

DEPARTMENT OF FISHERIES

**ACTION PLAN FOR THE IMPLEMENTATION OF THE
NATIONAL FISHERIES STRATEGY**

Draft

Dhaka, May 2006

1. Introduction

The National Fisheries Strategy was prepared through a participatory process during 2003 – 2005. The work was guided by the Participatory Planning Team, chaired by the Director General of the Department of Fisheries. The strategy was submitted to the Ministry of Fisheries and Livestock, which approved it on 3 January 2006.

The strategy was formulated to assist the implementation of the National Fisheries Policy from 1998 and the Poverty Reduction Strategy Paper from 2005. It thus has a pro-poor focus in addition to promoting conservation of aquatic resources and their sustainable exploitation as well as protection of the environment and biodiversity.

The strategy consists of an overall document, the National Fisheries Strategy, and eight sub-sector strategies:

- i. Fisheries Monitoring and Evaluation Sub-strategy
- ii. Human Resources Development Sub-strategy
- iii. Inland Capture Fisheries Sub-strategy

- iv. Marine Fisheries Sub-strategy
- v. Shrimp Sub-strategy
- vi. Quality Control Sub-strategy
- vii. Aquaculture Sub-strategy
- viii. Aquaculture Extension Sub-strategy

The overall strategy and the sub-sector strategies recognise the potential for fish production in Bangladesh and the sector's important contribution to poverty reduction, nutrition, employment, and export earnings. They also acknowledge the challenges facing the sector with habitat destruction causing stagnation and decline in inland capture fisheries, and overexploitation of coastal resources, limiting the potential for growth. The expanding sub-sectors, inland and coastal aquaculture, face problems with bad quality fingerlings and insufficient quality control resulting in frequent rejections of shrimp consignments on the international market.

The strategy and sub-strategies do not set production targets (exception the shrimp sub-strategy). Instead the strategy and the Action Plan presented in this document set out to be enabling. The aim is to put in place regulations, institutions and processes, which will enable the fisheries sector to tap its full potential, with focus on benefits accruing to

poorer groups and protection of the environment and biodiversity. The aim is also to provide, through the Government sector and through partnerships between Government, NGOs and the private sector, the support required for this development.

The Action Plan for implementation of the Sub-strategies are presented in this document (Sections 3 – 10). Implementation schedules are given in Section 2.3.

The Action Plan should not be a static document, but regularly reviewed, revised and updated as new developments take place, experience from its implementations is gained, and new knowledge developed. The revision of the Action Plan should be coordinated with the annual work planning in the Department of Fisheries. Updates and

revisions should be coordinated with revisions also of the National Fisheries Strategy.

The use and structure of the Action Plan

The Action Plan is intended to be used by the implementers and is therefore rather detailed. Section 2.1. presents the approaches as given by the overall strategy, The National Fisheries Strategy. This is followed by Action Plan priorities for the sub-strategies and Implementations Schedules. In the Implementation Schedules there is a reference given. The reference refers to a box in the Action Plan for respective sub-strategy. The reader thus can find progressively more details by going from priorities to implementation schedule and finally the actual Action Plan for a sub-strategy.

2.Action Plan Priorities and Implementation Schedules

2.1. Overall approaches

The overall strategy, The National Fisheries Strategy, focuses on focal approaches for the implementation of the National Fisheries Policy and PRSP. These areas are

- long term objective planning
- people's participation
- coordination, collaboration and support for the sector
- regulatory framework
- pro poor approaches
- gender
- alternative income generation, and
- environmental management

Each sub-strategy addresses these issues, which should be guidelines for all implementation of the Action Plan. Only one of these areas will be discussed here: Coordination, collaboration and support for the sector.

There is need for close collaboration and coordination of the implementation of the Action Plan to reach the intended outcomes. Certain issues require that the National Fisheries Policy is revisited for eventual revisions. Therefore high level coordination and mechanisms for consultations on policy issues are required. The strategy proposed the establishment of two high level committees:

1. National Resource Management Committee to coordinate policy and national objectives for the natural resource sector, including fisheries
2. Fisheries Management Executive Committee responsible for coordination of technical issues at secretarial level.

On departmental level focal persons will be appointed to ensure continued inter-departmental discussion and collaboration.

2.2. Priorities

There is a focus in the strategy on pro-poor approaches, attention to gender issues,

people's participation in planning, implementation and evaluation of actions and the need for an active environmental management. Specially also for the inland capture fisheries, marine fisheries and in relation to fry collectors in the sub-strategies there is also an emphasis on alternative income generating activities, to mitigate problems of seasonal nature but also for the longer term need to reduce the number of operators depending on finite resources.

The priorities for the sub-strategies are discussed below. There is a brief description of the priority areas and then references to sections in the implementation schedules as well as the Action Plan.

2.2.1. Monitoring and Evaluation

The institutional set up for monitoring and evaluation in the Department of Fisheries is weak and outdated. The first priority in order to establish a functioning monitoring and evaluation is thus to create a "Monitoring and Evaluation Wing" appropriately staffed, trained and equipped. **Action Plan section: 3.3**

The basic information and data needed for proper planning and management of the sector are lacking. Thus there is no updated

information on the number of water bodies and their sizes, changes in water flows and especially dry season water flows. Further the information on pond culture is scanty. Number of ponds, species and production need to be documented. Also in the marine fisheries there is a lack of recent information on number of fishermen, boats and gear, as well as the current production. Priority number 2 for monitoring and evaluation is therefore to undertake initial censuses and to set up mechanisms for continuous sample surveys. **Action Plan sections: 3.4; 3.5; 3.6**

Developments the last decades have lead to massive habitat destruction and over fishing. These result in reductions in production but also to serious concerns over environmental and biodiversity issues. Once the Monitoring and Evaluation Wing is established and the basic censuses are carried out as detailed above, the next priority for the monitoring and evaluation would be monitoring on developments with regards to environment and biodiversity. **Action Plan section: 3.7**

2.2.2 Human Resources Development

In-service training of Department of Fisheries' staff and training for others, which is provided by the department, has mostly been project led and ad hoc in its approaches.

Training needs have also been identified from a project perspective, not the overall perspective of the department's mandate and needs. Also the Training Wing of the department has lacked funding from the revenue budget to make its activities more stable and secure. However, lately a budget line has been opened and the budget has increased allowing the department a more comprehensive and systematic approach to training. The first priority is now to improve and systematise the overall management of human resources development, which among others would encompass processes for training needs analysis, planning, and revision of terms of references for staff and the introduction of improved performance appraisals. **Action Plan section: 4.4.**

An important problem in human resources development is how trained manpower is used. Often a staff member who has received training in a subject are promoted to or posted in positions, where the skill is not useful. This leads to wasteful use of scarce training funds. There is a need to ensure that the best use is made of trained manpower. **Action Plan section: 4.6.**

The Department of Fisheries has several training institutions, including the Fisheries Training Academy at Savar and Fisheries

Extension and Training Centres. These are often underutilized and insufficiently funded to provide effective training. Functional analyses have earlier been done, but need to be updated together with the preparation of strategic plans for the institutions. There is also need to equip the operational centres with modern computer and communications equipment. One priority area for human resources development is to make efficient and effective use of training institutions. **Action Plan section 4.7.**

2.2.3. Inland Capture Fisheries

Two major problems face the inland capture fisheries. These are the access rights and lease system, which do not encourage conservation and a pro poor orientation, and habitat destruction. These have led to reduced production from the sector, which affect poor fishers as well as the contribution of fish from inland waters to nutrition and well-being in the country. Habitat destruction also leads to serious environmental problems, including loss of biodiversity.

One major priority for inland capture fisheries is to establish access rights for poor genuine fishers through community based fisheries management and a lease system which encourages good fisheries management

practices. Priority needs also to be given to mitigate effects of fisheries management measures like banned seasons on poor fishing households. **Action Plan sections: 5.4; 5.6; 5.10**

The other major priority is habitat destruction. To address this issue there is need for an updated inventory of water bodies country, identification of critical fisheries for production and biodiversity and determination of required water flows, not least the critical dry season water flows. This priority is linked to the census under monitoring and evaluation section of the Action Plan. **Action Plan sections: 5.1; 5.3.1; 5.12**

There is a need to strengthen the Department of Fisheries to enable the organisation to implement the Action Plan, through an Inland Capture Fisheries Wing adequately staffed and funded. **Action Plan section: 5.7.**

2.2.4. Marine Fisheries

There are indication of stagnating catches in the marine fisheries and serious over exploitation of fish stocks. However, also for this sector the data and information on trends in production, number of fishers, boats and gear are scanty and often outdated. No proper fisheries independent survey of marine

resources has been undertake since the 1980's. The first priority is to establish processes and systems to enable the collection of data which is needed for planning and management of the sector. This is linked to the priority given to censuses in the section on Monitoring and Evaluation. **Action Plan section: 6.1.**

Three major user groups have been defined for marine resources. These are the artisanal, inshore fishers, those who use mechanised boats and the industrial fisheries. They often compete on resources and space and there is a need to allocate resources between the users in accordance with proper management plans. **Action Plan sections: 6.2; 6.3; 6.4; 6.5.**

The management plans require revisions of laws and regulations and enforcement of the rules. Priority is given the regulation and enforcement to enable a proper management of the sector, which will benefit the poor fishing households as well as allow conservation and optimum use of the resources. **Action Plan section: 6.6**

2.2.5. Shrimp

The shrimp culture industry has developed rapidly and is an important export industry. The sector faces problems with quality issues

leading the rejections of consignments (dealt with under quality control) but also with low productivity, environmental problems, diseases etc. It is also commonly accepted that there is a need for a controlled expansion of the sector.

The first priority is related to the expansion of shrimp farming. There is a lack of understanding of environmental concerns related to large scale expansions as well as infrastructure development because of lack of zonation. The first priority is to undertake a zonation process including shrimp farming in agro-ecological zoning, taking into consideration water quality, water availability, salinity etc. The zoning process would also consider ecologically sensitive areas like mangrove and prevent shrimp farming expansion into such areas. **Action Plan section: 7.4**

The current production level is low and needs to be improved to ensure profitability of the sector. However, there may also be opportunities to develop organic production as well as using more intensive production methods. **Action Plan sections: 7.1.3; 7.8.**

To ensure that new regulations are enforced and that market demands (for example demands for traceability) can be effectively

implemented there is a need for registration and licensing of producers (hatcheries, farms) and other operators in the sector, including processors. **Action Plan sections: 7.3; 7.6.**

The sub-strategy advocates a phasing out of collection of wild fry both for ecological reasons and to ensure quality. The collection of wild fry is done by extremely poor groups, often women and children. Alternative income generation activities need to be initiated to allow these groups to withdraw from fry collection. **Action Plan section: 7.5.4.**

2.2.6. Quality Control

Shrimp export from Bangladesh is hampered by a perception among buyers of low quality and there have been numerous rejections of consignments. The situation seems to have improved and the Government is giving high priority to alleviate this problem. Among other actions has been to initiate with external funding a quality control project. Quality assurance in a broader sense will continue to be a priority. **Action Plan section: 8.5.**

Human resources development through training and adequate posting of staff is a major challenge to establish an effective quality control system for the sector and is given high priority. **Action Plan section: 8.1.**

The regulations for the sector are not adjusted to the demands from different markets and needs revisions, updating and enforcement.

Action Plan section: 8.4

2.2.7. Aquaculture

The data and information on recent expansion of aquaculture is not complete. There is need for planning purposes for more and detailed data on ponds, pond sizes, no of farmers, species and production levels. There is need to put in place mechanisms and processes to gather and analyse these data. This priority is linked to the priority given to censuses under Monitoring and Evaluation. **Action Plan section: 9.7**

A major problem hampering the production from fish farming, causing less than potential profitability for the farmers and less output than could be realised is the bad quality of seed. In the longer term this may also reduce the interest among farmers to engage in fish farming. Work has been initiated to improve the seed quality and should remain a high priority for the next few years. **Action Plan section: 9.2.**

Introduction of exotic species either for flood plain stocking or through accidental release of

fish from pond culture is a grave threat to biodiversity. Thus there is need for stringent rules and procedures for the import and use of exotic species. **Action Plan section: 9.5.**

2.2.8. Aquaculture extension

The approaches to extension have undergone radical changes over the last decades with a move towards needs based extension identified, planned, implemented and evaluated together with the recipients. The strategy places great emphasis on peoples' participation as an important approach to effective and meaningful extension. Extension is the main interface between the diverse target groups, authorities, research, and private and NGO sectors. Therefore, priority is given to peoples' participation in the extension sub-strategy and Action Plan.

Action Plan section: 10.1.

A blanket extension method or a blanket approach to delivery of extension messages is not effective since there is no uniform target group. Instead different categories of farmers need different technologies, they can access different sources for extension advice and they have different access to available extension providers. Thus the approaches to extension need to be adjusted to the needs of different groups and be flexible and based on

proper needs analysis. **Action Plan section: 10.3.**

There are several potential extension providers; Government, universities, NGOs and the private sector. To make the most effective use of all resources there is need for proper coordination, collaboration and the establishment of linkages between all potential service providers. **Action Plan section: 10.4.**

2.3. Implementation Schedules

2.3.1. Implementation Schedule for the Monitoring and Evaluation Sub-strategy

Ref.*		2006	2007	2008	2009	2010	2011	2012	2013	2015	2016
3.1.	High level briefing workshops on M&E										
3.2.	Awareness raising in DOF on M&E										
3.3.	Establish a M&E Wing in DOF										
3.3.1.	Preparation of detailed proposal by DOF										
3.3.2.	Identify and secure external funding										
3.3.3.	Secure revenue funding										
3.3.4.	Revision of TORs for M&E staff										
3.3.5.	Redeployment of staff										
3.3.6.	Prep training plan, revisions			X		X		X		X	
	Impl of training plan		X	X	X	X	X	X	X	X	X
3.3.7.	Recruitment and/or contracting of staff										
3.3.8.	Management and upgrading of revenue bgt MIS										
3.3.9.	Dev of project MIS										
3.3.10.	Management and upgrading of project MIS										
3.4.	Aquaculture production statistics										
3.4.1.	Design of Aquaculture Resources Census										
3.4.2.	Collection, analysis of census data										
3.4.3.	Statistical rev and production survey design										
3.4.4.	Staff training for production monitoring										
3.4.5.	Annual sample prod monitoring survey						X	X	X	X	X
3.4.6.	Staff training in impact monitoring										
3.4.7.	Impact studies on aquaculture as needed				X	X	X	X	X	X	X
3.4.8.	Link with data providers for aq. prod			X							
3.4.9.	Collation of non-DOF prod data										
3.4.10.	Collation/analysis of export data										

Ref.*	2006	2007	2008	2009	2010	2011	2012	2013	2015	2016
3.5. Inland fisheries production statistics										
3.5.1 Resources census design and training										
3.5.2 Resources census										
3.5.3 Stat rev and ICF catch survey design					x					
3.5.4 Staff training										
3.5.5 Sample catch monitoring surey										
3.5.6 Def of impact monitoring methods										
3.5.7 Saff training in impact monitoring										
3.5.8 Impact studies as needed				x	x	x	x	x	x	x
3.5.9 Link with data providers					x					
3.5.10 Collation of external production data										
3.6 Marine fisheries production statistics										
3.6.1 Census design and training										
3.6.2 Census data collection										
3.6.3 Census data analysis							x			
3.6.4 Stat rev and catch survey design							x			
3.6.5 Staff training for catch monitoring										
3.6.6 Annual sample catch monitoring										
3.6.7 Hilsa catch monitoring survey										
3.6.8 Definition of imapct monitoring methods					x					
3.6.9 Staff training on impact monitoring										
3.6.10 Impact studies as needed						x	x	x	x	x
3.6.11 Linkages for market information		x								
3.6.12 Collation of external dara										
3.7 Impact monitoring of environment and biodiversity										
3.7.1 Enhance skills of staff										
3.7.2 Linkages with other organisations		x								
3.7.3 Establish implications of national biodiversity strategy										
3.7.4 Define env/biodiversity content of censuses										
- aquaculture		x								

Ref.*		2006	2007	2008	2009	2010	2011	2012	2013	2015	2016
	- inland fisheries			x							
	- marine fisheries				x						
3.7.5	Train field staff for censuses										
	- aquaculture			x							
	- inland fisheries			x							
	- marine fisheries				x						
3.7.6	Collection, analysis of census data										
	- aquaculture					x					
	- inland fisheries					x					
	- marine fisheries							x			
3.7.7	Create biodiversity database in DOF										
3.7.8	Est responsibility for the National Biodiversity Information System										
3.7.9	Feed DOF biodiversity data to NBIS										
3.7.10	Training in impact assessment re env and biodiversity					x					
3.7.11	Determine impacts										
3.7.12	Awareness raising on env and biodiversity										
3.7.13	Impact monitoring of projects/programmes					x	x	x	x	x	x
3.8	Fisheries and PRSP										
3.8.1	Design socio-ec content of censuses										
	- aquaculture			x							
	- inland fisheries			x							
	- marine fisheries					x					
3.8.2	Collection of socio-economic data										
	- aquaculture					x					
	- inland fisheries					x					
	- marine fisheries							x			
3.8.3	Links with other data providers			x							
3.8.4	Integration of internal and external data			x	x	x	x	x	x	x	x
3.8.5	Def of socio-ec impact methods for DOF				x						
3.8.6	Staff training for the above				x						

Ref.*		2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
3.8.7	Soc-ec impact studies projects/programes				x	x	x	x	x	x	x
3.8.8	Define external resources as needed										
3.8.9	Use external info for DOF planning										
3.9	Fisheries/nutrition/public health										
3.9.1	Links with health/nutrition agencies			x							
3.9.2	Collation of consumption data			x							
3.9.3	Advice on protein supply			x	x	x	x	x	x	x	x
3.10	Economic growth and export earnings										
3.9.1	Links with ministries/universities			x							
3.9.2	Collation of data										
3.9.3	Advice on ec growth and export earnings										

2.3.2. Implementation Schedule for the Human Resources Development Sub-strategy

Ref.*		2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
4.1.	Coordination of HRD activities										
4.4.2	Needs assessment										
4.1.1	Preparation and revisions of HRD Plan				x		x		x		x
4.4.7	Preparation of Annual Training Plans		x	x	x	x	x	x	x	x	x
4.1.4	Establish the HRD Committee										
4.1.5	Revise data base										
4.1.5	Maintain data base										
4.2.	Administrative training										
4.2.1	Develop Induction training, train new staff										
4.3.	Technical training										
4.3.1	Develop training material										
4.3.2	Implement training										
4.3.3	Organise overseas training programme										
4.3.4	Training in cross-cutting issues										
4.3.5	Train new DTs		x	x	x	x	x	x	x	x	x

Ref.*		2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
4.4	HRD Management										
4.4.3	Revise job descriptions DOF										
4.4.4	Train managers in perf.appraisal methods		x		x		x		x		x
4.4.5	Introduce perf appraisal procedures		x								
4.4.5	Annual performance appraisals			x	x	x	x	x	x	x	x
4.5	Delivery of training										
4.5.1	Elaborate on Training Managment Guideline										
4.5.2	Establish a Training of Trainers Progr.										
4.5.3.	Prepare modules, manuals and mtrls										
4.5.4	Establis a central resource centre										
4.6.	Posting of trained staff										
4.6.1	Ensure trained staff are retained										
4.6.1	Prep ind. Action Plans for trainees										
4.7	DOF's training institutions										
4.7.1	Update functional analysis of institutions										
4.7.2	Prep. Operations and maintenance plans										
4.7.3	Provide computer/communications eq										
4.7.4	Staff the inst as per proposal										
4.8	Collaboration between training providers										
4.8.1	DTs to ttrain for pivate sector and NGOs										
4.8.2	Use trainers from private, NGOs, univ										
4.9	Linkages training/research										
4.9.1	Six-monthly training/research seminars	x	x	x	x	x	x	x	x	x	x

