the aim of shrimp culture production is to:

To sustainably increase the supply and value of shrimp from culture systems enhancing earnings for farmers, improving the socio-economic conditions of local communities in shrimp farming areas and increasing foreign exchange earnings.

- To form an effective two way flow of knowledge and information that will enable all stakeholders to develop the sector through the prudent application of knowledge.
- To ensure the relevance of research to the needs of the sector and to develop mechanisms which will improve the uptake and application of key findings.
- To ensure that the development of the sector is supported by suitably qualified human resources who are equipped with the necessary skills and expertise.
- To support the establishment of infrastructure, in areas identified and demarcated for production of shrimp, enabling improved water management and marketing of shrimp.
- To ensure high quality inputs at affordable prices are readily available at every stage of the shrimp supply chain.
- To improve the overall position of the Bangladesh shrimp industry in a competitive global market, increasing market share and revenue from shrimp production.
- To develop an effective disease surveillance, notification and control system to reduce the spread of disease and improve the management of outbreaks of disease.
- To preserve the biodiversity and environment of coastal aquatic habitats while not depriving people of the right to make a living in those areas.

4.4 Aquaculture Sub-strategy

To support the continued development of aquaculture as a key supplier of animal protein and opportunity for resource development, through the provision of a regulatory structure to ensure quality inputs, and by the provision services to enhance knowledge to promote production

The Aquaculture Sector has expanded rapidly during the 70's to 2005, but due to the lack of controls many problems are starting to manifest themselves. The principal problems relate to the quality of the inputs especially the supply of quality fingerlings. To resolve these issues sets of regulations both through government granting of licences to operate and through self-certification need to be considered:

- The establishment of a regulatory framework to ensure the provision of quality inputs to the sector
- The development of a registration scheme for all hatcheries involved in the production of fingerlings
- The development of a certification scheme to offer quality assurance for fingerlings produced by hatcheries that is industry led.
- The development of regulations, registration and certification for other input supplier i.e. feed producers, chemicals.

A principal role of the Department of Fisheries during the 70s to 90s was to stimulate aquaculture through the provision of fingerlings and the know how to establish hatcheries in the private sector. Although this role has been successfully privatised, the Department of Fisheries has 104 sites which have been built for the production of fingerlings. A new set of roles for these sites is required. These should include:

- Establish selected sites for brood bank breeding
- Continue to provide fingerlings in areas where private sector has not met requirements
- Provide location for adaptive research and for demonstration of new management techniques to local farmers.
- The remaining sites should be disposed of to free up manpower to support the revised role of the department

4.5 Aquaculture Extension Sub-strategy:

The provision, by the Department of Fisheries and partners, of an efficient, effective need based extension service to all categories of farmers to enable them to increase production to an optimum sustainable level by using appropriate aquatic resources

The extension services have primarily been focused on aquaculture. Although extension services are still required to continue the growth and improve output, there is also a need to provide extension services to support the improved management of the inland capture fisheries areas and the marine sector. The approach for extension should not differ markedly though the skills and knowledge of the staff supporting the activities in each ecosystem would differ.

- Develop a needs based decentralised extension system
- Foster the collaboration of other extension providers to ensure the maximum coverage of the target audience,
- Foster the development of private extension services provided by NGOs and other private sector initiatives

4.6 Quality Control Sub-strategy

By supporting the implementation of industry controls on quality, ensure that all fish and fishery products marketed for export or domestic consumption satisfy the requirements for quality as detailed under HACCP and other regulations including traceability and social accountability.

The Strategy has the aim of giving guidance for implementing Quality Control for the next 10 to 20 years. This is not an easy task as the requirements made by consumers and the importing countries are changing fast reflecting growing concerns, not only in the quality of the product, but in how it was produced. Recent demands that have to be reflected in this strategy include recognition of the impact of the fisheries sector on the environment; social equity in the production of the product and traceability of the product from source so that any deliberate attempts at contamination can be determined.

The Strategy must also take into account the potential growth in the fisheries sector and the export trade especially. This will place an even greater pressure on the institutions currently involved and means that there must be greater cooperation amongst all stakeholders to take on this responsibility.

The first priority however must be to ensure that the food safety requirements for exported products are met. Currently this represents one of the major challenges as more stringent requirements mean that shipments are frequently rejected as demands on the criteria that constitute safe food are constantly being upgraded. This now includes demands for the source of all exported foods to be traced back to their source of production which places a further burden not only on the processor, but on the producers and the hatcheries as well.