2.3.3. Implementation Schedule for the Inland Capture Fisheries Sub-strategy

Ref.*		2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
5.1.	National planning										
5.1.1	Prepare an inventory of water bodies										
5.1.2	Designate a national network of sanctuaries										
5.1.3.	Est.a Natural Resources Coord. Committee					x					
5.2	Local planning and decentralisation										
5.2.1	Form Upazila Fisheries Committees										
5.2.2	Transfer resp for planning, M&E to UFC										
5.3	International concerns and planning										
5.3.1	Study on water needs and quality										
	Formation of Ganges Commission			x							
	Joint studies with India and Nepal on cross-boder river flows to protect biodiversity			x							
5.3.2	Impl. Strategy for CCRF	x	x	x	x	x	x	x	x	x	x
5.3.3	Active part in Fao reg fisheries bodies	x	x	x	x	x	x	x	x	x	x
5.3.4	Awareness building about int conventions										
5.4	Access to aquatic resources										
5.4.1	Beels and similar water bodies										
	1. -adopt policy for access rights										
	- determine nominal lease fees	x									
	- lease fees as incentives for CBOs	x									
	- establish Fisheries Management Plans										
	2. - 50 years leases fo CBOs	x									
	- establish review processes for UFCs	x									
	- establish process to revoke leases	x									
5.4.2	Rivers										
	1. - briefing paper on access	x									
	- cancellation of open access			x							
	- establish new leasing system			x							

Ref.*		2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
	- pilot scheme for fo community management of large river systems										
5.4.3	Private flood plains										
	1. - precautionary principles to limit growth of flooplain aquaculture										
	- impact study on floodplain aquaculture										
	- regulations for flood plain management				x						
	- guidelines for community management of floodplains				x						
5.5	Technical man. & habitat destruction										
5.5.1	Biodiversity and natural fish recruitment										
	Compile indigenous knowledge about habitats for species and fisheries										
	Study key locations for important fisheries and fishes										
	Prepare guidelines for management of water bodies										
5.5.2	Stocking										
	Prep criteria for stocking										
	Prep technical guidelines for stocking										
	Regulations for allowed species										
	Use of certified fingerlings ensured					x					
	Study impact of stocking on poor										
5.5.3	Loss of native species										
	Identify disappeared or rare species										
	Monitor impact of sanctuaries										
	Prep guidelines for reestablishing populations of indigenous species										
	Identify sources of indigenous species which will not harm native fish stocks										
5.5.4	Connectivity										
	Awareness building about impact of loss of connectivity										
	Coordinate to ensure further loss of connectivity does not occur							x			
	UFC review of plans for roads and other developments					x	x	x	x	x	x
	Undertake mitigation measures for existing infrastrcutre										

Ref.*		2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
	Prep guidelines for habitat restoration										
5.5.5	Impact of encroachment and agriculture										
	Review leases for khas land for agriculture										
	Awareness building about encroachment										
	Amend land management manual										
5.5.6	Fishing effort										
	Rapid assessment system for fishing effort and catch trends										
	Implement the system										
	CBOs management plans to include gear restrictions, fishing effort, seasonal bans										
	Regulation of harmful gear										
	Implementation of regulations										
	Amend leasing arrangement format										
	Enforce fisheries management provisions in lease arrangements										
	Develop skills for other occupations										
	Promote use of selective gear										
5.5.7	Dewatering										
	Enforce existing regulations										
	Include ban on dewatering in FMPs										
5.6	Community based co-management										
5.6.1	Policies										
	Amend policy to enable CBFM										
	Establish legal framework for CBFM										
	Review experiences in other countries										
5.6.2	Involve local communities in management										
	Review lessons from projects										
	Develop guidelines for people's participation										
	Assist communities to organise CBOs										
	Awareness building										
	Ensure women are adequately represented										

Ref.*		2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
	Encourage involvement of NGOs										
	Train and advice CBOs on management										
	Train and support UFCs										
	Guidelines for creation of CBOs										
	Promote registration of CBOs										
	Establish networks between CBOs										
5.7	Structures, staffing and resources										
5.7.1	Inland capture fisheries in DOF										
	Create an Inland Capture Fisheries Wing										
5.7.2	Staff development										
	Identify staff needs	x									
	Assess staff needs at Upazila level										
	Review and revise TORs										
	Implement gender policy										
	Implement actions to strengthen the wing										
5.7.3	Skills development										
	Recruit specialists (i.e. social and legal expertise)										
	Train staff of the wing in relevant subjects				x	x	x	x	x	x	x
5.7.4	Financial resources										
	Allocate appropriate funds from revenue bgt										
5.7.5	Research										
	Strengthen BFRF for coordination										
	Est competitive grant systems for research				x						
5.7.6	Promote linkages for coordination										
5.7.7	Extension										
	Funding from revenue bgt for extension										
	Develop training for communities										
	Awareness campaigns to promote CBFM		x	x	x	x	x	x	x	x	x
	Extend sub-strategy concepts to gov staff and local leaders										
	Develop info mtrl on sub-strategy										

Ref.*		2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
	Link with other extension providers										
	Cover inland fisheries in Fish Fortnight										
5.7.8	Linkage research - extension										
	Six-monthly seminars (BFRF)		x x	x x	x x	x x	x x	x x	x x	x x	x x
	Create data base on prev research	x	x	x	x	x	x	x	x	x	x
	Disseminate results to stakeholders										
5.8	Education										
5.8.1	Inland fisheries in education										
	Inland fisheries in university education										
	Introduce inland fisheries in prim ed										
	Introduce inland fisheries in sec ed										
	Train local leaders in inland fisheries										
5.9	Infrastructure										
5.9.1	Infrastructure and habitat destruction										
	Ensure new infrastructure dev considers fsheries needs		x								
	EIAs to be reviewed by DFOs		x								
	Training of DFOs in EIA		x	x	x	x	x	x	x	x	x
5.10	Seasonal safety nets										
5.10.1	Identify org that can develop AIGA										
	Identify communities affected by seasonal bans										
	Encourage org to support affected households										
	Fishing households to be given priority for seasonal governmental relief										
	Encourage NGOs to dev AIGA										
	Encourage NGOs to give seasonal credit										
	Ensure affected households are targetted										
5.11	Alternatives to fishing										
5.11.1	Create alternative income opportunities										
	Identify org that can develop AIGA										
	Seek programme support for AIGA										

Ref.*		2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
	Develop partnerships										
	Ensure market assessment when planning										
5.12	Environmental management										
5.12.1	Aquatic ecosystems and biodiversity										
	Identify impact on/by inland fisheries										
	Plans to mitigate neg impacts										
	Inventory of key fisheries										
	Establish conservation areas in critical habitats										
5.12.2	Strengthen DOFs capacity										
	Advocacy and lobbying										
	Environmental specialist in the Inland Wing	x									
	Links with other environmental agencies										
	Improve local inst capacity in wetland and ecosystem management										
	Develop training material for wetland conservation		x	x	x	x	x	x	x	x	x
	Cooperate with others on use of floodplains, maintain or increase dry season water										
5.12.3	Collaboration and linkages										
	Contacts with international institutions										
	Ensure issues covered by technical committee on secretary level			x							
	Ensure issues are covered by UFC			x							
	Ensure with DOE that regulations against pollution of inland waters are enforced										

2.3.4. Implementation Schedule for the Marine Fisheries Sector Sub-strategy

Ref.*		2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
6.1	Resource assessment										
6.1.1.	Plan for resource assessment										
	Prioritise areas for data collection										
	Plan resource assessment strategies										
	Select assessment needs for key species										
6.1.2	Assessment of underexploited species										
	Develop methods										
	Plan for deep water assessment										
6.1.3	Intergrate with regional resource databases										
6.1.4	Post and train DOF staff at field stations for data collection										
6.1.5	Allocate funds from revenue bgt			x							
6.1.6	Monitor landings by artisanal and mechanised boats										
	Develop community monitoring										
	Monitor fishing effort										
6.1.7	Revisions of regulations to enable monitoring										
6.1.8	Monitor changes in target species										
6.1.9	Disseminate data from resource assessment and monitoring										
6.2.	Resource allocation/management plan										
6.2.1	Close fishing up to 5 m depth (phased)										
	Update the Marine Fisheries Ordinance			x							
	Extend the coastal empowerment project										
	Implement the project Development of Coastal Artisanal Fisherfolk (approved)										
	Awareness building among coastal communities										
	Prep AIGA for affected fishing households										
6.2.2	Prohibit fishing at estuary mouths (phased)		x								

Ref.*		2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
6.2.3	Prohibit fishing of mechanised boats in waters with less than 10 m depths										
6.2.4	Prohibit fishing by industrial vessels in waters with less than 40 m depth										
6.3	Artisanal Sector Management										
6.3.1	Local management of inshore resources										
6.3.2	Establishment of CBOs for inshore resource management										
	Formulation of Fisheries Management Plans										
	Est criteria and mandate for CBOs				x						
6.3.3	Develop effort control plans										
	Impl effort control plans										
6.3.4	Expand the approach of the project Empowerment of Coastal Fishing Com										
	Train local stakeholders										
6.3.5	Introduction of fishing permits		x								
6.3.6	Improve technical capability to fish further offshore										
6.3.7	Identify credit sources for imp of Fisheries Management Plans										
6.3.8	Communities actions for conservation i.e. mangrove protection										
6.3.9	Promote AIGA										
6.3.10	Establish Upazila level data base on resources incl boats, no of fishers				x						
	Maintain and update data base										
6.3.11	Post Marine Fisheries Officers in coastal Upazilas										
	Proposal by DOF	x									
	Fully implemented				x						
6.4	Mechanised Commercial Sector										
6.4.1	Classify all boats in this category					x					

Ref.*		2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
6.4.2	Update data base on no of boats and gear						X	X	X	X	X
6.4.3	Decide on total no of boats to be licensed					X					
6.4.4	Allocate licenses between districts					X					
6.4.5	Registration of boats in home town of owner					X					
6.4.6	Registration and certification of all boats					X					
6.4.7	Est a certification and licensing system			X							
	Implementation of the system										
6.4.8	Develop partnerships between owners and fishers, increased ownership by fishers					X					
6.4.9	Est boat owners associations at district level with national apex org					X					
6.4.10	Adoption of improved technologies like GPS					X					
6.4.11	Develop diversification of target speices										
6.5	Industrial Sector Management										
	Enforce Marine Fisheries Ordinance restricting ind vessels to beyond 40 m depth										
6.5.1	Est an industrial fisheries management body					X					
6.5.3	Industrial fishing vessels contribute to catch monitoring										
6.5.4	Introduce closed seasons			X							
6.5.5	Declaration of marine reservs/sanctuaries			X							
6.5.6	Determine optimum no of trawlers					X					
6.5.7	Replace shrimp trawlers by fish trawlers as appropriate										
6.5.8	All shrimp trawlers using TEDs										
6.5.9	Appoint staff for monitoring of ind fisheries			X							
6.6	Regulation and enforcement										
6.6.1	Update MFO and NFP as requirfed		X	X	X	X	X	X	X	X	X
6.6.2	Determine EEZ and reach int agreement					X					
6.6.3	Prepare CCRF for Bangladesh										
	Promote CCRF among communities										
6.6.4	Develop community enforcement of fishing effort control										

Ref.*		2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
6.6.6	Registraion of artisanal fishers,boats						X	X	X	X	X
6.6.7	Registration of mechanised boats, fishers										
6.6.8	Registration ind trawlers, fishers						X	X	X	X	X
	Certification of sea worthiness ind trawlers						X	X	X	X	X
6.6.9	Ban destrucive gear					X					
	Awareness building about destructive gear										
6.6.10	Illegal fishing - IUU fishing										
	Expand int collaboration on IUU fishing										
	Agree on int protocols for IUU fishing			X							
	Revise legislations as needed			X							
6.7	Security and safety of fishers										
6.7.1	Piracy										
	Prep specific law on piracy to enable complaints to be registered			X							
	Assistance to fishers										
6.7.3	Safety										
	Develop training module			X							
	Train fishers										
	Enforce the use of safety equipment										
6.7.4	Group insurance scheme										
	Develop the scheme					X					
	Implement										
6.7.5	Develop shelters for fishing vessels										
6.8	Marketing and quality control										
6.8.1	Assess post harvest losses										
6.8.2	Reduce post arvets losses through training and technology imprvements										
6.8.3	Improve on board storage and use of ice										
6.8.4	Legislate re standard at landing centres					X					
6.8.6	Establish quality criteria for domestic markets			X							
6.8.8	Identify new markets i.e. For squid, tuna										

Ref.*		2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
6.8.9	Identify new technologies for value added products										
6.8.10	Support initiatives to improve quality of markets and of fish										
6.9	Institutional reorganisation										
6.9.1	Proposal for a marine fisheries directorate			x							
6.9.2	Secure funding for the Marine Sub-strategy and Action Plan					x					
6.9.3	Separate bgt line for impl of marine fisheries action plan - proposal		x								
6.9.4	Est career structure within Marine Sector			x							
6.9.5	Fill all vacancies										
6.9.8	Support services using fees from licensing etc										
6.10	Training and education										
6.10.1	Est Marine Fisheries Academy as technical training centre under Marine Directorate										
	Proposal		x								
	Implementation					x					
6.10.2	Academic courses for the marine sector										
	Develop courses										
	Implementation										
6.10.3	Refresher courses at universities										
6.10.4	Training of fishers in navigation, safety at sea, reporting and resource management										
	Prep a project to establish training centres										
6.11	Research										
6.11.1	Research needs analysis		x	x	x	x	x	x	x	x	x
	Prep research plans with funding		x	x	x	x	x	x	x	x	x
6.11.2	Monitoring of research findings		x	x	x	x	x	x	x	x	x
	Establish and revise priorities		x	x	x	x	x	x	x	x	x
6.11.3	Field oriented research on env stress										
6.11.4	Mobilization of research funds		x	x	x	x	x	x	x	x	x

Ref.*		2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
6.11.5	Technical research on mobility of artisanal fishing vessels										
	Collaborate with other countries on identification of suitable artisanal vessels										
6.12	Environment										
6.12.1	Assess impact of pollution on marine environment										
6.12.2	Assess impact of global warming on marine production										
6.13	Coordination and linkages										
6.13.1	Support the Natural Resources Coord, Com. & Fisheries Management Executive Com										
	Proposal		x								
	Operation of committees										
6.13.2	Active part in Bay of Bengal Commission										
	Proposal		x								
	Implementaion										
6.13.3	Link with international marine research and management organisations										

2.3.5. Implementation Schedule for the Shrimp Sub-strategy

Ref.*		2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
7.1	General										
7.1.1	Assess export potential										
	- plan	x									
	- survey										
	Examine niche markets										
7.1.2	Est NRMC and FMEC			x							
7.1.3	Long term strategic plan for expansion			x							
7.1.4	Reorganise Upazila and District Shrimp Committees										
	- proposal										
	- implementation	x	x								
7.2	Regulations										
7.2.1	Define needs fo revisions of regulations	x	x	x	x						
7.3	Registration of producers										
7.3.1	Revise rules for registration from gov requirement to access to market										
	- proposal	x									
	Est group registration for small farmers		x								
	Promote farmers' associations for registratin										
	Monitoring of registration by DOF	x	x	x	x	x	x	x	x	x	x
7.3.2	Impl existing rules for registration of arotdars, depot owners and ice producers			x							
7.4	Zonation										
7.4.1	Define criteria for shrimp farming in agro-ecological zoning										

Ref.*		2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
	- proposal	x									
	- zoning process										
	Define requirements for zoning	x									
	Implement ICZM recommendations										
	Develop AIGA for affected households										
7.4.2	Est EIA of all zones before declaration										
7.4.3	Prep guidelines to prevent encroachment on wetlands by <i>Golda</i> farmers										
7.4.4	Study on areas for semi-intensive culture										
7.4.5	Train Gov staff in zonation methods										
	Awareness campaigns										
7.4.6	Promote landless associations to ensure rights of poorer groups										
7.5	Shrimp fry collection										
7.5.1	Prep management plan to replace wild fry with hatchery produced fry										
	- plan		x								
	- implementation										
7.5.2	Improve hatchery fry quality through testing, brood stock selection, nursing										
7.5.3	Promote dev of <i>Golda</i> hatcheries										
	Est database over <i>Golda</i> hatcheries			x							
7.5.4	Develop AIGA for fry collectors										
7.6	Hatchery Registration and Certification										
7.6.1	Develop code of conduct for responsible hatchery management										

Ref.*		2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
	Amend Fish Inspection and Quality Control Act to enable registration and licensing		x								
	Impl registration and licensing rules which have been developed by DOF										
	Est committee for quality assurance			x							
7.6.2	Develop laboratories and quality assurance schemes to monitor quality and of PL										
7.6.3	Cancel subsidies to <i>Bagda</i> hatcheries										
	- proposal		x								
	- implementation			x							
7.7	Brood Stock Collection										
7.7.1	Assess availability and quality of brood										
	- shore based survey										
	- marine survey										
7.7.2	Determine extent of diseases										
	Provide incentives for use of improved brood collection methods										
7.7.3	Stimulate the use of trammel nets										
7.7.4	Monitor int dev on captive breeding										
7.7.5	Enforce seasonal ban on brood collection	x	x	x	x	x	x	x	x	x	x
7.7.6	Identify areas where brood collection would have minimal impact										
7.7.7	Assess shrimp stocks										
	Assess needs for further regulation of <i>Bagda</i> fisheries										
7.8	Extension										

Ref.*		2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
7.8.1	Dev ext programme for shrimp										
7.8.2	Review existing and pot ext providers										
7.8.3	Secure rev funding for basic extension										
	- proposal	x									
	- implementation			x							
	Est mechanism that allows industry revenue to be revolved for ext and training										
	- proposal	x									
	- implementation			x							
7.8.4	Divert subsidies to funding of extension										
	- proposal		x								
	- implementation			x							
7.8.5	Target small farmers in ext programmes										
7.8.6	Examine ext service providers in relation to target groups										
7.8.7	Promote dev of private extension providers										
7.8.8	Build capacity of farmers' associations										
7.8.9	Provide TT for NGO staff										
	Dev self financing to allow NGO extension										
7.8.10	Direct extension also to depot owners etc										
7.8.11	Dev ext packages for semi-intensive culture										
7.8.12	Dev packages for improved extensive culture										

Ref.*		2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
7.8.13	Dev packages for mixed culture methds										
7.8.14	Seek additional staff support in shrimp areas to support extension (19 Upazilas)										
7.9	Infrastructure										
7.9.1	Use FMEC for coordination to avoid policy conflict										
7.9.2	Seek Gov priority rating for shrimp infrastructure		x								
7.93	Enable communities to upgrade water management structures										
	- proposal			x							
	- implementation										
	Use part of revenue raised from export excise for infrastructure development										
	- proposal										
	- implementation										
7.9.4	Promote CBOs for water management										
7.10	Marketing										
7.10.1	Reduce number of intermediaries										
	Monitor piloting of marketing systems										
7.10.2	Org farmers into marketing groups										
7.10.3	Dev contact farming systems										
7.10.4	Provide current market price information										
7.10.5	Awareness campaigns on quality										
	Train farmers, traders and processors in identificaion of quality indicators										
	Dev training mtrl in Bangla										

Ref.*		2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
	Organise spot checks on quality										
	Intr higher penalties and cancellation of fees for processors purchasing poor quality										
	Improve capacity of QC staff										
	Provide logistic support to QC staff										
	Intr industry led quality assurance										
7.10.6	Provide soft loans for upgrading of marketing infrastructure										
	- proposal			x							
	- implementation										
7.10.7	Enforce QC for ancillary industries										
7.10.8	Ensure refrigerated trp										
7.10.9	Dev value addition processes										
7.11	Disease monitoring and prevention										
7.11.1	Train staff in disease identification										
	Train farmers and hatchery operators in disease identification										
	Rehabilitation of BFRI laboratories										
	Livestock Department to include fish diseases in their diagnostic services					x					
	Promote private sector diagnostic centres										
7.12	Research										
7.12.1	Prioritise researc through stakeholder needs analysis										
7.12.2	Identify funding mechanisms for research										
	Examine options to use levies on export for research			x							
7.12.3	Train scientists on shrimp related issues										

Ref.*		2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
7.13	Education										
7.13.1	Develop academic courses covering all sector management issues										
7.13.2	Identify technical training modules										
7.14	Poverty										
7.14.1	Monitor effect of shrimp farming dev on poverty										
7.14.2	Dev and upgrade disaster risk man plan				x	x	x	x	x	x	x
7.15	Environment										
7.15.1	Establish environmental monitoring										
	Prep EIA guidelines and manuals										
	Ensure EIA before licenses are issued										
7.16	Structures, staffing and resources										
7.16.1	Appoint Director in DOF for aquaculture					x					
	Appoint Deputy Director for shrimp					x					
7.16.2	Imp proposed gender policy for DOF										

2.3.6. Implementation Schedule for the Quality Control Sub-strategy

Ref.*		2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
8.1	Human resources										
8.1.1	Retain trained officers in the Quality Control Wing										
	Proposal	x									
	Implementation			x							
8.1.2	Skills development										
	Needs assessment	x									
	Develop training programme	x									
	Local and overseas training										
	Overseas study tours and workshops										
	Develop univ courses in QC										
8.1.3	Shortage of manpower										
	Proposal for recruitment	x									
	Implementation										
8.1.4	Career structure										
	Develop career structure for QC Wing	x									
	Dedicate staff to QC Wing										
8.1.5	Develop system to reward staff	x									
8.1.6	Allocate funds for QC activities										
	Proposal	x									
	Amend regulations to allow utilisation of funds generated as laboratory fees - proposal	x									
8.1.7	Procure transportation										
8.1.8	Develop laboratories										
8.1.9	Install computer systems in all offices										
8.1.10	Upgrade documentation on QC issues										
8.2	Collaboration										
8.2.1	Establish QC Committees on all levels		x								

Ref.*		2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
8.2.2	Define roles of aquaculture and shrimp in relation to QC in DOFs field organisation	x									
8.3	Advocacy										
8.3.1	Publish accurate data on QC activities		x	x	x	x	x	x	x	x	x
8.4	Regulations										
8.4.1	Review regulations and determine which are needed for export										
	Identification of needs	x									
	Proposal to MOFL		x								
	Revise existing regulations as needed		x								
8.4.2	Strengthening organisation(s) setting standards										
8.4.3	Clarify standards					x					
8.4.4	Monitor compliance with regulations										
8.4.5	Seminar and training programme to increase awareness about regulations										
8.4.6	Establish and revise standards for different markets										
8.5	Quality Assurance										
8.5.1	Provide liaison re quality assurance demands										
8.5.2	Preparation of guidelines about quality criteria demanded by different buyers			x							
8.5.4	Training of workers in processing and marketing										
8.6	Certification										
8.6.1	Assessment of processing plants										
8.6.2	Monitoring of compliance by factories										
8.6.4	Monitoring of plants with 3rd party audits										
8.7	Research										
8.7.1	Link QC problems to research										
	Needs assessment	x		x		x		x		x	
	Implementation										
8.7.2	Development of training programmes by universities	x									

2.3.7. Implementation Schedule for the Aquaculture Sub-strategy

Ref.*		2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
9.1	General										
9.1.1	Prep guidelines for FAO's CCRF										
9.2	Brood stock supply										
9.2.1	Revise and update the National Brood Management and Breeding Plan		x		x		x		x		x
9.2.2	Est a certification system for brood stocks		x								
9.2.3	Prep guidelines for operation of brood banks										
9.2.4	Prep inventory of spawn and brood collection sites										
9.2.5	Prep standards for pure strains and identify sources of pure brood										
9.2.6	Est certified brood banks										
9.2.7	Register all brood banks (private), certify										
9.2.8	Development of standard indigenous brood from wild spawn										
9.2.9	Enforce that spawn collection is done only by certified brood farms										
9.2.10	Monitoring of natural spawn collection										
9.2.11	Maintain parent stocks of exotics in brood banks										
9.2.12	Control that brood banks keep minimum no of breeders of exotic species										
9.2.13	Establish live gene banks										
9.2.14	Enforce the release of excess brood into the wild										
9.2.15	Maintenance of pedigree records in brood banks										
9.2.16	Declare sanctuaries as <i>in situ</i> gene banks										
9.3	Hatcheries										
9.3.1	Implement the hatchery regulation										
9.3.2	Est registration and monitoring system for hatcheries		x								
9.3.3	Certification of hatcheries and nurseries										
9.3.4	Enforce that hatcheries only use brood from certified brood banks										
9.3.5	Raise awareness about cert system										
9.3.6	Amend regulations to ban hybridisation	x									
9.3.7	Prep guidelines for use of hybrids in research	x									
9.4	Biodiversity										

Ref.*		2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
9.4.1	Research on cryopreservation										
9.4.2	Cont dev of short term preservation of milt and fertilisation techniques										
9.4.3	Dev techniques for production of sterile or mono-sex fish										
9.5	Imports										
9.5.2	Est procedures for import risk assessment										
9.5.4	Develop a GMO protocol										
9.5.5	Prep and update list of acceptable species				x	x	x	x	x	x	x
9.5.6	Mandate for DOF to be responsible for monitoring of import and use of exotics										
	- proposal	x									
	- implementation		x								
9.5.8	Establish quarantine procedures at all entry points			x							
9.5.9	Dev breeding of ornamental fish in Bangladesh										
9.6	Policy										
9.6.1	Est NRMC and FMEC for policy review										
	- proposal	x									
	- committees established		x								
9.7	Planning										
9.7.1	Dev data base on all aquaculture resources						x	x	x	x	x
9.7.2	Prep strategic dev plan according to zones										
9.7.3	Compile land use plan (see also shrimp)										
9.7.4	Dev pro-poor and pro-women technologies										
9.7.5	Ensure floodplain aq is carried out in line with Action Plan for inland capture fisheries										
9.8	Inputs										
9.8.1	Promote efficient input supply system										
	- proposal	x									
	- implementation of project										
9.8.2	Register feed producers										
	- database		x								
	- registration										
9.8.3	Dev standards for feed quality										

Ref.*		2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
	Enforce marking of products										
	Dev self-certification of feed quality										
	Awareness building abt feed quality and use										
	Provide training and technical advice										
9.8.4	Create tax holiday for import of aq inputs										
	- porposal		x								
	- implementation										
9.9	Chemical inputs										
9.9.1	Promote Integrated Pest Management to reduce risk for fish										
9.9.2	Revise regulations for the use of chemicals			x							
9.10	Marketing										
9.10.1	Improve infrastructure at market centres										
9.10.2	Revise regulations to enforce use of refrigerated transport of fish			x							
9.10.3	Est system for info on market prices										
9.10.4	Dev farmers' coop markets										
9.11	Finance										
9.11.1	Assess need for credit for poor farmers		x								
9.11.2	Promote bank lonas for poor fish farmers										
9.11.3	Expand micro credit systems										
9.11.4	Use local gov for support of applications										
9.12	Local Government support										
9.12.1	Activate the standing committee on Livestock and Fisheries at union level					x					
9.12.2	Monitoring of the standing committe by UDCC										
9.13	HRD										
9.13.1	Create data base on aquaculture professionals										
9.13.2	Dev academic courses on fish diseases										
9.13.3	Explore if veterinary laboratories can include fish diseases and poison identification		x								
9.14	FETCs										
9.14.1	Reassess requirements for FETCs and FSMFs when private sector expands			x							

2.3.8. Implementation Schedule for the Aquaculture Extension Sub-strategy

Ref.*	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
10.1 Peoples' participation										
10.1.1 Develop needs based extension messages										
10.1.2 Training of ext staff in PRA										
-planning	x									
- implementation				x		x		x		x
10.1.3 Prepare Upazila level ext plans		x	x	x	x	x	x	x	x	x
10.1.4 Promote farmers' groups for planning										
10.1.5 Upazila level meetings between stakeholders and extension service providers										
10.2 Equity and gender										
10.2.1 Ensure that poorer sections and women are represented and prioritised										
10.3 Extension packages										
10.3.1 Awareness campaigns for farmer groups										
- planning										
implementation										
10.3.2 Introduce moderns concepts for training										
10.3.3 Adaption of messages to farmers needs										
10.3.4 Est system for extension for a fee for richer farmers										
- planning										
- implementation										
10.4 Coordination, cooperation, linkages										
10.4.1 Identify pot extension service providers										
- national seminar	x									
- division and district level workshops		x	x	x	x	x	x	x	x	x
10.4.2 Prepare policy briefs for the inter-ministerial and inter-departmental committee system		x	x	x	x	x	x	x	x	x
10.4.3 Support operation for UFCs for decentralised planning										
10.4.4 Promote needs based research										
Six-monthly meetings research/extension	x	x	x x	x x	x x	x x	x x	x x	x x	x x
10.4.5 Prep and distr lists of ext mtr		x	x	x	x	x	x	x	x	x

Ref.*		2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
10.4.6	Assess skills and techniques o ext providers		x								
10.5	Decentralisation										
10.5.1	Awareness building abt decentralised planning and management of ext										
10.5.2	Define roles of DOF HQ in relation to local DOF administration	x									
10.5.3	Decentralise funding of ext to Upazila level										
	- proposal	x									
	- implementation		x								
10.5.4	Support est of farmers' groups										
10.5.5	Define rhe role of UFC	x									
10.6	HRD										
10.6.1	Identify training needs for demand driven ext		x								
10.6.2	Prep a staff training programme										
	- planning		x								
	-implementation										
10.6.3	Revise TORs for decentralised extension										
	- proposal		x								
	- implementation			x							
10.6.4	Prep TORs for ExtensioN Wing staff										
	- proposal		x								
	- implementation			x							
10.6.5	Revise TORs for DFOs for coord and monitoring of extension										
	- proposal		x								
	- implementation			x							
10.7	Environment										
10.7.1	Compilation of information sheets										
10.7.2	Info campaigns for all stakeholders										

3. Action Plan for the Fisheries Monitoring and Evaluation Sub-strategy

What are the key issues	How do we resolve them	Who is responsible for the action	When should this happen	Resources/ Comments
3.1. Lack of linkage with other agencies having data required for Fisheries M&E	Briefing Workshop for High-Level Stakeholders	DOF to initiate and host workshop MOFL to carry out high-level coordination	By Dec. 2006	
3.2. Lack of awareness within DOF regarding M&E Sub-strategy and Action Plan	Internal DOF awareness raising for M&E Sub-strategy and Action Plan	DOF	Initial action by Dec. 2006, further activities from July 2007	Internal workshops
3.3. No existing M&E wing, and staff who could be transferred to a new Wing lack required skills				
3.3.1	Submission to Ministry of Establishment and acceptance of revised structures and staffing	DOF submit proposal to MOFL	Proposal by Oct. 2006 Implementation from July 2007	Staffing plan for M&E Wing already included in M&E Sub-strategy which has been approved
3.3.2.	Identify and secure external funding	DOF prepare project/ programme document and submit proposal to MOFL	By June 2007	
3.3.3.	Secure Budget Code & Revenue Budget for Fisheries M&E	DOF submit proposal to MOFL	By Dec. 2006	

What are the key issues	How do we resolve them	Who is responsible for the action	When should this happen	Resources/ Comments
3.3.4.	Preparation /revision of TORs for M&E Wing personnel	DOF	By March 2007	
3.3.5.	Redeployment of existing staff, ensuring gender balance	DOF	July 2007	
3.3.6.	Retraining existing staff in M&E skills	DOF	DOF prepare Training Plan by March 2007, implementation from July 2007	
3.3.7.	Recruitment of new staff and/or outsourcing to contractor(s) for skills DOF cannot supply or train	DOF submit proposal to MOFL	DOF complete tender procedures for outsourcing by June 2006 DOF submit proposal for new posts to MOFL by June 2007	Particularly required for MIS and IT
3.3.8	Management & upgrading of DOF Revenue Budget MIS	DOF	Continuous from July 2007	Maintenance and improvement of MIS developed under Fourth Fisheries Project
3.3.9.	Development of DOF Project Core MIS	DOF	Start July 2006, completion by June 2007	
3.3.10.	Management & upgrading of DOF Project Core MIS	Dir. PME	Continuous from July 2007	

What are the key issues	How do we resolve them	Who is responsible for the action	When should this happen	Resources/ Comments
3.4. No accurate data on production from fresh and brackish water aquaculture				
3.4.1	Aquaculture Resources Census design and training	DOF	By March 2008	To be completed in time for FY 2008/9 estimates, to permit implementation FY 2008/9
3.4.2	Aquaculture Resources Census data collection, analysis and reporting	DOF	Start Sept 2008, to be completed by June 2010	Nation-wide census of all aquaculture waterbodies. Required as basis for subsequent production surveys
3.4.3.	Statistical review and production survey design	DOF	By March 2010	In time for FY 2010/11 estimates. Based on Aquatic Resources Census data. Will benefit from TA support
3.4.4.	Staff training for production monitoring by sample survey	DOF	By June 2010	In time for survey implementation from FY 2010/11
3.4.5.	Annual sample production monitoring survey	DOF	Continuous from Sept. 2010	
3.4.6.	Definition of DOF Project/Programme Impact M&E methodologies	DOF	By March 2009	For completion in time for 2009/10 estimates. Will benefit from Technical Assistance
3.4.7.	Staff training in Impact M&E methodologies for aquaculture	DOF	By June 2009	

What are the key issues	How do we resolve them	Who is responsible for the action	When should this happen	Resources/ Comments
3.4.8.	Aquaculture project/programme Impact M&E Studies	DOF	As required from Sep. 2009	To be conducted according to number and timing of projects/programmes being implemented. First target should be impact study of FFP Coastal Aquaculture.
3.4.9.	Identify and link with stakeholders who can provide aquaculture production data	DOF	By June 2008	
3.4.10.	Collation/analysis of non-DOF production data	DOF	Continuous from July 2008	
3.4.11.	Collation/analysis of export data	DOF	Continuous from July 2008	
3.5. No accurate data and no capacity to collect information for Inland Capture Fisheries				
3.5.1	Inland Capture Fisheries Resources Census design and training	DOF	By March 2008	Technical Assistance required
3.5.2	Inland Capture Fisheries Resources Census data collection, analysis and reporting	DOF	Start Sept 2008, to be completed by June 2010	Annual work programme
3.5.3.	Statistical review and Inland Capture Fisheries catch survey design	DOF	By March 2010	In time for FY 2010/11 estimates. Based on Inland Capture Fisheries Resource Census data. Will benefit from TA support

What are the key issues	How do we resolve them	Who is responsible for the action	When should this happen	Resources/ Comments
3.5.4.	Staff training for Inland Capture Fisheries catch monitoring	DOF	By June 2010	In time for survey implementation from FY 2010/11
3.5.5.	Annual Inland Capture Fisheries sample catch monitoring survey	DOF	Continuous from Sept. 2010	Will use Inland Capture Fisheries Resource Census as a sample frame
3.5.6.	Definition of DOF Inland Capture Fisheries project/programme Impact M&E methodologies	DOF	By March 2009	For completion in time for 2009/10 estimates. Will benefit from TA
3.5.7.	Staff training in Inland Capture Fisheries Impact M&E methodologies	DOF	By June 2009	Will benefit from Technical Assistance
3.5.8.	Inland Capture Fisheries project/programme Impact M&E Studies	DOF	As required from Sep. 2009	Annual work programme
3.5.9.	Identify and link with stakeholders who can provide Inland Capture Fisheries production data	DOF	By June 2008	
3.5.10.	Collation/analysis of external production data	DOF	Continuous from July 2008	Annual work programme
3.6. No accurate data and no capacity to collect information for Marine Capture Fisheries				
3.6.1	Marine Capture Fisheries Census design and training	DOF	In FY 2009/10	Requires Technical Assistance
3.6.2.	Marine Capture Fisheries Resources Census data collection	DOF	From Jan 2010	New survey vessel to be provided under OIC assistance. Onshore survey teams required for data on boats and landing sites

What are the key issues	How do we resolve them	Who is responsible for the action	When should this happen	Resources/ Comments
3.6.3.	Marine Capture Fisheries Resources Census data capture/analysis	DOF	By June 2012	Will benefit from TA support
3.6.4.	Statistical review and catch survey design	DOF	By March 2012	In time for FY 2012/13 estimates
3.6.5.	Staff training for catch monitoring	DOF	By June 2012	
3.6.6.	Annual sample catch monitoring survey	DOF	Continuous from Sept. 2012	
3.6.7.	Hilsa catch monitoring survey	DOF	Continuous from Jan. 2008	Based on procedures developed by Fourth Fisheries Project's GEF component. Requires monitoring in freshwater phase of migration as well as in the sea
3.6.8.	Definition of DOF Impact M&E methodologies for marine regulations	DOF	By June 2010	Must have Technical Assistance
3.6.9.	Staff training in Impact M&E methodologies	DOF	By June 2011	
3.6.10.	Project/programme/regulations Impact M&E Studies	DOF	As required from July 2011	
3.6.11.	Linkages to BFDC, Marine Trawlers Association and fish traders for provision of market information	DOF	By Dec. 2007	
3.6.12.	Collation/analysis of external catch data	DOF	Continuous from Jan. 2008	Annual work programme
3.7. Limited ability to monitor impact of activities on the aquatic environment and biodiversity				

What are the key issues	How do we resolve them	Who is responsible for the action	When should this happen	Resources/ Comments
3.7.1	Enhance skills and knowledge of personnel assigned to environmental monitoring	DOF	Continuous from July 2007	Will benefit from TA support and/or overseas training
3.7.2.	Establish linkages with other environment/biodiversity monitoring organisations	DOF	By Dec. 2007	
3.7.3.	Establish implications of National Biodiversity Sub-strategy for fisheries	DOF	Continuous from July 2007	Assuming National Biodiversity Sub-strategy completed by June 2007
3.7.4.	Define environment/biodiversity content of resource censuses	DOF	By March 2008 for Aquaculture and ICF By March 2009 for Marine	TA desirable for Resource Census design
3.7.5.	Train field staff & collect environment/biodiversity data as part of Aquaculture, Inland Capture Fisheries and Marine Resource Censuses	DOF	By June 2008 for Aquaculture and Inland Capture Fisheries By June 2009 for Marine	Part of Resource Census implementation

What are the key issues	How do we resolve them	Who is responsible for the action	When should this happen	Resources/ Comments
3.7.6.	Collection and analysis of environment/biodiversity data from Resource Censuses	DOF	By June 2010 for Aquaculture and Inland Capture Fisheries By June 2012 for Marine	TA desirable for Resource Census analysis
3.7.7.	Create inhouse DOF Aquatic Biodiversity database	DOF	Continuous from July 2008	TA for biodiversity database design
3.7.8.	Establish responsibility for administering National Biodiversity Information System	DOF to participate in stakeholder decisions	By June 2010	Contingent on consensus with other stakeholders particularly Min. of Environment
3.7.9.	Feed DOF biodiversity database into NBIS	DOF	From July 2010	See above
3.7.10.	Create capacity to assess potential impact of activities on environment/biodiversity	DOF	By June 2010	TA support and/or overseas training required
3.7.11.	Determine potential impacts of development activities on aquatic/fisheries environment/biodiversity	DOF	As required from July 2010	
3.7.12.	Create awareness of potential impacts of development activities on aquatic/fisheries environment/biodiversity	DOF	Ongoing	Stakeholder workshops and advocacy by focal point
3.7.13.	Impact monitoring of projects/ programmes/ regulations	DOF	As required from July 2010	Requires TA support for developing methodologies