- The production and provision of quality fish for the domestic and export market will remain in the hands of the private sector.
- Food safety must be monitored and ensured, by the private sector, through the implementing the HACCP protocol.
- The final responsibility for export certification will remain the responsibility of the Government and its agent.
- International regulations will implemented under the instruction of the government's agents
- The Government will through the provision of policies, regulations and laws provide the framework for ensuring good quality products are available for the domestic and export market
- Regulations will be reviewed to provide improved guidance for issues such as self-assessment quality control (HACCP), traceability, standards for ancillary industries such as ice plants and marketing depots.
- Regulations will be prepared to support other government agencies given the responsibility for domestic food safety of fish and fish products.

- Improved industry food safety monitoring, quality assurance and the use of third party audits, will reduce the need for lot inspections by QC before the issuance of certificates of fitness for export which remain the responsibility of the Government.
- The government and the private sector may be supported through the activities of third parties to provide assurance that the products meet the criteria demanded of the products by the market i.e. quality, eco friendly, socially responsible etc.

- The development of a rapid alert system to respond to food safety emergencies and issues of serious breaches of regulations.
- The promotion of an understanding of the issues and an increased awareness of quality control requirements will be undertaken by the DoF in conjunction with other stakeholders
- The provision of a dedicated quality control staff who have built up the knowledge and skills to successfully implement the requirements of the strategy
- A career structure that will support the development of the core staff
- A Monitoring and Evaluation system that will support the continued improvement of the sector through the provision of accurate information and reports that will promote improved management.

4.7 Monitoring & Evaluation Sub-strategy

To develop systems able to monitor progress towards the NFP Objectives and evaluate activities directed towards achieving those objectives.

To achieve the objectives of the NFP, a Monitoring and Evaluation (M&E) system is required that can:

- monitor progress towards the NFP Objectives; and
- evaluate activities directed towards achieving those objectives

Because of the diversity of NFP objectives, a Fisheries M&E system will be complex and will require many different types of expertise. The Department of Fisheries should play a leading role in establishing and managing the system, but it should not duplicate the work of other Departments and agencies that already have capacity in the required areas. DoF should develop its own M&E capacity in the areas of:

- Fisheries production and development, covering the sub-sectors of:
 - marine fisheries;
 - aquaculture (both fresh- and brackish-water); and
 - inland capture fisheries.
- Poverty alleviation (in relation to the impact of fisheries projects and programmes on poor people).

In addition to developing capacity to collect and analyse M&E data itself, DoF should develop and enforce protocols for fisheries data collection sponsored by external organisations, particularly donor funded projects and programmes. This is needed to eliminate the present problem of varying standards and methodologies, which hinder comparative evaluation of different projects and programmes.

DoF should collaborate with other Departments, GoB agencies, non-governmental and commercial organisations to establish networks and forums for interchange of M&E data in the areas of:

- Nutrition (supply of animal protein);

- Economic growth and foreign currency earnings;
- Ecological balance and biodiversity; and
- Public health

Key stakeholders in these networks will include, but are not necessarily limited to: the Planning Commission; the Ministry of Water Affairs (including BWDB); the Ministries of Health, Commerce, the Environment, and Local Government; the Bangladesh Fisheries Research Institute; the Bangladesh Bureau of Statistics; the Bangladesh Institute of Development Studies; the Universities; International Organisations (including the Food and Agriculture Organisation of the UN, World Fish, and the International Union for the Conservation of Nature); NGOs; private sector exporters and traders; and local fishermen and fish/shrimp farmers.

In developing its own capacity for M&E, DoF should proceed in the first place by rationalising the deployment of its existing personnel. This should be done within the framework of an integrated Planning, Monitoring and Evaluation (PME) Wing that can ensure M&E findings are translated into improved design of new projects and programmes. The integrated structure should be based on the existing personnel resources of the Planning and Implementation Cell and the Fisheries Resource Survey Section (FRSS). Subject to some revision of job descriptions and corresponding skills development, sufficient personnel are available from these sources to staff most of the required structure at Headquarters, Divisional and District levels. Below District level, M&E should be added to the job descriptions of DoF Upazila personnel, but the M&E workload at Upazila level must not be increased to the point that development activities are put at risk.

The effective operation of a Fisheries M&E system will depend heavily on developing DoF's capacity in Information Technology (IT) and Management Information Systems (MIS). These are required to:

- ensure timely transmission and collation of data required for management of projects and programmes in the field;
- process data required for monitoring progress towards the NFP production objective;
- process data for evaluation of project and programme impacts; and
- collate and integrate M&E data from external sources.

This will require skills in both computer hardware and software management, which DoF does not at present, possess. The need therefore cannot be met by personnel redeployment and a limited number of new posts (provisionally estimated at eight) will be required.

4.8 Research

Strengthen the knowledge and understanding of the resource through research based on the needs of the sector determined through assessments of the needs of the key stakeholders including of the Department of Fisheries,

The role of research in developing aquaculture has been crucial. This knowledge has however also relied on close links with research outside of Bangladesh where some of the innovations were first developed.