What are the key issues	How do we resolve them	Who is responsible for the action	When should this happen	Resources/ Comments
3.8. Little data on how fisheries activities contribute towards the goals of the PRSP for Poverty Alleviation				
3.8.1	Design of socio-economic content of Resource Censuses	DOF	By March 2008 for Aquaculture and Inland Capture Fisheries By March 2010 for Marine	Resource Censuses provide opportunity to link fishers'/fish-farmers' poverty status with their resource base. TA advice and training desirable
3.8.2	Collection, capture and analysis of socio-economic data under Resource Censuses	DOF	By June 2010 for Aquaculture & Inland Capture Fisheries By June 2012 for Marine	
3.8.3.	Establish linkages with poverty/gender assessment and targeting organisations	DOF	By June 2008	Establish focal point
3.8.4.	Integration of internal DOF & external socio-economic planning data	DOF	Continuous from July 2008	Annual work programme
3.8.5.	Definition of DOF Socio-Economic Impact M&E methodologies	DOF	By March 2009	TA advice & training desirable. Designs ready for FY 2009/10 estimates.
3.8.6.	Staff training in Socio-Economic Impact M&E methodologies	DOF	By June 2009	

What are the key issues	How do we resolve them	Who is responsible for the action	When should this happen	Resources/ Comments
3.8.7.	Project/programme Socio-Economic Impact M&E Studies	DOF	As required from July 2009	Annual work programme
3.8.8.	Defining shortfalls of DOF in-house capacity and external resource needs	DOF	Continuous from July 2006	
3.8.9.	Feedback fishers'/fish-farmers' socio-economic profiles & impacts into DOF project/programme planning	DOF	Continuous from July 2008	Will facilitate contribution of DOF projects/programmes to PRSP objectives
3.9. No data that shows how fisheries is meeting the demands for protein and how it improves public health				
3.9.1	Establish linkages with health and nutrition monitoring agencies for access to fish/shellfish consumption data	DOF	By June 2008	
3.9.2	Collation of fish/shellfish consumption data	DOF	Continuous from July 2008	
3.9.3.	Provide advice on sectoral potential for protein supply to GOB	DOF to provide data and advice to MOFL	As required from July 2008	Position papers and reports
3.10. Limited capacity to collect and evaluate data to determine economic growth and export earnings from the fisheries sector				

What are the key issues	How do we resolve them	Who is responsible for the action	When should this happen	Resources/ Comments
3.10.1	Establish linkages with line Ministries/Departments and Research Institutes for access to data on fisheries' contribution to economic growth and export earnings	DOF initiate, MOFL to take action at Ministerial level	By July 2008	
3.10.2.	Collation of fisheries-related economic growth and export earnings data from line Ministries/Departments ad Research Institutes	DOF	Continuous from July 2009	Annual work programme
3.10.3.	Provide advice to GOB on sectoral potential for generating growth and export earnings	DOF to provide data and advice to MOFL	As required from July 2008	Position papers & reports

4. Action Plan for the Human Resources Development Sub-Strategy

What are the key issues	How do we resolve them	Who is responsible for the action	When should this happen	Resources/ Comments
4.1. Coordination of HRD activities				
4.1.1. Training is presently undertaken on an ad-hoc basis and is uncoordinated resulting in efficiency losses	Prepare a HRD plan to reflect priority areas in the National Fisheries Strategy, the sub-strategies and action plans	DOF	From July 2006 and plan finalised by March 2007	
4.1.2.	Define costs for training plan with the aim that training increasingly will be revenue funded	DOF for submission to MOFL	March 2007	Annual submission of budget requirements and projection for the following two years
4.1.3. Inadequate capacity in DOF for planning and delivery of training	Strengthen the Training Wing in accordance with proposal for institutional strengthening	DOF to submit proposal to MOFL	Initiated from 2007, completed by 2010	
4.1.4.	Establish a HRD Committee in DOF to support and coordinate planning and initiatives	DOF to submit a proposal to MOFL	Proposal by Dec 2006 and implemented from June 2007	Should be a small committee including one member from MOFL
4.1.5.	Revise and maintain the data base on training, covering past training of all employees, training needs analysis, existing courses, resource people and evaluations of	DOF	Revised by 2008, continuous	Build on existing database in DOF

	training			
4.2. Administrative training				
4.2.1. At present induction and foundation training is provided to staff on an ad-hoc basis and all staff do not receive adequate training	Develop the Induction Training and ensure that all newly recruited staff receive training	DOF	From 2007	Improvements have been made starting from July 2005 Foundation training is provided by BPATC for cadre officers only
4.3. Technical training				
4.3.1. The in-service technical training is not always conducted in a systematic way	Develop training material and courses based on the needs analysis	DOF	Continuous	Will initially require programme/project support
4.3.2.	Implement training	DOF and other training providers	Continuous	Will initially require programme/project support
4.3.3.	Organise an overseas training programme for specialities which cannot be taught in Bangladesh	DOF to prepare periodic proposals for approval by MOFL	Continuous	Will initially require programme/project support
4.3.4.	Plan and deliver training for DOF staff in cross-cutting issues and skills such as, but not limited to, planning methodologies, participatory planning, service delivery, process and impact monitoring, environmental impact, poverty targeting, and gender awareness	DOF in collaboration with other training providers	Initial plan by 2007 and implementation from 2008	
4.3.4.	Develop Divisional Trainers to meet demand and replacement at promotions, transfers, retirement	<u>DOF</u>	Continuous	
4.4. HRD Management				
4.4.1. Training is not always adapted to changing needs and does not prepare staff to meet emerging challenges in the sector				

Needs assessment				
4.4.2.	Identify sectoral training needs from the National Fisheries Strategy and action plans and based on institutional priorities.	DOF	By 2007	
4.4.3.	Prepare revised job descriptions for levels of staff of DOF and identify additional individual training needs	DOF to prepare proposal for MOFL	Plan by June 2007 for implementation from 2008	
4.4.4.	Train management staff of DOF in performance appraisal procedures	DOF and other training providers	From 2007, continuous	
4.4.5.	Introduce internal regular performance appraisals including training needs identification in addition to the existing appraisal system (ACR)	DOF to prepare a format	By July 2007, continuous	
Planning of training				
4.4.6.	Prioritise training needs and identify training providers	DOF	Continuous	
4.4.7. Training is provided in an ad-hoc manner depending on project funding	Prepare comprehensive Annual Training Plans, for in-country and overseas training, on the basis of priorities for DOF staff, its partners and primary stakeholders, in which <ul style="list-style-type: none"> - trainers in DOF, private training providers and NGOs are identified - training venues are defined - costs are defined and funding sources identified - a training calendar is prepared for publication, and - ensures horizontal and vertical integration of training 	DOF	From the fiscal year 2007/8	
4.4.8.	Establish programme funding with	DOF	Continuous	A budget line for training has

	increasing funding from the revenue budget to allow systematic training, and integration of project funding into the programme			been established in the revenue funding for DOF
4.5. Delivery of training				
4.5.1. Approaches to training are not uniform and there are weak horizontal and vertical linkages in training programmes	Elaborate on the Training Management Guideline in which approaches, standards and allowances are uniform both for in-country and overseas training	DOF to prepare a proposal	By June 2007	
4.5.2.	Establish a training of trainers programme to ensure that modern and uniform approaches are used in training with the required linkages	DOF	By 2007	
4.5.3.	Prepare a set of standardised modules, manuals and materials, which consider horizontal and vertical integrations	DOF	Continuous	
4.5.4.	Establish a central resource centre for all published and used training materials, modules and manuals Distribute training materials to training centres	DOF	By 2008	To be accessible also for other training providers at cost
4.6. Posting of trained staff				
4.6.1. Staff trained in a speciality are often assigned posts for which the skills are not required	Ensure that trained staff are retained in positions for which the training is relevant through determination of post-training assignments prior to training Prepare an individual action plan on how to use the training at the workplace	DOF and for higher posts DOF prepare proposal for MOFL DOF and the trainee	Proposal by Oct 2006, implementation continuous From 2007	
4.7. DOF training institutions				

4.7.1. DOF's training institutions (including the Fisheries Training Academy and FTECs) are not optimally utilised causing waste of resources	Update earlier functional analysis and revise strategic plans for the DOF training institutions with a realistic vision about future training needs and actual resources to provide training (matching supply of training venues with actual demand).	DOF	By June 2008	
4.7.2.	Establish a realistic operation and maintenance plan for training centres using revenue budget and income which can be generated through contract training for the private sector and NGOs	DOF	By 2008	
4.7.3.	Equip the operational training centres with modern communication systems (computers and email connections)	DOF	By 2008	Will require programme/project support
4.7.4.	Staff the centres as per the proposal institutional change	DOF to submit proposal to MOFL	Proposal by Oct 2006	
4.8. Collaboration between training providers				
4.8.1. Inadequate collaboration between training providers leads to sub-optimal use of resources	Use the Divisional Trainers (72) for private sector and NGO training for a fee. Create demand through information to potential partners about skills and availability of trainers and training venues	DOF	Starting from 2007, continuous	
4.8.2.	Use trainers from universities, the private sector or NGOs when these can provide higher quality training to DOF staff	DOF	By 2008	There is a provision to engage specialists as resource persons
4.9. Linkages between training and research				
4.9.1. The linkages between research and training are weak resulting in training not always	Establish direct links between training and research through six-monthly "fisheries research seminars"	DOF to initiate together with BFRF, the convenor of the	From 2007	Coordinate with research seminars proposed under the Aquaculture Extension Sub-

communicating latest scientific findings		seminars, engaging all stakeholders		strategy Action Plan
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5. Action Plan for the Inland Capture Fisheries Sub-strategy

What are the key issues Planning and Administrative Support	How do we resolve them	Who is responsible for the action	When should this happen	Resources/ Comments
5.1. National planning				
5.1.1. Outdated inventory and categorization of inland fisheries established for revenue collection which does not reflect fisheries management requirements and does not cover flood plains	<p>Prepare inventory and define appropriate category of water bodies and broader ecosystems detailing biophysical and socio economic features and identify critical fishery sites</p> <p>Clarify descriptions used in categorising water bodies</p> <p>Identify and Categorise fishery habitats according to fishery management potential not according to revenue raising.</p>	<p>DOF</p> <p>District and Upazila – DOF and administration</p> <p>Involving Ministry of Land, Ministry of Water Resources , MoOL, WARPO/ CEGIS NGOs</p>	<p>Starting 2007 and completed by 2010</p> <p>By 2008</p> <p>By 2008</p>	<p>Should allow for hierarchies of clusters of connected fisheries to be managed along similar principles (integrated ecosystem management)</p> <p>Acknowledge value of other wetland resources during resource categorisation</p> <p>Need to identify staff and resources to undertake task – not a revenue programme task; possible GEF support</p> <p>Dependent on MoL agreeing on revised leasing system</p> <p>Dependent on MOL and District administrations providing existing information and registers</p>

<p>5.1.2. Insufficient protection of key national sites in inland capture fishery and ensure safe havens for mother fishery and biodiversity</p>	<p>Designation of a national network of sanctuaries of critical habitats for conserving mother fishery and biodiversity Review existing laws of Bangladesh and other countries to identify appropriate provisions for sanctuaries. Amend Fish Act enabling the establishment and protection of national and local fish sanctuaries. Develop and implement local management mechanisms (co-management)</p>	<p>DOF to prepare proposal for MOFL/D OF /Ministry of Environment and Forests Ministry of Land, Ministry of Law and Parliamentary Affairs,</p>	<p>By 2008 By 2008 By 2010</p>	<p>Cabinet decision, instruct Ministry of Land to designate sites as permanent sanctuaries based on need. Amendment process with consultation of concerned agencies and NGOs Include definitions of fish sanctuaries and provisions for enforcement (consider also Wildlife Preservation Act, and other relevant laws). Possible GEF support</p>
<p>5.1.3. Lack of integration between different policies Poor compliance with policies and strategies of different sectors</p>	<p>Establishment of Natural Resources Coordination Committee and supporting technical committee at secretarial level Ensure new activities are compliant with relevant sections of different policies and develop formal horizontal linkages with other departments and ministries</p>	<p>DOF prepare a proposal for MOFL</p>	<p>Proposal by October 2006 and implemented by 2010</p>	<p>MOFL to lead (supported by advocacy from DOF) Natural Resource Ministries committee established by cabinet directive. DOF focal point for fisheries activities implemented by other agencies</p>

5.2. Local planning and decentralisation				
5.2.1. Inadequate local participation by user and local administration in management and planning of local fishery resources	Formation of local Upazila Fisheries Committee under the umbrella of the Upazila administration Where needed form co-management committee for larger waterbodies involving 2+ Upazilas Develop terms of references for the Upazila Fisheries Committees	DOF	By June 2006	Draft TOR for Upazila Fisheries Committee has been prepared. The Upazila Fisheries Committee will replace UJMC. Priority is upazilas where inland capture fisheries projects are ongoing or recently completed The Upazila Fisheries Committee should meet with other leaseholders to inform and monitor their compliance with revised jalmohal management conditions LGRD support to issue circular
5.2.2.	Transfer responsibility for planning, M&E and decision on tenure to local administration (Upazila Fisheries Committee) Larger water bodies (common to more than 1 upazila) to cross-upazila co-management committee	DOF to prepare proposal for MOFL for review with Ministry of Land	Progressively starting with upazilas where projects are ongoing/ ending from 2006	Fisheries include other aquatic resources (plants, wildlife etc).

5.3. International concerns and planning				
<p>5.3.1. Cross-border river flows What will be the impact of a reduction in cross border river flows. No definition of what is the minimum acceptable dry season water flows or water quality to support a viable aquatic ecosystem</p> <p>Fisheries concerns are not adequately addressed in JRC discussions.</p>	<p>Commission study to provide answers and build local capacity to determine how much water is required and define water quality standards. Prepare (policy) briefing paper to present to Joint River Committee on cross border flow issues Lobby MOFL and Joint River Commission to address fishery concerns International lobbying through environmental forums Formation of Ganges Commission Undertake joint studies with Nepal and India, on cross-border river flows and related issues as protection of biodiversity</p>	<p>DOF to prepare proposal to be submitted to MOFL for action in consultation with, NGOs and others e.g. IUCN and Wetlands Network Ministry of Environment and Forests, Ministry of Water Resources</p>	<p>By 2008</p> <p>By 2008</p>	<p>Link in with data from CEGIS and the work of the Joint River Committee</p>
<p>5.3.2. International treaties No real implementation of FAO's Code of Conduct for Responsible Fishing</p>	<p>Implementation of strategy would support CCRF</p>	<p>DOF and DOF to prepare, when</p>	<p>Continuous from October 2006</p>	

		appropriate, proposal to MOFL		
5.3.3. Lack of information and experience sharing between countries	More active role in FAO's Committee on Inland Fisheries of Asia and Pacific	DOF		
5.3.4. Endorsement of Ramsar Convention, but sites need appropriate management	Awareness raising of Ramsar and other conventions Lobby SAARC Designate focal point in DOF	DOF to prepare proposal for MOFL for further action with relevant ministries and departments	Starting October 2006 and for long term	Designating more sites as appropriate

5.4. Access to aquatic resources				
5.4.1. Beels and similar Water Bodies				
5.4.1.1. Leasing as a means of generating revenue, does not promote sustainable management and protect biodiversity	<p>Adopt policy to use leasing as a means of controlling access rather than revenue generation. To achieve this DOF will:</p> <p>a) Prepare briefing paper on justification and positive aspects of a changed approach.</p> <p>b) Lobby Government of Bangladesh/ Ministry of Land of need to change leasing policy and establish agreed consensus.</p> <p>Lease fees to be determined nationally at a nominal rate per hectare according to jalmohal size for WCO leased waterbodies. DOF will prepare a proposal for MOFL</p> <p>Part of the lease fee used as an incentive for Community Based Organisations adopting good management practices to develop fishery resource.</p> <p>Ensure sustainable management by local fishing communities in phases through development of Fisheries Management Plans, starting with approximately 230 WCOs that already have access for the next 5 or more years to</p>	<p>DOF to prepare proposals and briefing papers for MOFL</p> <p>DOF to prepare proposal for MOFL</p> <p>DOF to prepare proposal for MOFL</p> <p>Ministry of Land and MOFL</p> <p>DOF</p> <p>DOF</p>	<p>By end 2007</p> <p>By October 2006</p> <p>By October 2006</p> <p>By October 2006</p> <p>By 2017</p>	<p>Base rate set nationally for all water bodies and should be set so it does not exclude the involvement of poor fishers.</p> <p>Transitional phase (10 years) for changing from revenue system to access system depending on numbers of WCO able to participate</p> <p>Use funds from lease fee to improve water body.</p> <p>Extension to 50 year lease periods for qualified fisher communities WCOs to cover</p>
Current leasing system does not ensure access of genuine fishers.				

<p>5.4.1.2. Limited number of WCO and capacity of DOF and NGOs to establish new WCOs</p>	<p>waterbodies through MOUs with Ministry of Land and MOFL/DOF. Expanding to reach about 100 Upazilas and a minimum of 5 additional water bodies per target Upazila in ten years.</p> <p>Leases to be given to fisher communities for 50 years, on development of a fisheries management plan and reviewed by the Upazila Fisheries Committee with Ministry of Land every 10 years.</p> <p>Develop review process by Upazila Fisheries Committee to determine acceptable Fisheries Management Plan to grant leases to WCOs. Criteria for annual review of FMP and WCO performance to be identified, and support measures to be designed based on this.</p> <p>Upazila Fisheries Committee can recommend to District administration that the lease should be revoked following persistent violation of lease conditions (management plan, distribution aspects of benefits, democratic procedures, adherence to the Fisheries Act).</p>	<p>DoF Fishing Communitie s Forum</p> <p>DOF to prepare a proposal for MFL</p>	<p>By October 2006</p> <p>By October 2006</p> <p>By October 2006</p>	<p>existing ones as well as new ones</p>
<p>5.4.2. Rivers</p>				
<p>5.4.2.1. Free access has not achieved goal of giving access to genuine fishers and does not enable management of resource</p>	<p>Prepare briefing paper comparing impact of current open access system for rivers and impacts of community fisheries management approaches adopted through various projects with recommendations for improved</p>	<p>DOF</p>	<p>By October 2006</p>	

	<p>management of the river ecosystem.</p> <p>Cancellation of open and free access policy through lobbying GoB/MoFL.</p> <p>Establish new leasing system in favour of genuine fishers under same system as for beels Determine token rate for lease system</p> <p>Pilot scheme for ten years initially in ten selected sites for examining arrangements for community management of large river systems (over 100m wide in dry season) including option for gear based licence system.</p>	<p>DOF to prepare proposal for MOFL</p> <p>DOF to prepare proposal for MOFL</p>	<p>By June 2008</p> <p>By June 2008 By June 2008</p> <p>To start by June 2007</p>	
5.4.3. Privately Owned Flood Plains				
5.4.3.1. Large scale enclosures of flood plains destroying natural fishery and biodiversity and preventing small scale fishers from gaining access to fishery during the monsoon.	<p>Develop precautionary principles for limiting growth of flood plain aquaculture to be applied until regulations based on results from proposed studies have been adopted</p> <p>Undertake impact study on effects of enclosing flood plains on biodiversity and social impact on poor fishers. Identify potential negative effects of limiting access to seasonal fisheries.</p>	<p>DOF</p> <p>DOF</p>	<p>By October 2006</p> <p>To start in June 2007 and to be concluded in two years</p>	DOF to identify suitable research partners

	From study identify needs for regulations to manage developments on flood plains and preserve biodiversity	DOF	By December 2009	
	Develop guidelines for Upazila Fisheries Committees to encourage local communities to develop appropriate plans for flood plain management.	DOF	By December 2009	
5.5. Technical management and habitat destruction				
5.5.1. Declining aquatic biodiversity and natural fish recruitment, lack of safe refuges for fish at key times of year	Compile local indigenous knowledge and information of hot spots and key locations for different fish species and fisheries/wetlands.	DOF	By June 2008	Link with local planning for community participation
	Studies to identify key locations for important fisheries and fishes (see national planning)	DOF	By end 2008	Link with national inventory
	Prepare guideline for planning and management of waterbodies and floodplain fisheries including sanctuaries through local participation. Ensure that local sanctuaries are included in management plans for each waterbody/site.	DOF	By end 2008	Consider whole ecology and use of the area not just fish
5.5.2. Poor natural recruitment in water bodies and under-production	Identify principles and prepare guidance on whether a site can be stocked that identifies appropriate types of waterbody and status of community organisations, and economic viability.	DOF	Start October 2006 for five years	Mainly non-sustaining species
	Prepare technical guidelines on stocking (species allowed, recommendations on best practice, etc).	DOF	To be prepared during	(e.g. use nearby nursery

	<p>Prepare regulations on species allowed for stocking, including restrictions on exotic species Prepare regulations to ensure that fingerlings for stocking waterbodies come from certified sources that are not genetically eroded. Commission studies on impacts of stocking on indigenous species and poor people.</p> <p>Set up certification process for hatcheries and nurseries</p>	<p>DOF</p> <p>DOF</p>	<p>2006 By 2010</p> <p>To be started during 2007 and concluded by 2010</p> <p>To be fully operational by 2010</p>	<p>ponds but not beel nurseries)</p> <p>This depends on certification system under aquaculture action plan</p>
5.5.3. Loss of native fishes from waterbodies	<p>As part of local planning identify species that have disappeared or are now very rare. Monitor impact of sanctuaries. Prepare guideline on re-establishing self-sustaining populations of indigenous species. Identify and secure sources of indigenous species that will not harm native fish stocks</p>	Local communities and DOF	By 2010	
5.5.4. Loss of connectivity and dry season water which reduces dry season survival and natural recruitment	<p>Raise awareness and provide evidence of the problem Improve national coordination among agencies and revise policies and regulations to strengthen checks to ensure waterbodies and connections are not lost. Agencies planning construction of roads and other developments within each upazila should refer these to the UFC for review of impact on</p>	<p>DOF</p> <p>DOF to prepare proposal for MOFL</p> <p>DOF, BWDB,</p>	<p>By 2008</p> <p>By 2010</p> <p>By 2008</p>	<p>Review existing laws and policies for their provisions preventing loss of connections</p>

	<p>fisheries and take account of UFC's recommendations Prioritise mitigation measures for existing infrastructure (embankments and roads). Implement priority measures.</p> <p>Prepare guidelines on habitat restoration for fisheries Allocate resources for re-excavating waterbodies, reforestation, etc., where agreed in local plans. Prioritise locations requiring habitat restoration based on national priorities and inventory and on local management plans and assessments.</p>	<p>LGED, etc</p> <p>DOF, BWDB, LGED, etc</p> <p>DOF</p> <p>DOF</p> <p>DOF to prepare proposal for MOFL</p>	<p>By 2010</p>	<p>Make use of existing project guidelines</p> <p>Depends on funding</p>
5.5.5. Loss of waterbodies to agriculture and other encroachment	<p>Re-survey all jalmohals, and review of leasing of government and khas lands and their conversion from jalmohal to agricultural and settled land. Awareness raising and lobbying on the negative impacts of encroachment. Amend the land management manual</p>	<p>DOF to prepare proposal for MOFL</p>	<p>By 2008</p>	<p>Link with inventory, will require project assistance</p>
5.5.6. Excess fishing effort (including use of harmful gears and devices,) results in declining catches	<p>Develop and implement rapid assessment system for fishing effort and catch trends</p> <p>Local fishery management plans to include restrictions on fishing effort and gears, including seasonal restrictions) based on local assessment of fishing trends Review and develop regulations to control</p>	<p>DOF and local community</p> <p>DOF</p> <p>Land administration, with</p>	<p>To be fully operational by 2010</p> <p>By 2008</p> <p>In the next</p>	<p>Check recent development of participatory fishery stock assessment. There will be need for training and technical assistance to establish this capacity</p> <p>Access is dependent on compliance with local</p>

	<p>harmful gears so that these give guidance and enable appropriate local plans to be made by DoF and community organisations jointly.</p> <p>Amend leasing agreement format to include appropriate fishing limits and practices for fisheries not currently under community management</p> <p>Enforce existing fishery management provisions in lease agreements (e.g. pile fisheries)</p> <p>Encourage fishers and children of fishers and other poor near waterbodies to develop skills for other occupations.</p> <p>Promote the use of alternative eco-friendly and more selective fishing gears, for example through awareness campaigns locally and nationally</p>	<p>DOF support</p> <p>Land administration, with DOF support</p> <p>NGOs, DOF, GOB</p>	<p>two years</p> <p>In the next two years</p>	<p>management plans, to control fishing effort and practices, approved by UFC</p>
5.5.7. Complete dewatering and dewatering for fishing results in all fish being caught and remove dry season fish habitat	<p>Enforce existing regulations</p> <p>Include ban on complete dewatering in local fishery management plans and set limits on other dewatering through negotiation between stakeholders</p>	<p>Upazila Fisheries Committee organisations</p>	<p>Ongoing</p> <p>By 2007</p>	
5.6. Community based co-management				
5.6.1. Existing Government policies does not enable user community involvement in fishery management	<p>Amend policy to reflect the experience of recent projects and needs of user communities.</p> <p>Establish legal framework that enables community management whereby (1) Upazila Fisheries Committee is required to endorse a community based organisation before it can</p>	<p>DOF to prepare proposal for MFL</p>	<p>Proposal by 2008, implementation from 2010</p>	

	<p>obtain preferential access through Upazila Fisheries Committee; and (2) in other jalmohals under traditional leasing Upazila Fisheries Committee reviews the practices and operations of the fisher cooperative before awarding of lease.</p> <p>Review experience in other countries and options for registration of community based organisations through or by DOF, and make appropriate recommendation</p>	DOF to prepare proposal for MOFL for further action		
5.6.2. Local communities are not sufficiently involved in the management of fisheries	<p>Review lessons from different community based projects and develop guidance materials for DOF and others and programme approach for community based co-management.</p> <p>Assist user communities to organise and take on management responsibilities and rights.</p> <p>Elaborate criteria for the preparation of fisheries management plans</p> <p>Raise awareness and promote endorsement of community based co-management among local leaders and local governments.</p> <p>Ensure that women who are wetland resource users or otherwise engaged in inland capture fisheries are adequately represented in community based organisations and Upazila Fisheries Committees</p> <p>Encourage NGOs and other organisations to become involved in facilitating community based co-management</p> <p>Train and advise community organisations on fishery management</p> <p>Train and give support to Upazila Fisheries</p>	<p>DOF</p> <p>DOF/Upazila Fisheries Committee/NGOs</p> <p>DOF</p> <p>DOF, NGOs, etc</p> <p>DOF</p>	<p>By 2008,</p> <p>To be started in 2006, continuous</p>	<p>Include guidance on type of community based organisation appropriate to different situations and how to assess constitutions etc</p> <p>To be started with lessons from projects closing during 2006</p> <p>Seek funding sources and</p>

	<p>Committees, DOF staff (including SUFO/UFOs regarding responsibilities in the Upazila Fisheries Committess) and other agencies on co-management.</p> <p>Develop guidelines on facilitating community based management and the establishment of community based organisations</p> <p>Review community based organisations and where appropriate endorse their formal recognition (e.g. registration).</p> <p>Establish networking and forum for fisheries community based organisations endorsed through this process.</p>	Upazila Fisheries Committees		mechanism
5.7. Structures, staffing and resources				
5.7.1. Inland capture fisheries sector has low profile and lacks status in DOF	Create an Inland Capture Fisheries wing headed by a director by presenting justifications and proposals to MOFL and Ministry of Establishment.	DOF to prepare proposal for MOFL	Prposal to be prepared by DOF by Sep 2006 and implemented by 2007	The PRSP advocates a transfer of water bodies to MOFL but recognises the additional administrative burden. The ICF strategy and its Action Plan have been developed to ensure secure access and sustainable use while minimising administrative changes and burdens through Upazila Fisheries Committees which combines administration, DOF and local user groups
5.7.2. DOF has insufficient staff	Identify staff needs for the Inland Capture	DOF to	Staff needs	Compare document prepared

to implement the Inland Capture Fisheries sub-strategy.	<p>Fisheries wing Allocate sufficient staff for the wing in Dhaka Assess needs for Inland Capture Fisheries staff at field level (upazila). Obtain approval of additional posts where needed and recruit under cadre service Review and revise as needed charter of duties of staff at all levels related to inland capture fisheries. Ensure a review, development and implementation of the gender policy, which has been proposed for the Department of Fisheries</p>	<p>prepare proposal for MOFL for further action DOF</p>	by Sep 2006	for institutional change in DOF
5.7.3. DOF does not have enough of the range of staff with relevant skills to support co-management	<p>Recruit under cadre service or obtain services on deputation of specialists with other relevant skills (e.g. social science, legal, etc). Train ICF staff in appropriate skills. Policy decision to retain staff trained or experienced in ICF within ICF.</p>	DOF	By 2008	
5.7.4. DOF has insufficient financial resources to support the Inland Capture Fisheries Sub-strategy	<p>Secure separate financial code and budget line for inland capture fisheries from Ministry of Finance Allocate appropriate funds for inland capture fisheries from revenue budget</p>	DOF to prepare proposal for MOFL	By 2008	
5.7.5. Research capabilities for inland capture fisheries and community aspects are limited	<p>Work actively to strengthen Bangladesh Fisheries Research Forum as an effective tool for research networking and linkages involving all relevant stakeholders Establish competitive grant system/allocation for multi-disciplinary inland capture fisheries research.</p>	DOF, BFRI and others	By 2010	Representation from research, extension, BARC, universities, BFRI, NGOs, etc
5.7.6. Initiatives are rarely	Encourage and promote initiatives in support of	DOF	Ongoing	NGOs role should remain as

proactive in the development of inland capture fisheries by non govt agencies.	the Inland Capture Fisheries Sub-strategy from other organisations by promoting linkages, coordination and an enabling environment.	initiative and when required in collaboration with MoFL		facilitators rather than take on development responsibilities
5.7.7. Extension activities for inland capture fisheries are very poor	Secure funding to enable revenue funding of extension activities. Develop training for communities involved in fisheries management. Develop and create mass awareness campaign to promote issues involved in inland capture fisheries involving street drama (using NGOs), journalists and other mass media mediums. Extend key aspects of the Inland Capture Fisheries Sub-strategy to key local government personnel and local leaders. Ensure community management issues are included in relevant training of govt staff. Develop material for use by district information office to extend issues on the Inland Capture Fisheries Sub-strategy. Develop links with other service providers to generate awareness of inland capture fisheries issues Ensure inland capture fisheries issues are fully covered during Fish Fortnight	DOF DOF FLID	By 2008 By 2010	Fisheries and Livestock Information Department of MOFL Use material, manuals and training modules elaborated by projects
5.7.8. Research activities provide little relevant information for ICF	Institute 6-monthly workshops to identify research needs for inland capture fisheries. Compile all previous research in inland capture fisheries activities into a comprehensive data	DOF to initiate with BFRF BFRF	From 2006	Compare other sub-strategies

	base to be used in determine future research needs Ensure that research findings are disseminated to all relevant stakeholders.	BFRF/BFRI /DOF		
5.8. Education				
5.8.1. The education system does not cover inland capture fisheries issues	Put high priority on training for staff on inland capture fisheries including higher studies. Ensure that University curriculum include modules on inland capture fisheries activities. Introduce theoretical and practical aspects of inland capture fisheries and wetlands in text books for primary and secondary level and ensure teachers are trained in importance of conservation and management of the resource. Train local leaders, including religious leaders, in inland capture fisheries issues	Initiative by DOF to promote this with universities Initiative by DOF to promote this in Ministry of Education DOF ,UFC and NGOs	Initiative by June 2007	
5.9. Infrastructure				
5.9.1. Infrastructure development contributes to wetland habitat destruction and, blocks migration routes	Review of existing structures to establish mitigation measures required.	DOF to initiate with BWDB	By 2008	
5.9.2.	Ensure new infrastructure complies with fisheries needs and mitigation measures are included. Prepare a proposal for a process whereby EIA of	DOF to initiate with BWDB, LGED,	Proposal	Large development projects

	any development adequately addresses fisheries issues and is reviewed by DFOs District Fisheries Officers will be trained as EIA specialists.	Roads and Highways Department	by June 2007	may be referred to DOF headquarters
5.9.3.	Develop guidelines and practices for infrastructure management to ensure that it is managed by the community in a fish friendly way. Establish MOU between MOFL and Ministry of Water Resources for the management of water regulatory structures that affect fish movement. Promote cooperation between different beneficiary groups.	DoF, BWDB and local communities.	By 2010 By 2008	Provision for all user group participation.
5.10. Seasonal safety nets				
5.10.1. Loss of immediate income for fishers during closed seasons	Identify organisations that can develop alternative income generation activities for fishers, e.g. Social Welfare Department, Women's Affairs Department, the NGO-sector, and establish links with these. Identify locations and communities that have established or want to observe closed seasons Encourage these organisations to support fishing households in these locations Consider fishing households in this situation as a priority for seasonal government relief Encourage NGOs to develop alternative income	DOF) DOF DOF UNO and UP chairmen DOF	By 2008	DOF does not have expertise and capacity to help fishers develop non-fishing alternative income generating activities Depends on resources available from NGOs and from other government agencies and sources Coordinate planning with concerned community based organisation Encourage Upazilas where fishing communities are

	<p>generation programmes for fishing households in seasons when they cannot fish</p> <p>Encourage NGOs and other agencies to provide seasonal credit to fishing households.</p> <p>Encourage fishing households to build up savings and allow them to use savings in closed season</p> <p>Ensure that affected fishing households are targeted</p>	<p>(Nationally)</p> <p>DOF, NGOs and community based organisations</p> <p>DOF to prepare proposal for MOFL</p>		<p>affected by seasonal ban on hilsha fishing to take actions as a priority</p> <p>Will need also donor support</p> <p>Women in fishing households should be given special consideration for alternative income generation</p>
5.11. Alternatives to fishing				
5.11.1. Sustainable fisheries can only support a limited number of fishers	<p>Identify organisations that can develop alternative income opportunities for fishers</p> <p>Seek programme support targeted at alternative incomes and professions to fishing</p> <p>Develop partnerships and agreements with appropriate organisations and agencies</p> <p>Ensure opportunity and market assessments are made when planning alternative income generation support</p>	<p>DOF (nationally)</p> <p>UDCC (locally)</p> <p>DOF, NGOs, other agencies</p> <p>DOF and other agencies/NGOs</p>	In the next five years	<p>Alternative income generation can be additional or alternative sources of income</p> <p>DOF does not have expertise and capacity to help fishers develop non-fishing alternative income generation activities</p> <p>DOF should offer use of its training facilities for this type of enterprise development training</p>

5.12. Environmental management				
5.12.1. Aquatic ecosystems and biodiversity are declining and degrading but to an unknown extent	<p>Identify the impact that Inland Capture Fisheries has on the environment and the environment has on it. Commission studies to quantify these impacts.</p> <p>Develop plans to mitigate negative impacts.</p> <p>Develop an inventory of key fisheries and conservation areas detailing their extent and quality to improve the quality and quantity of information on national wetland ecosystems</p> <p>Establish conservation areas in critical habitats, especially dry season wetlands, through the declaration of national sanctuaries or areas of critical ecological importance.</p>	<p>DOF (contracting other specialists as needed) DOF DOF and DOE jointly</p> <p>DOF</p>	<p>By 2010</p> <p>By 2007</p> <p>By 2008</p>	<p>GEF and others may support this</p> <p>Needs cooperation of other agencies (see below) GEF and others may support this Could use information held by CEGIS but need to link with jalmohal data</p> <p>See earlier MOL to recognise sanctuaries</p>
5.12.2. DOF has limited capacity and voice on environmental issues	<p>Encourage advocacy and lobbying by influential institutions and NGOs for the conservation and protection of the resource to ensure awareness and compliance with policies.</p> <p>Establish a position in the Inland Capture Fisheries section, and until that time in the Jalmohal section, for environmental issues.</p>	<p>DOF</p> <p>DOF</p>	<p>Ongoing</p> <p>In 2006</p>	<p>Ensure all relevant agencies</p>

	<p>Establish and enhance links with agencies with a capacity to monitor and advise on environmental issues.</p> <p>Improve local institutional capacity in wetland and ecosystem management.</p> <p>Develop training materials for wetland conservation and undertake training of local institutions Develop bill boards, posters, leaflets for awareness campaigns on wetland conservation</p> <p>Cooperate with other agencies to promote sustainable uses of floodplains that maintain and increase dry season surface water and aquatic resources.</p>	<p>DOF</p> <p>DOF and Department of Environment</p> <p>DOF, BWDB, LG ED, Department of Agriculture Extension NGOs</p>		<p>are aware of who has been designated</p> <p>Includes cropping practises, irrigation, water management etc (integrated floodplain management)</p>
5.12.3. Many agencies and stakeholders are involved in damaging or protecting aquatic ecosystems	<p>Enhance collaboration between national and international institutions for the implementation of relevant treaties and conventions.</p> <p>Ensure that coordination of government responses to wetland environmental issues and policies are addressed in the proposed technical committee on secretarial level for natural resources coordination (national) and Upzila Fisheries Committee</p> <p>Support the Department of the Environment to ensure that regulations against pollution of water</p>	<p>DOF to prepare proposal for MOFL</p> <p>MOFL and DOF respectively</p>	By 2008	

	bodies are fully enforced through field based technical support.			
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6. Action Plan for the Marine Fisheries Sector Sub-strategy

What are the key issues	How do we resolve them	Who is responsible for the action	When should this happen	Resources/ Comments
6.1. Resource Assessment				
6.1.1. Data on the resources out of date and no longer reliable for developing management plans Resource assessment mechanism is no longer functional.	<p>Prioritise areas for data collection:</p> <ol style="list-style-type: none"> 1: Artisanal inshore 2: Off Shore 3: Deep Sea <p>Plan relevant resource assessment strategies for key target areas, near shore, off shore, deep water</p> <p>Select resource assessment needs for key species</p> <p>Identify resources to undertake resource assessment survey.</p> <p>Prioritise allocation of funds , Marine resources data base to be established</p>	DOF	By 2008 Dec 2006	<p>Integrated action with DOF, BFRI, Universities, BFDC, MFA, SPARRSO</p> <p>A project covering these aspects has been identified, pending (March 2006) final approval for OIC funding</p> <p>The Marine Fisheries Development Programme, which was initiated by ICZMP, also cover these issues</p>
6.1.2. Anticipation that there are many resources which are not adequately exploited	<p>Develop resource assessment methodologies to identify new fisheries potentials.</p> <p>Establish plan to collect information on deep water fishes – when adequate resources become available</p>	DOF	Proposal by Dec 2006 and work initiated during 2007	<p>Link into regional stock assessment to support deep sea stock assessment. Seek support from international organisations such as FAO, BOB-IOG, BOB-LME, BIMSTEC</p> <p>Included in OIC project (pending approval)</p>

What are the key issues	How do we resolve them	Who is responsible for the action	When should this happen	Resources/ Comments
6.1.3.	Integrate resource assessment information and knowledge with other regional resource databases	DOF	By 2010	
6.1.4.	DOF staff should be posted to field stations to manage the collection of resource data from inshore and near shore areas. Staff should be trained in shore based resource assessment techniques	DOF to prepare proposal for MOFL	By 2008	
6.1.5.	Funds should be allocated from revenue budget to implement resource assessment system	DOF to prepare proposal for MOFL	By 2008	Budget line needs to be established
6.1.6. No reliable monitoring of fishing catches	Develop community participated fisheries resource monitoring for artisanal and mechanised boat and related data base. Monitor catches of all fishing efforts based on a framework for gears, species and areas	DOF	By 2008	Assessment of indigenous knowledge Links with traders for collection of data
6.1.7.	Develop formal monitoring system to work with community based monitoring Revision of existing regulations to allow formal monitoring	DOF	By 2008	The community must see the benefits of collecting the information
6.1.8.	Monitor changes in species targeting by fishers	DOF	By 2008	
6.1.9.	Disseminate information gathered from resource assessments and	DOF	By 2010	