The role now for research has broadened and although continued work on key issues in aquaculture is still required there are many other areas that require the support from research.

These skills are not always available in the main fisheries research institute and some degree of retraining is required together with working with other institutes that have skills in these key areas.

- In partnership with the key implementation stakeholders reassess the research needs for the fisheries sector.
- Build on the research assessment undertaken by the Fisheries Research Forum sponsored under the SUFER project,
- Reassess the research skill base and develop the institutional capacity to undertake the redefined research priorities,
- Ensure the relevance of the research by effecting a sound communication strategy with the key beneficiaries of the research,
- Ensure that strong links are made with international research institutes to stimulate research and feed required knowledge.

4.9 Education and Training

Strengthen the knowledge and capacity of the Department of Fisheries, its partners and its primary stakeholders to ensure all levels have the requisite knowledge, skills and techniques to enable them to make productive use of their potential, respond to the

The educational needs of the sector have developed rapidly since the first fisheries course was introduced at Mymensingh at the Bangladesh Agricultural University. Since then some Universities have developed expertise in particular technical areas such as marine at Chittagong and Shrimp in Khulna. The courses however continue to be technically oriented and do not cover the full width of the skills required. The additional skills in subjects such as economic, statistics, food science, computer sciences and the social skills required for community mobilisation and the legal skills for regulation development, need to be emphasised. The recruitment into the sector especially of the government services should be broadened to enable these skills to be recruited for. This implies the acceptance that the sector cannot be managed with the traditional skills alone.

- Undertake an appraisal of the future skill needs of the sector and develop courses as appropriate.
- Lobby for a change in recruitment policy to enable students from a wider range of institutes and from a wider range skill range,
- Establish modules to enhance the skill capacity of staff already engaged in the sector,
- Establish links to international educational institutes of high standing to ensure that the best knowledge and skill base is present in the sector.

4.10 Human Resource Development Sub-strategy:

Strengthen the human resource capacity of the Department of Fisheries, its partners and its primary stakeholders to ensure all levels have the requisite knowledge, skills and techniques to enable them to make productive use of their potential.

The reliance on projects to support training and staff development has left the institutional capacity of the Department of Fisheries to plan, organise, implement and monitor staff development weak. Some attempts have been made to resolve these, but as yet have been unsuccessful. There is a need for commitment to institute the recommendations made in the

HRD Strategy which largely comes from institutional assessments made of the DoF's capacity and the resources at its disposal.

These require:

- HRD be mainstreamed in the strategic planning processes of the Department of Fisheries and the Ministry of Fisheries and Livestock.
- the capacity within the Department of Fisheries particularly for Training Wing be developed to co-ordinate all aspects of HRD in the fisheries sector, including needs assessment, planning, delivery and evaluation to ensure that training is needs based and appropriate,
- all training within the Department be consolidate under the remit of the Training Wing to ensure a coordinated systematic approach to training,
- a systematic Human Resources Development management process be developed and implemented so that the staff of the Department of fisheries and its clients and partners are able to meet the emerging challenges of the sector
- the roles of the Fisheries Training Academy and the Fisheries Training Centres be reviewed and rationalised in terms of the needs of the Department of Fisheries and the sector,
- Define the roles and responsibilities of key partners in the development and management of the fisheries sector and ensure that they have skills and knowledge to fulfil their roles
- DoF and other service providers be encouraged to share training resources to make more efficient use of these resources and to reach the large number of primary stakeholders in the fisheries sector.
- capacity within the sector be built to mainstream cross-cutting development issues such as poverty, gender awareness, community facilitation, monitoring and evaluation, environment and quality control.
- To ensure that appropriate training methods, high quality training materials and up-to-date technologies are available to all stakeholders in the fisheries sector.

Specifically the Training Wing should:

- Develop its capacity to assess the training needs and undertake or make available the required training for identified needs
- Ensure that staff resources are deployed to the training wing and the attached training centres to manage and conduct such training as is required
- Ensure resources are allocated to the training wing so that the unit is capable of maintaining the infrastructure and resources, and undertaking the required training
- re-instate and adapt computerised databases for training management and to link these to other DoF sections, particularly the Administration Section and Training Centres.
- Monitor the training of all staff and ensure

- Develop a Human Resource Management Strategy for the Department of Fisheries defining recruitment, cadre formation, posting, promotion and recognition and reward.
- Define the deployment of staff in DoF and establish cadres of staff undertaking specific tasks. Ensure that staff transfer across cadres is restricted to enable skills to be retained in core areas, thus allow for progress and
- Identify the training needs of staff according to their defined roles and ensure that staff have the skills and knowledge required to undertake their tasks
- Define career paths for staff in smaller established cadres