What are the key issues	How do we resolve them	Who is responsible for the action	When should this happen	Resources/ Comments
	monitoring of fishing efforts			
6.2. Resource Allocation/ Management Plan				
6.2.1. Fishing in the shore line area capturing large quantities of juveniles causing depletion of adult fish	From the shoreline to 1 kilometre fishing will be banned extending to 5 metre depth as implementation is achieved Review and update the Marine Fisheries Ordinance/Rules to allow implementation of this provision. Prepare and mobilize funding of an extension of the coastal empowerment project and implement the Socioeconomic Development of Coastal Artisanal Fisherfolk Project (with GOB funding) approved by Pre-ECNEC Awareness building among coastal fishing communities Preparation of interventions for alternative income generation activities	Proposal to close fishing by DOF to be presented to MOFL	Proposal by Dec 2006 Phased implementation from 2008 Project implementation from 2007	To be phased out slowly
6.2.2. Fishing in the estuarine area capturing large quantities of juveniles causing depletion of adult fish	. At mouth point of the estuary fishing will be prohibited 50 meter from estuary shoreline	Proposal to be prepared by DOF for submission to MOFL	Proposal by DOF by June 2007, for implementation by 2009	

What are the key issues	How do we resolve them	Who is responsible for the action	When should this happen	Resources/ Comments
6.2.3.	Commercial mechanised boats will be prohibited to fishing in waters less than 10 meters deep	Proposal by DOF for submission to MOFL for action	Proposal by DOF by June 2007, implementation by December 2007	
6.2.4.	Industrial vessels will be allowed to fish only beyond 40 meter depth as per existing legislation. Enforcement of rules for closed seasons and areas. Initiate a dialogue involving all stakeholders MOU between DOF, Coast Guard and Navy for implementation/enforcement	Proposal by DOF to be submitted to MOF for further action	Proposal by June 2007 and implementation by June 2008	Enforcement of this is difficult due to lack of resources
6.3. Artisanal Sector Management				
6.3.1. Poor ownership of resource contributing to lack of management	Artisanal fishers will be encouraged to manage their local resource by being allocated fishing in the area between 5-metre depth and 10-metre depth.	DOF / Local Government	By 2008	Artisanal fishers are classified as those who are restricted to day trips or occasionally overnight.
6.3.2.	The local fishing communities will be encouraged to form a community based organisations to formulate and implement a	DOF to initiate in collaboration with local government	By 2010	Community based organisations that meet the requirements will be recognised by the

What are the key issues	How do we resolve them	Who is responsible for the action	When should this happen	Resources/ Comments
	fisheries management plan. The organisations will represent all artisanal fishers in the community involved in marine fisheries. Formulate criteria and mandate for community based organisations	and NGOs	By 2010	government and the DOF as a legal representation of the community Office bearers must be elected from fishing community.
6.3.3.	Develop an effort control plan based on the resource assessment, detailing number of boats and fishers, which can be accommodated in each fishery area.	DOF to prepare a management proposal for submission to MOFL	To be initiated 2007 ad fully implemented by 2010	
6.3.4. Lack of Participation of stakeholders in planning and management of resource Indigenous knowledge	Expand the approach applied by the project Empowerment of Coastal Fishing Communities in other areas, co management with DOF Improve education of local stakeholders	DOF to formulate project concept for consideration by MOFL DOF Community	Proposal by June 2007 and implementation from 2008	Donor funded intervention required
6.3.5. No control over access to marine sector resources	Fishing permits together with Identification Cards should be issued by s	DOF in consultation with community based	Proposal by Dec 2007 and implementation from 2008	

What are the key issues	How do we resolve them	Who is responsible for the action	When should this happen	Resources/ Comments
		organisation and local government		
6.3.6.	Develop the technical capacity of artisanal fisheries to fish further offshore	DOF	By 2015	Initiatives such as the advantages of fibre glass boats will be piloted
6.3.7.	Identify sources of credit will be identified that will enable fishers to upgrade fishing technologies that help them fulfil the requirement of the Fisheries Management Plan	NGO	To be initiated from 2008	
6.3.8	Involve communities in resource conservation i.e. mangrove protection and replanting, sea weed beds protection etc	DOF, local government and NGOs	By 2010	Awareness raising of local communities
6.3.9.	Identify and promote alternative income opportunities to encourage fishers to seek alternative employment and reduce the fishing effort	NGOs	By 2010	
6.3.10.	Establish a database on resources in each Upazila including numbers of fishers, gears etc.	DOF	By 2010	
6.3.11. No staff in Upazila have mandate to support the management of the marine fisheries resource.	DOF staff –Marine Fisheries Officers should be posted in all 47 Upazilas	DOF to prepare proposal for MOFL	Proposal by Oct 2006, fully implanted by 2010	Upazila based marine fisheries officers shall be recruited to be funded under the revenue budget, through the establishment

What are the key issues	How do we resolve them	Who is responsible for the action	When should this happen	Resources/ Comments
				of a marine fisheries directorate. Until funded under revenue budget the posts will be funded through projects. This proposal has been included in the Socioeconomic Development Project
6.4. Mechanised (Motorised) Commercial Sector				
6.4.1. Lack of knowledge and data on the motorised fishing fleet	Prepare a classification for all boats falling under this category. This will be based on engine size, boat length and duration fishing trips	DOF in collaboration with MFW	By 2010	No minimum limit- Maximum HP should be 66 This group is for boats that spend extended periods at sea.
6.4.2. Data on numbers of boats is no longer current	Update database on numbers of boats and gears	DOF	By 2010	Need clear definition of boats in this category so they can be accurately recorded
6.4.3. Total number of boats does not reflect capacity of resource	Based on the assessment of the resource prepare national allocation for the total number of mechanised (motorised) commercial boats, which can be licensed	DOF	By 2010	The numbers of boats will vary depending on the monitoring of the resource and its ability to be fished in a sustainable manner.
6.4.4.	Distribute allocated numbers across the districts where boats are traditionally harboured	DOF / MCBOA	By 2010	

What are the key issues	How do we resolve them	Who is responsible for the action	When should this happen	Resources/ Comments
6.4.5.	Boats will be registered in the home town of the owner.	DOF	By 2010	
6.4.6.	All boats will require to be registered and certified	DOF	By 2010	Must display home port and registration number clearly on boat
6.4.7.	Establish a unified and simplified certification and licensing system	Proposal to be prepared by DOF for submission to MOFL	Proposal by June 2008 and fully implemented from 2010	
6.4.8. Ownership of resource taken from fishers through expense of owning and operating large mechanised commercial boats	Develop improved partnerships between owners and fishers to improve the ownership of the resource by the fishers so as to promote better management	MCBOA (Mechanised Commercial Boat Owners Association)	By 2010	
6.4.9.	Boat owners and fishers will be formed into mechanised boat owner organisations at each district with a national central organisation to represent the needs of the MCB owners and fishers	MCBOA	By 2010	
6.4.10.	Adopt improved technologies to monitor fishing effort and help direct boats to unexploited fishing opportunities	DOF	By 2010	Satellite fish monitoring and GPS position could dramatically improve fishing efficiency.
6.4.11.	Develop capacity of MCB to fish for different species i.e. specialised shrimp brood	DOF	By 2015	Need links between Hatcheries and MCB owners

What are the key issues	How do we resolve them	Who is responsible for the action	When should this happen	Resources/ Comments
	collection boats			
6.5. Industrial /Trawl Sector Management	Existing Marine Fisheries Ordinance of 1983 should be enforced which restrict industrial vessels to the waters beyond 40 meters	DOF to prepare proposal for MFL	Proposal by Dec 2006, fully implemented by 2010	Review of case for changing area to 30 meters after resource assessment
6.5.1.	Develop participatory management body to help manage the deep sea resource which must include trawler/industrial boat owners association.	DOF	By 2010	
6.5.2.	No more trawlers should be licensed to fish until there has been an assessment of the stock. No licences should be given for trawlers (industrial boats) undertaking trial fishing.	DOF	By 2010	
6.5.3.	Trawlers and industrial fishing boats, through the fishers' association, must be involved in improving catch monitoring to help assess the status of the resource.	Boat Owners Association	By 2010	This will form the main basis of resource assessment until funds can be raised to undertake a full resource assessment.
6.5.4.	Agreement should be reached between fishers and authorities on a closed season and close monitoring should be supported to show the impact of the closed season.	DOF / Boat Owners Association	By 2008	

What are the key issues	How do we resolve them	Who is responsible for the action	When should this happen	Resources/ Comments
6.5.5.	Agreement should be reached between fishers and authorities on the declaration and enforcement of marine reserves/sanctuary where fishing is prohibited.	DoF	By 2008	
6.5.6.	Determine optimum numbers of trawlers depending on resource assessment Minimise the shrimp trawlers fleet by replacing old trawlers with fish trawlers in order to conserve stock..	DOF STA / DoF	To be concluded by 2010 Phased to be concluded by 2015	
6.5.7.	Examine options for improving the selectivity of shrimp fishing gear i.e. mesh configuration and using exclusion devices	DOF	By 2010	New technologies should be identified for collecting brood to avoid the heavy loses of brood from stress
6.5.8.	Ensure that all shrimp trawlers comply with requirements for the use of turtle exclusion devices	DOF	By June 2008	
6.5.9.	Staff to be appointed to monitor activities of Trawlers and Industrial Fishing fleet	DOF	By 2008	
6.6. Regulation and Enforcement				
6.6.1.	Update MFO, (rules and regulations) and NFP as needed.	Proposal to be prepared by DOF to be	Phased up to 2010	

What are the key issues	How do we resolve them	Who is responsible for the action	When should this happen	Resources/ Comments
		submitted to MOFL for further action		
6.6.2. Dispute over extent of EEZ	Determine baseline of Bangladesh fisheries and extent of EEZ. Reach international agreement	Foreign Affairs Ministry/ Bangladesh Navy	By 2010	200 nautical mile from 10 fathom line (baseline) Navy undertaking survey of 10 fathom line
6.6.3.	Promote and gain community (artisanal to commercial industrial) acceptance for implementation of the FAO Code of Conduct For Responsible Fishing. Develop framework to prepare code of conduct relevant to Bangladesh	DOF	By 2010	
6.6.4. Enforcement of regulations cannot be achieved by relying on government resources solely	Develop community enforcement for regulation on fishing effort control as part of Fisheries Management Plans	DOF	By 2010	
6.6.5.	Link into formal enforcement as a back up to community enforcement	Community Boat owners Coast guard	By 2010	Need revision of TORs for Upazila Fisheries Officers and District Fisheries Officers
6.6.6.	Register all fishers. Register all boats Register artisanal boats ony Upazila level by Fishers Community Organisation	DOF	By 2010	

What are the key issues	How do we resolve them	Who is responsible for the action	When should this happen	Resources/ Comments
6.6.7.	Register mechanised Commercial Boats and certify them as sea worthy and licensed to undertake fishing activities.	DOF	All boats must be gradually brought under licence, to be concluded by 2015	Should be a one stop process Part of this must include provision of safety equipment Revision of Marine Shipping Ordinance Done at District level or major ports
6.6.8.	Register shrimp trawlers and industrial boats Certified these as sea worthy and licensed to undertake fishing activities.	DOF	By 2010	Should be a one stop process Part of this must include provision of safety equipment Revision of Marine Shipping Ordinance
6.6.9. Use of small mesh sized net / destructive gears like monofilament gears, ESBN, beach seine, char jal, Kum jal	Ban and gradually withdraw destructive gears Create awareness, establish licensing monitoring of illegal gears Linkages between licensed users and enforcement agencies	DOF /BFRI	By 2010	
6.6.10. Illegal fishing	Improve international – collaboration with navy and coast guard to guard fishing rights against foreign illegal fishing. Agree on international protocols on IUU Fishing	DOF Coast Guard Community /Boat owners, Navy, MoFL, Proposal to be	Phased from 2008 - 2010	

What are the key issues	How do we resolve them	Who is responsible for the action	When should this happen	Resources/ Comments
	Revise legislation as required	prepared by DOF to be submitted to MOFL for further action	By June 2008	
6.7. Security of Fishers				
6.7.1. Piracy is on the increase with increasing numbers being murdered for their catch	Prepare a specific law against Piracy at sea to ensure that complaints can be lodged in any court. Assist fishers to lodge complaints and prosecute offenders. Encourage local police authorities to take on complaints and address piracy issues. Seek support from Home Ministry. Review of coast guard act to ensure support for small fishers.	Proposal by DOF to be submitted to MOFL for further action	By 2008	Problems for Coast Guard as they have limited resources to respond to pleas for help Insurance to help protect against losses either through group insurance or through a fishermen's benevolence fund. Find out from fisher what is best approach (needs a workshop).
6.7.2.	Fishers should be informed if military activities are to take place in a particular area through FCO. Develop mechanism for broadcasting information.	To be initiated by DOF in collaboration with relevant authorities and community groups	By June 2008	
6.7.3. Most fishers are poorly	Develop training module for	DOF	By 2008	

What are the key issues	How do we resolve them	Who is responsible for the action	When should this happen	Resources/ Comments
trained on how to prevent accidents at sea	fishers on safety at sea and the use of safety materials. Safety equipment must be kept on board as part of licensing.			
6.7.4.	Develop a group insurance scheme for all fishers. Should be subscribed to by all registered fishing boats and for their crew. Subscriptions collected at time of payment of licence	Community organisations with support from NGOs and DOF	By 2010	
6.7.5.	Develop shelters for protection of boats during cyclones and off season etc to be rented by boat owners.	BFDC	By 2010	Must be in sites that are suitable to fishers Repairing facilities, ice factories, and facilities for fishers
6.8. Marketing and Quality Control				
6.8.1. Post harvest handling and care leads to large losses through inappropriate care	Assess post harvest losses through appropriate handling.	BFRI / Universities	By 2010	
6.8.2.	Reduce post harvest loss through training and provision of appropriate technologies	DOF	By 2010	
6.8.3.	Improve on board storage of fish and improved use of ice	DOF	To be initiated by 2008, continuous	
6.8.4.	Legislate so that all landing centres whether operated by wholesalers or public sector are	DOF to prepare a proposal to be submitted to	By 2010	Link landing centre records with monitoring of fish catch

What are the key issues	How do we resolve them	Who is responsible for the action	When should this happen	Resources/ Comments
	required to be improved to a good quality standard so that fish are maintained in good hygienic condition.	MOFL for further action		
6.8.5.	All landing centres must comply with an established set of conditions before they can operate.	BFDC / DOF	By 2010	
6.8.6. Quality and safety of marine fish not regulated	Establish quality criteria for the domestic market	DOF	By 2008	Develop links with marketing to promote quality
6.8.7.	Examine the requirement for the Fish Harbour and if required find way to utilise fully	BFDC	By 2008	
6.8.8. Profitability of targeting new species often hampered by poor market and low domestic acceptance	Identify new markets s i.e. for tuna, squid	BFDC	By 2010	
6.8.9.	Identify appropriate technologies for value addition and product diversification	BFRI	To be initiated by 2007, continuous	
6.8.10.	Improve linkages with merchants to support initiatives aimed at improving quality of markets and quality of fish	DOF	To be initiated by 2007, continuous	
6.9. Institutional Reorganisation				
6.9.1. Marine sector does not	In order to unlock the potential of	DOF to prepare	By 2008	

What are the key issues	How do we resolve them	Who is responsible for the action	When should this happen	Resources/ Comments
receive its fair share of resources including funding and staff	the Marine Sector and continue support to millions of fishers through the appropriate management of the marine resources, a dedicated exclusive directorate should be established under DOF.	proposal for MOFL		
6.9.2.	Separate funding should be secured to ensure that the tasks identified under the Marine Strategy and Action Plan can be implemented	DOF to identify needs to be submitted to MOFL for further action	Proposal by June 2007	
6.9.3.	Separate budget line should be established for marine activities with Director Marine responsible for expenditure of funds	Proposal by DOF to be submitted to MOFL for action	Proposal by June 2007	
6.9.4.	Manpower trained in marine resource management should be retained for the benefit of the sector and not transferred. Develop a BCS Marine fisheries cadre. Career structure should be established to enable promotion within the Marine Sector.	DOF to initiate with MOFL for action by Min of Establishment	By 2008	Recruitment rules for BCS marine fisheries cadre r should be framed accordingly
6.9.5.	Fill all vacancies for positions currently established for Marine Directorate especially that of	Proposal by DOF to MOFL	Proposal by Dec 2006, to be finalised by	

What are the key issues	How do we resolve them	Who is responsible for the action	When should this happen	Resources/ Comments
	Director		2008	
6.9.6.	Prepare and evaluate a concept note on the rational and necessity of establishing a separate Marine Department	MOFL	By 2008	
6.9.7.	Strong linkages should be established between all organisations involved in the management of the marine sector	MOFL	By 2008	
6.9.8.	Improve the support and services provided by using fees and remunerations collected from licensing etc	Proposal to be submitted by DOF to MOFL for further action by Min of Finance	By 2010	
6.10. Training and Education				
6.10.1. Role of Marine Fisheries Academy	MFA should become a technical training centre under the proposed Marine Directorate. Should be commercially focused. (Self funding) Undertake limited research to support its academic goals	Proposal to be initiated by DOF for MOFL	Proposal by June 2007, to be implemented by 2010	
6.10.2.	Develop relevance of academic course to needs of sector. Ensure opportunity for best graduates to find employment in sector	DOF to inform Universities about needs for further action	DOF information by Dec 2007 and to be implemented	Universities should develop advanced courses for human resource development for the marine sector

What are the key issues	How do we resolve them	Who is responsible for the action	When should this happen	Resources/ Comments
			as courses offered by 2010	
6.10.3.	Refresher course and modular career updates should be developed by academic institutions.	Universities	By 2010	
6.10.4.	Training of fishers to fulfil legal requirements for navigation, safety at sea, reporting , resource management, and for the implementation of FAO's Code of Conduct for Responsible Fisheries, through the establishment of a fishers training school(s) Prepare a project and mobilize funding for the establishment of training facilities	MFA with support from DOF	Training programme by 2008, continuous implementation	Review experiences in neighbouring countries
6.11. Research				
6.11. 1. BFRI's resources are insufficient to fulfil its mandate for research in the marine sector.	Research needs for the sector should be addressed by the relevant research institutions Funding should be linked with a research plan that addresses the needs of the sector	BFRI / Universities MOFL, SPARRSO	By 2010	

What are the key issues	How do we resolve them	Who is responsible for the action	When should this happen	Resources/ Comments
6.11.2. DOF's requirement for scientific information not supported by research organisations	Prepare rolling work programme for marine sector research with annual monitoring of finding and development of new research priorities.	BFRI / DOF	By 2008	
6.11.3.	Conduct field oriented research on natural and human induced stress to the marine fishery resources.	BFRI / Universities	By 2010	
6.11.4.	Mobilization of sufficient fund / resources to undertake required research.	DOF to prepare a proposal for MOFL	Proposal by June 2007	
6.11.5.	Technical research and development to increase the mobility of artisanal fisheries vessels and reduce operational costs Collaboration with countries in the region to identify suitable boat designs for artisanal and mechanized fisheries	BFRI/Technical Universities Fishers' organisations	By 2010 To be started 2007	
6.12. Environment				
6.12.1.	Examine the effect on the marine environment of increased coastal and marine pollution in the bay	BFRI	By 2008	Monitor pollution level at estuary mouths and at key critical points
6.12.2.	Examine the extent of and potential impact of global warming on fish productivity	BFRI	By 2010	Coordination with other initiatives in Bangladesh to determine the potential impact of global warming
6.12.3.				

What are the key issues	How do we resolve them	Who is responsible for the action	When should this happen	Resources/ Comments
6.13. Co-ordination and Linkages				
6.13.1. Sector poorly coordinated Need for high-level policy coordination.	Support the formation of a Natural Resource Coordination Committee and Fisheries Management Executive Committee to support national planning of marine sector	Proposal to be prepared by DOF and presented to MOFL	Proposal by June 2007 for implementation by 2008	
6.13.2. International linkages poorly developed for management of Bay of Bengal resource	Improve collaboration with neighbouring countries through Bay of Bengal Commission	Proposal to be prepared by DOF and presented to MOFL	Proposal by June 2007	
6.14.3.	Improve links with international marine research and management organisations	DoF	Continuous to be initiated 2007	Appoint marine contact person

7. Action Plan for the Shrimp Sub-Strategy

What are the key issues	How do we resolve them	Who is responsible for the action	When should this happen	Resources/ Comments
7.1. General issues				
7.1.1. No clear assessment of the potential for export of shrimp.	Undertake assessment of the export potential and other markets for any increased production and assess the benefits of improved quality for improved market price. Re-examine market potential for different niches	Proposal for a market study to be prepared by DOF for MOFL for implementation by a consultancy company in consultation with all relevant agencies, such as Min. of Commerce/Export Promotion Bureau/BFFEA etc	Proposal by DOF Dec 2006, study completed by 2008	Requires short consultancy study.
7.1.2..Many parties involved in the sector with different regulations established and required Existing committee is not functioning Responsibility for formulation of regulations is at present unclear	Formation of Natural Resources Management Committee and Fisheries Management Executive Committee	Proposal by DOF for MOFL Proposals by DOF for MOFL and eventual endorsement by Fisheries Management	Proposal by Dec 2006 to be implemented by 2008	

		Executive Committee		
7.1.3. Current production levels are amongst the lowest in the world, but organic production has potential for niche markets. Demand for extra production sought by processors due to excess capacity. Risk of developing intensive or semi intensive production methods due to presence of disease and poor sanitation.	. Design development of sector according to identified opportunities.	DOF for submission to MOFL and FMEC	By 2008	MOFL to seek assistance in supporting these initiatives in undertaking market research.
7.1.4. Upazila and district shrimp committee is not active and role of DOF has been marginalised (Shrimp Development Committee)	Reorganisation of the committee at Upazila, District and Divisional levels and revision of TORs (also including membership, chairmanship and member secretary) ensuring line agency people are given the task as member secretaries of the committee and that meetings are regularly held	Proposal by DOF for MOFL	Proposal by Dec 2006 to be implemented during 2007	Identify funding to enable that planned activities can be implemented, possibly initially through project funding, but should be formalised as part of revenue funding
7.2. Regulations				
7.2.1. No workable set of regulations established for shrimp aquaculture development	Define regulations that need to be adopted or amended nationally or locally related to production, registration and licensing, area development and zonation, collection of wild juveniles, hatchery registration and certification, brood stock collection, marine shrimp harvesting, and quality control.	Proposals to be drafted by DOF in collaboration with relevant stakeholders for submission to MOFL	In phases but to be concluded by 2009	Requires legal expertise in DOF.

7.3. Registration of Producers				
<p>7.3.1. Fear that registration is a means to ensure tax is paid so reluctance to register as producer No definition of what is a shrimp farmer, if the farmers is involved in mixed culture or very small or part of a complex farming system Introduction of traceability is not possible without registration</p>	<p>Rational for registration must be changed so it is seen as an incentive by the farmer. Change existing rule for registration from government requirement to association membership, which allows access to market</p> <p>Motivate and organise farmers into associations to help enable registration and service delivery. Small-scale farms can have group registration</p> <p>Acknowledge registration as a source of basic information for local and national govt use Monitoring by DoF to ensure that registration is accurate or alternative third party monitoring supported by the industry.</p>	<p>Initial registration of gher and farms by DOF involved where appropriate. Local government</p> <p>DOF to seek cooperation with Social Welfare Department and the private sector to mobilize farmers</p> <p>Compilation of aggregate information by DoF</p>	<p>Proposal to be prepared by DOF for submission to MOFL during 2006</p>	<p>Registration process to be funded from revenue budget, but initiated through ADP</p>
<p>7.3.2. Registration for traders covered by many departments with diverse set of requirements</p>	<p>Implementation of existing rules for registration of arotdars, depot owners and ice manufactures</p>	<p>DOF.</p>	<p>By 2008</p>	<p>For details see the Quality Control Sub-strategy</p>

7.4. Zonation				
<p>7.4.1. No clear understanding of environmental concerns Poor zonation has hampered infrastructure development and will hamper issues such as pollution and agricultural contamination and effect certification for organic farming.</p>	<p>Define criteria for shrimp farming in agro-ecological zoning, including stable salinity, stable water quality and water availability for gherms, impact on drinking water, low conflict with other land users and access to good infrastructure (roads, electricity etc). Inform and ensure that zoning processes will properly consider the potential for shrimp farming.</p> <p>Define what is required for zonation i.e. infrastructure development, organic farming, prevention of pollution from agriculture, access to services and markets</p> <p>Implement ICZM recommendations for zonation</p>	<p>DOF for submission to MOFL and agencies responsible for agro-ecological zoning</p> <p>DOF for submission to MOFL</p> <p>WARPO (coordination) and DOF MoL</p>	<p>By June 2006</p> <p>Continuous up to 2010</p>	<p>Should support zoning processes undertaken by Ministry of Lands</p> <p>Regional level tool for planning, but not suitable at the farm level.</p> <p>Zonation should consider availability of fresh water for inhabitants Zonation will be key to facilitate traceability Zonation required for expansion of area and for mitigation of problems brought about by shrimp farming. Institutional framework for implementation and monitoring of ICZM has been approved (2006). Project Coordination Unit to be established in WARPO</p>

	Develop safeguards (alternative income generation activities) for farmers affected by zonation of land	DOF to identify needs for support		
7.4.2. Criticism of the shrimp sector for causing mangrove destruction and environmental degradation.	Environmental impact assessments of all proposed shrimp zones undertaken before final declaration.	DOF lead agency in consultation with DOE	By 2010	Require advocacy measures to inform general public on facts of shrimp production. Sites should be selected that are not in conflict with ecologically sensitive areas..
7.4.3. Golda farming is expanding rapidly and often in isolated areas thus hampering provision of services and marketing. Rapid expansion encroaching on traditional wetlands.	Develop guidelines to help prevent encroachment on wetlands by golda farmers.	MOFL	By 2010	Hatcheries and processing plants should be in close proximity of production.
7.4.4. Intensive cultivation of shrimp requires good infrastructure and access to markets which is only available in a few locations.	Undertake study to identify areas suitable for semi-intensive cultivation	DOF	By 2010	Area to be limited to 5,000 ha
7.4.5. Zonation advocated by key institutes but planning capacity not always available at field level.	Develop training modules and implement training for Government officers (centrally and locally) in zonation processes and methods. Develop and implement awareness campaigns for the public to understand concepts and importance of agro-ecological zoning for optimum use of land and water resources	DOF initiates in collaboration with local government	By 2010	
7.4.6. Poor groups are often discriminated against by access	Stimulate the formation of landless associations to ensure the rights of poor	DOF initiates action and through NGOs	By 2008	Build on Fourth Fisheries Project experiences

rights and land distribution				
7.5. Shrimp fry collection				
7.5.1. Current practices of collecting wild fry are thought to seriously reduce recruitment for marine and coastal fish species.	Reduce reliance on wild caught fry for both bagda and golda by increased advocacy for hatchery fry and a management plan to gradually reduce reliance on wild fry, restrict collection to the shoreline only and introduce and enforce regulations on the use of destructive gear such as net/chat jaal, behundi nets,	DOF to prepare the management plan and conduct awareness campaigns in collaboration with industry associations	Plan by June 2007 and implementation by 2008	Shrimp fry collection already banned, but deferred due to pressure by lobby groups
7.5.2.	Improve quality of hatchery fry through testing, brood selection, nursing etc.	DOF and the private sector (industry associations)	By 2008	A project has been proposed "Shrimp Seed Certification Project" for implementation by DOF (funding from FAO)
7.5.3. Current levels of golda production from hatcheries do not meet sector's demands	Support the continued development of golda hatcheries until market needs met. Establish a Golda hatchery data base	DOF to establish the data base in collaboration with industry associations	By 2008	Freshwater Prawn Extension Project (GOB funding) 2005 to 2009
7.5.4. Shift from fry collection to hatchery produced fry causes poor to be adversely affected.	Develop alternative income generating activities to enable fry collectors to find alternatives. Should be linked to activities in home areas of migrant fry collectors	NGOs and local government. DOF has an advocacy role	Continuous	Support needed from GOB and by other funding sources i.e. donors
7.6. Hatchery Registration and Certification				
7.6.1. Standards and quality of fry from different hatcheries not consistent.	Develop codes of conduct for responsible hatchery management. Amendment of the Fish Inspection and Quality Control Act to enable registration and licensing. Implement registration and licensing rules developed by DOF, which are under	DOF in collaboration with the proposed committee DOF	By Dec 2007 By 2008	Feed and seed certification under HACCP protocol DOF proposed the amendment to MOFL in 2005

	consideration by MOFL, for all current and proposed hatcheries. Quality assurance by a committee comprising farmers association, DOF and hatchery owners association to develop quality of shrimp/prawn PL	MOFL to constitute the committee upon initiative from DOF		Link with FAO's Code of Conduct for Responsible Fishing
7.6.2.	Build the capacity of the hatchery sector to monitor the quality and health of all fry, through development of laboratories and quality assurance schemes.	Industry associations. DOF has an advocacy role	By 2010	Technical assistance should be made available for hatcheries to establish laboratories.
7.6.3. Production capacity of bagda hatcheries exceeds current demands	Stop subsidies for hatcheries especially for bagda to reduce overcapacity in the sector The capacity will be monitored against demand	DOF to prepare a proposal to MoFL DOF in collaboration with industry associations	Proposal from DOF by June 2007 to be implemented from Dec 2007 To be started by Dec 2006	Demand for export of Bangladesh fry an opportunity to generate additional profit provided assured quality.
7.7. Brood Stock Collection				
7.7.1.	Undertake a study to assess availability of brood and quality of brood. First phase a shore based survey followed by marine surveys when resources permit.	BFRI and universities upon request from DOF	By 2007 for shore based survey, by 2010 for marine survey.	Limitation on availability of brood could constrain hatchery and shrimp sector. Community based survey. Surveys proposed in Capacity Building of Bangladesh Marine Fisheries, OIC/IDB project
7.7.2. Majority of brood are not fit for breeding	Determine the extent of virus infections, e.g. white spot virus, amongst brood.	Industry associations and shrimp trawler association.	By 2008	Laboratory to be established with assistance from the planned Seed Certification Project (GOB/FAO)

	Advocate and give incentives for brood collectors adopting improved brood collection methods.	Research institutions, DOF	To be started during 2007	Incentives only possible with project support Failure to improve quality of brood may have a serious impact on the viability of hatcheries.
7.7.3. Coast Guard and Navy seizing trammel nets as they contain monofilament netting.	Stimulate the use of trammel nets through awareness building in Coast Guard and Navy to enable officers to recognise difference between monofilament drift nets and trammel nets	DOF to initiate a proposal for MOFL, implementation in collaboration with Coast guard and Navy	By June 2008	This will require review of existing legislation prohibiting monofilament
7.7.4. Wild brood not ideal source of brood because of concerns with impact on wild stocks	Monitor international developments on captive breeding of brood to replace wild bagda.	DOF and research institutes.	Continuous	Worldwide attempts have only met with limited success.
7.7.5. The seasonal ban on brood collection is not adhered to	Establish dialogue with shrimp trawlers operating during ban season in mid-Jan to mid Feb. to improve compliance	DOF	Initiated by June 2007	
7.7.6.	Identify areas where brood collection would have minimal, impact and declare restricted areas for wild brood collection	DOF in collaboration with Coast Guard and Navy	Initiated by June 2007	
7.7.7.	With marine strategy Assess the current marine shrimp resources and assess its long term viability (see also Marine Fisheries Sub-strategy) Assess impact of marine bagda fishery and decide whether further regulation of bagda trawling is required.	DOF DOF to prepare eventual proposals	By 2010	The Capacity Building of Bangladesh Marine Fisheries, OIC/IDB project has provisions for stock assessments
7.8. Extension				
7.8.1. Currently no extension programme for the shrimp	Develop comprehensive programme for the development of shrimp on a long term	DOF	By 2008	In all promotion of extension the potential role of the

culture sector	basis.			private sector and NGOs should be ensured
7.8.2.	Review existing and potential extension providers (private sector and NGOs) and establish a forum for coordination, information, sharing and collaboration between DOF and these	DOF	By June 2007	
7.8.3. Lack of logistical support to enable DOF staff to operate and provide training	Secure revenue funds for basic extension operations of DOF and other service providers. Establish mechanism that 0.25% (as per agricultural cess) of revenue raised through shrimp industry revolved into sector to provide funds for extension and training.	DOF to prepare a proposal to be submitted to MOFL	Proposal by Dec 2006 implementation from 2008	Need separate revenue head for shrimp extension activities Finance to develop system to channel funds into recurrent budget Develop new shrimp code for funds
7.8.4. Main constraint to sector is currently production levels of bagda and golda.	Divert subsidies currently provided to processing of bagda to support for extension activities. BFEEA actively consider suggestion of diverting funds to encourage increased production to meet their demands for the product expressed in Vision 2008.	DOF to prepare a proposal to be submitted to MOFL	Proposal b June 2007 and implementation from 2008	Capacity of processing plant is improved by enabling short term storage between harvest peaks. Subsidy offered will end in June. Tax holiday is no longer available to new comers to industry.
7.8.5. Extension biased to larger producers with little offered to small producers.	Develop training programme for shrimp/prawn culture establishing target groups and messages	DOF	By 2010	Could be linked to future infrastructure development projects for shrimp polders
7.8.6. Potentially many extension service providers.	Examine who is best suited to reach which target groups considering that private extension may be biased toward providing services to wealthier farmers and that Government, farmers' organisations and	DOF	By 2010	Pilot of socially and environmentally shrimp farming in two selected Upazilas. (Jointly by DoF and ICZMP)

	NGO extension services are in a better position to provide training to poor, small-scale farmers			
7.8.7.	Support the development of private extension providers for extension on cost recovery basis from wealthier farmers. Provide training of private extension providers.	DOF	By 2008, continuous	
7.8.8.	Establish linkages with farmer organisations Build capacity of farmer organisations to provide extension advice to their members. Identify options for funding farmer organisation extension activities.	DOF	By 2008, continuous	Link into capacity building programmes such as farmer field school. Examine opportunities to extend LEAF NGO/DOF function must be to build capacity of community based organisations to take on responsibility of field level extension
7.8.9. NGO extension activities will only continue as long as they are being funded by someone or are able to link extension to a credit programme.	Provide Training of Trainers training to NGO staff. Develop self financing to enable NGOs to provide extension services for a period after project completion. Examine ways for NGO extension to be self funding.	DOF to initiate in collaboration with NGOs	Established by 2010	Tap into funding under PKSf
7.8.10.	Extension advice should not be limited to producers, but also to intermediaries such as depot owners	DOF	By 2008	
7.8.11. Present production	Develop extension packages for semi	DOF in collaboration	By 008	

systems are very extensive and low yielding.	intensive shrimp culture	with research institutions		
7.8.12. Present production systems are very extensive and low yielding.	Develop package for improved traditional (extensive) shrimp and prawn culture	DOF in collaboration with research institutions	By 2008	
7.8.13. Lack of integrated system means that producers face higher risks	Develop a package for mixed culture for both shrimp and prawn including rice and salt production systems	DOF in collaboration with research institutions	By 2008	
7.8.14. Insufficient manpower to cover all the field tasks demanded of UFO	Seek extra manpower for each Upazila (1 per Upazila) in all shrimp areas to support increased extension effort (19 Upazilas)	DOF to prepare a proposal to be submitted to MOFL	Proposal by June 2007, implementation from Jan 2008	Justify request to Ministry of Establishment based on importance of shrimp to national economy
7.9. Infrastructure				
7.9.1. Number of organisations involved in infrastructure development and maintenance causing policy conflicts in infrastructural development	Resolve policy conflict through national coordination (FMED) Build partnerships through consultation with BWDB, LGED, Ministry of Land etc	DOF initiative	By 2008	Use lessons learnt from FFP and other projects
7.9.2. Poor infrastructure, roads, depot facilities, local water supplies, ice	Seek government priority rating for infrastructure development to promote shrimp sector. Improve linkages with LGED to ensure support. Improve finance and grant schemes for improvements to infrastructure and transportation to improve the shrimp sector	DOF initiative together with private sector to express needs for implementation by LGED/BWDB	By 2007 By 2010	Should be ranked as a governmental priority area.
7.9.3. Cost of development of infrastructure	Develop financing options to allow communities to upgrade water management structures Utilise part of revenue raised from export excise to support infrastructure	DOF to prepare proposal for MOFL	Proposal by 2008, implementation from 2009	

	development Identify to what extent the proposal requires revision of existing legislation			
7.9.4. Operation and management of infrastructure	Develop community based organisations to manage and operate developed infrastructure Ensure water control structures not captured by elites or government officials.	DOF /BWDB/LGED/LGI	By 2010	
7.9.5. River erosion and damage to infrastructure	Develop mitigating measures to control embankment erosion e.g. mangrove plantations	BWDB/Department of Forests	Continuous	The active role of NGOs and community based organisations should be encouraged
7.10. Marketing				
7.10.1. A long market chain Long chain leads to a loss in quality More middlemen extracting margins so making shrimp more expensive to processor and farmers receiving less . Middlemen manipulating the grading system.	Introduce simplified processes and reduce number of intermediaries. Farmers should sell to licensed depot owners or CBO organisations who can then sell onto processors either directly or through an auction system. Monitor piloting of marketing systems i.e. Noakhali Gold system promoted by GNAEP	Processors,, traders and farmers, DOF DOF	By 2009	Excessive competition by processors for limited quantity of raw material hampers any attempt to regulate market. Need to reduce number of processing plants to meet quantity of shrimp produce available. Numbers of middlemen should also be reduced.
7.10.2. Need to introduce traceability for all marketed shrimp	Reduce number of steps between processor and farmer by organising farmers into marketing groups/coops	BFFEA, DOF has an advocacy role	By 2010	
7.10.3.	Develop contract farming systems to provide assured markets to small farmers	BFFEA, DOF has an advocacy role	By 2010	
7.10.4. Farmers unaware of market information	Provide updated continuous information on shrimp prices	Bangladesh Shrimp Development Alliance to be set up by the industry	By 2010	IT, radio, TV, newspapers, mobiles etc

		associations		
7.10.5. No emphasis on quality control	<p>Awareness raising on importance of quality with farmers, depot owners/traders and processors</p> <p>Link price to quality through training of farmers, traders and processors to identify quality indicators and regulations required for HACCP.</p> <p>Develop training material and/or translated to Bangla (manuals, guidelines, posters)</p> <p>Processors to demand premium quality as condition of purchase.</p> <p>Spot check to be made on quality of processor purchases</p> <p>Higher penalties and cancellation of licence for processors purchasing poor quality as per revised QC rules.</p> <p>Improved capacity of quality control personal and ensure logistic support for QC personnel.</p> <p>Industry led self auditing and quality assurance</p>	<p>DOF / BFFEA</p> <p>DOF</p> <p>DOF</p> <p>DOF</p> <p>Industry associations with 3rd party agencies</p>	Continuous	Training through EC funded QC project and revenue budget
7.10.6. Financial constraints to develop marketing facilities	Provide soft loans for upgrading of infrastructure i.e. depots, ice plants, transportation, ice storage and cold storage	DOF to prepare a proposal with needs analysis to be presented to MOFL for further action with Ministry of Commerce	Proposal by June 2008, implementation from Dec 2008	

7.10.7. Regulations are poor for control of marketing, depots, ice factories etc	Enforce quality control rules for ancillary industries	DOF and industry associations	By 2010	
7.10.8. Transportation –no refrigerated or insulated vehicle	Improve returns from shrimp by improving quality and reducing losses during transportation by ensuring all shrimp transported in refrigerated transport	DOF	By 2010	
7.10.9. Large quantity of product sold in most basic form i.e. block frozen.	Encourage processing plants to develop value addition processing through training and identification of premium markets.	Technical support to BFFEA by DOF and universities. Export Promotion Bureau	Request b y June 2007	New plants should be encouraged to adopt value added and not be based on old technology (block frozen or limited value added)
7.10.10. Poor collaboration among stakeholders	Bangladesh Shrimp Development Alliance to bring about collaboration of all stakeholders to enforce standards and examine ways to ease marketing problems, comprising farmers organisations, shrimp traders association, BFFEA	Bangladesh Shrimp Development Alliance in consultation with DOF	By 2008	Needs to have offices at District level Must ensure that it reflect the needs of the grass roots associations
7.11. Disease Monitoring and Prevention				
7.11.1. Incidence of disease has limited the development of intensive and semi intensive cultural systems.	Train key staff members in disease identification. Train farmers, hatchery operators in disease identification and control Research into management methods for disease control Engage universities in disease identification as reference laboratory Rehabilitation of BFRI laboratories and	BFRI / Universities/DOF DOF/NGOs	By 2010	

	create linkages between all stakeholders Livestock Department to include fish and shrimp diseases in their diagnostic services Encourage private sector to set up diagnostic centres following examples from Thailand			
7.12. Research				
7.12.1. Research not addressing real needs of the sector.	Prioritise research activities through stakeholder needs analysis	BFRF in collaboration with DOF to organise stakeholder analysis and forum for prioritization of research needs for implementation through BFRI /Universities	Continuous	Link into priority setting established by SUFER Project
7.12.2. Research activities limited by lack of funds and resources	Identify funding mechanism for research. Examine options for using a levy on export sales of shrimp.	DOF and BFRI in collaboration with universities under the umbrella of BFRF	Continuous	
7.12.3. Few staff have the expertise to undertake shrimp research.	Develop capacity of researchers through improved training on shrimp related research.	BFRI / Universities	By 2010	
7.13. Education				
7.13.1. Educational needs of the sector are not adequately catered for being limited to a few academically oriented courses, but dominated by fresh water aquaculture	Develop courses covering all aspects of sector management including: <ul style="list-style-type: none"> • Shrimp production, • Environmental management • Land use planning • Disease monitoring and prevention • Community capacity building 	Universities assisted by needs analysis provided by DOF	By 2010	

7.13.2.	Identify the potential and develop technical training modules on: <ul style="list-style-type: none"> • Hatchery management • Laboratory techniques and management • Processing and value additions 	DOF in collaboration with Universities and relevant training institutions	By 2010	The roles of existing training institutions suitable for training in these subjects need to be clarified. The Marine Academy mentioned in the sub-strategy should read Marine Fisheries Academy, which at present limited to training related to marine capture fisheries.
7.14. Poverty				
7.14.1. Press and anti-shrimp NGOs state that shrimp negatively affects poor.	Monitoring social status of producers and monitor effects on poverty, with special regard to the role of women and children	DOF / NGOs	To be initiated 2007	
7.14.2. Sector prone to devastating natural disasters including floods and cyclones.	Develop a Disaster risk management plan for the sector and try to reduce potential risk to sector and impact of disasters on livelihoods of workers and fry collectors by geographic distribution of key support services.	DOF through MOFL to inform the Disaster Management Bureau for preparation of disaster ,management plans	Continuous	
7.15. Environment				
7.15.1. Environmental degradation main concern of many rice farmers, NGOs and international buyers	Establish environmental monitoring EIA guidelines and manuals Ensure EIA before licences are issued	DOF	By 2008	
7.16. Structure Staffing and Resources				
7.16.1. Support at HQ, DOF is weak and is geared towards administration of Chakuria	Appoint a director to be responsible for all aquaculture with a Deputy Director responsible for strategic management of	DOF	Bu 2010	

shrimp estate rather than providing strategic management and direction	shrimp development. Provide central support staff and field based extension workers			
7.16.2. Women poorly represented in the sector	Implement the proposed gender policy for DOF	DOF	To be initiated from Jun 2006	

8. Action Plan for the Quality Control Sub-strategy

What are the key issues	How do we resolve them	Who is responsible for the action	When should this happen	Resources/ Comments
8.1.Human resources				
8.1.1. Shortage of manpower because of inadequate training and trained staff transferred out of quality control functions	<p>Ensure that officers, who have the required skills, are maintained within the Quality Control Wing.</p> <p>Change staff management practices to ensure retention of skilled staff in core areas with reward for their services and career development options.</p>	DOF to prepare a proposal for consideration by MOFL	<p>Proposal submitted to MOFL by DOF by Dec 2006</p> <p>By 2008</p>	Officers are frequently transferred out to non-QC functions
8.1.2. Shortage of skilled manpower	<p>Need assessment</p> <p>Develop training programme for all QC Staff</p> <p>Inception training for new staff</p> <p>Career development training (local and overseas)</p> <p>Overseas study tours and seminars/workshops</p> <p>Trained staff to act as trainers for other staff</p> <p>Encourage Universities to develop course modules to provide university level</p>	<p>DOF</p> <p>DOF initiates a proposal to MOFL to inform universities about future needs for expertise</p>	<p>By June 2006</p> <p>Training programme developed by October 2006</p> <p>By October 2006</p>	In addition to revenue funded training, BQSP will provide training, including overseas training, up to June 2008.

	education in the field of QC			
8.1.3. Shortage of manpower to provide full service for full quality control services. (In short term, say 5 years, standard requirement is one inspector for each plant. In addition there is need for staff to monitor hatcheries, nurseries and production stages for example for traceability and to man the laboratories)	Seek agreement from Ministry of Establishment to recruit additional staff to cover increased workload in a flexible manner to allow for short and long term assignment of required disciplines	DOF will submit a needs assessment and proposal to MOFL	Proposal by October 2006 submitted to MOFL, implementation from 2008	Currently 129 (66 operating) processing plants with more being constructed.
8.1.4. No promotion for staff in the Quality Control Wing, senior posts are recruited from outside with inadequate QC knowledge	Develop a career structure based on selective recruitment into the Quality Control Wing and promotion, when relevant, from within. Dedicate staff to the Quality Control Wing	DOF initiates a proposal to be submitted to MOFL	Proposal by December 2006	
8.1.5.	Develop a system of rewards and recognition for performance	DOF to prepare a proposal to be submitted to MOFL	By Dec 2006	
8.1.6. Inability of existing staff to function effectively due to lack of revenue and logistical support	Allocate funds specifically for Quality Control recurrent activities. Amend Fish and Fish Products (Inspection and Quality Control) Rule 1997 in order to utilise funds generated as laboratory test fees	DOF to initiate and submit a proposal to MOFL	Proposal prepared by October 2006	Currently 11 crore taka have been accumulated from test fees

8.1.7.	Procure transportation for each field office including vehicle and motorbikes for inspectors utilizing revenue budget, funds as above and donor funding.	DOF to imitate proposal to MOFL	Sufficient transport for efficient control by 2008	
8.1.8.	Develop laboratories so they are capable of undertaking required tests.	DOF	By 2008	To be provided through BQSP
8.1.9.	Install computer systems in all offices to improve functioning and monitoring	DOF	By 2008	To be supplied partly by BQSP
8.1.10.	Upgrade the documentation of QC issues from in-county and international sources	DOF	By 2008	
8.2. Collaboration				
8.2.1. Insufficient collaboration between stakeholders	Strengthen the collaboration through the establishment of Quality Control Committees at different levels of all key stakeholders including other relevant DoF wings. Use QC stakeholder meetings to build peer relationships and improve connectivity between different organisations. Formalise annual stakeholder workshops for planning and review of activities	MOFL acting on proposal from DOF	By 2007	
8.2.2. Intra-departmental confusion of remit and roles	Clearly define field roles of aquaculture and shrimp in relation to quality control	DOF	By October 2006	
8.3. Advocacy				

8.3.1. Poor publicity for the shrimp and fish export sector and publication of data and information on quality of Bangladesh shrimp and fish	Develop capacity to publish accurate data on the quality control activities and status of the export activities of the shrimp and fish export sector	DOF	Continuous	Should be supported by BFFEA and EPB for export data.
8.4. Regulations				
8.4.1. Many regulations exist, but are not adhered to and not fully understood by the stakeholders.	Determine what regulations are needed from demands by importing countries and domestic consumers. Examine existing regulations and revise these to meet requirements for international and domestic markets.	DOF	Identification of needs during 2006, preparation of proposal for MOFL by June 2007	Need legal assistance to draft regulations.
8.4.2.	Strengthen body responsible for setting standards: BSM, DoF, BFFEA, BCSIR, CAB, FRI, BEAC. Must include stakeholders from producer and marketing associations	Proposal by DOF to be submitted to MOFL	Proposal by Dec 2006, implementation from 2007	
8.4.3.	Clarify the standards set by the regulations	DOF	By 2010	At present 25 sets of different standards
8.4.4. Existing regulations not adhered to by most stakeholders	Evaluate regulations to measure compliance with and knowledge of regulation.	DOF	By 2010	Using the computerised MIS of DOF
8.4.5. Ignorance by stakeholders on the regulations and what is required of them by the purchasers	Develop a seminar and training programme to ensure all stakeholders are aware of revised regulations.	DOF	Programme to be developed by June 2007 and	

			implemented from 2008	
8.4.6. Varying standards required for different markets.	Establish different standards for different purchasing organisations and countries. Work with buyers to determine what is acceptable	DOF	To be initiated in 2006, continuous	
8.5. Quality Assurance				
8.5.1. How produced and quality (size and freshness) of product	Support the industry by acting as liaison with buyers on quality assurance demands by different buyers.	DOF and EPB	By 2008	Not Government responsibility
8.5.2.	Prepare guidelines to inform producers, traders and processors about quality criteria demanded by different buyers.	DOF	By 2008	Good Aquaculture Practice Good Management Practice Good Hygiene Practice Good Laboratory Practice
8.5.3. Excess capacity in processing sector means competition for raw product leading to low quality	Restrict new processing plants			See Shrimp Sub-strategy and Action Plan regarding criteria for registration and licensing
8.5.4. Poor knowledge and training of workers in marketing and processing side	Develop training courses to improve knowledge by key stakeholders. Longer modular training for key quality control practitioners	DOF Universities	By 2008	
8.5.5. Demands from buyers for	Establish associations of	DOF to initiate a	Ongoing	

traceability of source of product	farmers from different zones. Examine ways to support traceability given constraints	dialogue with farmers, using where existing community based organisations established by projects		
8.6. Certification				Principal role of govt.
8.6.1. Not all processing plants meeting criteria for export licensing	Improve assessment of processing plants. Plants must either raise standards or have licence revoked	DOF	By 2007	See Shrimp Sub-strategy and Action Plan
8.6.2.	Improve monitoring of compliance by factories. Ensure monitoring independent and not reliant on logistics from processing plants.	DOF in collaboration with BFFEA	To start in 2007, continuous	
8.6.3.	Categorise processing plants so that those most compliant require less inspection	DOF	To start in 2007, continuous	No longer undertake lot by lot sampling
8.6.4.	Support monitoring of plants with 3 rd party audits of quality assurance aspects of plants	DOF to initiate in collaboration with BFFEA	To be started in 2006	
8.7. Research				
8.7.1.	Link QC problems to needs based research and	DOF to identify research needs to be implemented by BFRI and universities	DOF prepares a list of research needs by October 2006 or initial workshop with stakeholders not later than	See other Action Plans regarding regular research seminars

			March 2007	
8.7.2.	Promote stronger links with Universities to develop more relevant training programmes	DOF in collaboration with BFRF	Initiative by Oct 2006	
8.8. Monitoring and Evaluation				
8.8.1.	Improve reporting of sampling and reports from importation inspection to monitor efficiency of QC work by using computerised MIS systems	DOF	By 2008	See M&E Sub-strategy and Action Plan for details

9. Action Plan for the Aquaculture Sub-strategy

What are the key issues	How do we resolve them	Who is responsible for the action	When should this happen	Resources/ Comments
9.1.General				
9.1.1	Prepare national guidelines for implementation of the provisions of FAO's Code of Conduct for Responsible Fisheries	DOF in collaboration with industry stakeholders	By Dec 2008	
9.2. Brood stock supplies				
9.2.1. Poor quality of brood	Revise and update the National Brood Management and Breeding Plan	DOF	Ongoing	
9.2.2.	Establish a certification system for brood stocks	DOF	By June 2007	DOF submitted proposal in 2005 awaiting approval from MOFL Certification shall apply to both government and private sector brood banks
9.2.3.	Establish a multidisciplinary committee including the private sector to draw up strict guidelines for the operation of brood banks and monitor compliance	DOF	Committee by Dec 2006 and guidelines by June 2007	
9.2.4.	Make updated inventory of all spawn and brood collection sites.	DOF	From April to Dec 2007	
9.2.5.	Prepare standards for pure strains as breeders (morphometric and genetic analysis) and identify sources of pure brood meeting the standards	DOF to initiate for execution by BFRI	By Dec 2008	Has been initiated under FFP, support from DANIDA to research at BFRI
9.2.6.	Certified brood banks will be established to act as sole source of brood for hatcheries	DOF and private sector	From June 2007	Refurbishment of selected FSMF ongoing. Private sector investment in brood banks

				should be encouraged
9.2.7.	Private sector brood banks must be registered and certified as per guidelines established for the industry	DOF and multidisciplinary certification committee	From June 2007	Government FSMFs acting as brood banks should follow the same quality standards as private sector brood banks
9.2.8.	All standard indigenous brood should be developed from spawn collected from the wild	DOF and multidisciplinary certification committee	From June 2007	Certification should be granted only to brood banks taking their indigenous stock from the wild at spawn stage
9.2.9.	Spawn collection should only be done by agents of brood farms certified by DoF	DOF	From June 2007	
9.2.10.	Strengthen monitoring of natural spawn collection	DOF through DFOs and S/UFOs	From June 2007	
9.2.11.	Parent stock of exotic species should be maintained by brood banks.	DOF	From June 2007	Maintenance of parent stock should be a criterion for certification of brood banks
9.2.12. Poor gene pool of exotic (Reduced number of parent fish)	The certification process should ensure that brood banks have not less than 500 exotic breeders for each species and the parents contributing to the next generation of breeders should not be less than 50	DOF and the multidisciplinary certification committee	From June 2007	Criterion for certification
9.2.13. Poor <i>ex-situ</i> (Artificial) conservation	Establish live gene banks in accordance with BFRI plans	BFRI	Ongoing	Has been established for Tilapia and Silver Barb
9.2.14.	Enforce the release of excess indigenous brood into the wild.	DOF	From August 2008	
9.2.15. No maintenance of pedigree records	The certification process should ensure that pedigree records are maintained by brood banks	DOF	From June 2007	
9.2.16. Decline in quality and number of <i>in situ</i> (natural) gene banks	Identify sites according to targeted species and declare as sanctuaries sites considered to be <i>in-situ</i> gene banks.	DOF	By 2010	

9.3. Hatcheries				
9.3.1. Poor quality of fish seed	Implement the hatchery regulation	DOF		The draft regulation was submitted in 2005 to MOFL
9.3.2.	Establish a registration and monitoring system for hatcheries	DOF	From June 2007	Included in the proposed regulation
9.3.3.	Certification of quality of hatcheries and nurseries	Self certification by hatchery owners	From June 2007 to be fully implemented by 2012	DOF to work with hatchery associations to develop self regulatory mechanisms
9.3.4.	Ensure that all hatcheries use only brood from brood banks.	DOF and hatchery associations	From June 2007 to be fully implemented by 2012	Registration process should include provision for withdrawing certification from hatcheries not using brood from brood banks
9.3.5.	Raise awareness of the certification system amongst farmers and hatchery and nursery operators	All fishery extension agents in collaboration with hatchery associations	From June 2007	Through raising awareness of quality, farmers can be encouraged to pay premium prices to certified hatcheries and withdraw custom from hatcheries which lose certification
9.3.6.Hybridisation	Amend the proposed regulation to include banning of hybridisation by commercial hatcheries	DOF to prepare a proposal for submission to MOFL	By Dec 2006	
9.3.7.	.Control hybridisation of fish for research purposes	BFRI to prepare guidelines	By Dec 2006	
9.4. Biodiversity				
9.4.1. Lack of technical expertise to ensure genetic biodiversity conservation of introduced species	Ongoing research of cryopreservation should be continued.	BFRI	Ongoing	

9.4.2. Maintenance of genetic biodiversity of exotics requires costly transfer of brood from one location to another	Develop use of short term preservation of milt and fertilisation techniques	BFRI	Ongoing	Done for common and silver carps under FFP
9.4.3. Risk to biodiversity, following possible establishment of escaped alien invasive species	Aquaculture activities with alien species should shift towards the use of fish with reduced reproductive potential such as mono-sex or sterile fingerlings	BFRI to develop techniques to be promoted by DOF	Ongoing	Has been demonstrated with Mirror Carp and Tilapia
9.5. Imports				
9.5.1. Lack of control over introduction of exotic species Lack of regulatory framework	Develop regulatory framework including commercial species and ornamental species.	DOF		Regulatory framework proposed by DOF and submitted to MOFL
9.5.2.	Before accepting a species as acceptable must have import risk assessment (IRA). Ensure technical knowledge in place before introducing exotic species	DOF	Within 5 years	Included in DOFs proposal to MOFL
9.5.3.	Amend the regulations to prohibit importation of exotics without the approval of DoF	DOF	Within 2 years	Included in DOF's proposal to MOFL
9.5.4. Lack of a GMO protocol for aquaculture	Develop a GMO protocol to ensure safety of fisheries sector.	BFRI in collaboration with all stakeholders	By 2008	
9.5.5. No list of restricted species or accepted species	Prepare list of acceptable species, all not on list to be banned from importation, except if IRA has been done and the importation is authorised by the DOF on experimental basis	DOF and BFRI	By 2008	
9.5.6. No quarantine system increases the risk for introduction of diseases	Include responsibility for exotic monitoring within DoF mandate and allocate resources	DOF to submit a proposal to MOFL	Proposal by Dec 2006 and implementation 2007/8	
9.5.7.	Draw up strict quarantine procedures for all	DOF	\Done	Proposed by DOF (Quarantine

	importations of live aquatic animals			Act) and submitted to MOFL
9.5.8.	Allocate staffing and resources to implement quarantine regulations at all points of entry. Identify quarantine ponds adjacent to entry points.	DOF	By 2008	
9.5.9. Ornamentals rely on importation of fish	Develop capacity for breeding ornamental species within Bangladesh.	BFRI and private sector	Ongoing	Potential to reduce risk of disease introduction and enhance export earnings
9.6. Policy				
9.6.1. Policy has not been regularly reviewed and revised	Establish NRMC and FMEC for policy review and elaboration of proposals for revision	Proposal with mandate to be prepared by DOF and submitted to MOFL	Proposal by Dec 2006 for implementation from June 2007	
9.7. Planning				
9.7.1. Lack of data base on aquacultural resources in Bangladesh	Develop a data base on all aquaculture resources in Bangladesh.	DOF	Data base structure defined by June 2007. First round of data compilation by 2010, regularly updated	
9.7.2. Lack of zonation and development recommendations according to ecological zones.	Prepare strategic development plan according to zones supported by GIS modelling and aquaculture data base	DOF	By 2010	World Fish / DOF project being implemented for GIS mapping and modelling for all Bangladesh.
9.7.3. Coastal aquaculture	Compile a land use plan to specify areas for targeted aquaculture.	DOF and Local Govt	Within 5 years	See Shrimp Sub-strategy and Action Plan
9.7.4. Lack of pro-poor and pro-women perspectives on	Develop pro-poor and pro-women technologies and outreach methods to	DOF / BFRI	Continuous from June 2007	

aquaculture development	support poor farmers' and women's involvement in aquaculture.			
9.7.5. Potential threat to biodiversity from uncontrolled expansion of flood plain aquaculture	Ensure that flood plain aquaculture is undertaken in line with provisions in the Inland Capture Fisheries Sub-strategy and Action Plan not to threaten biodiversity or the fishing rights of poor fishers	DOF	Continuous	
9.8. Inputs				
9.8.1. Poor availability of quality inputs to support aquaculture development	Promote the development of a input supply system and industry to cater for the needs	DoF in collaboration with other extension service providers and private sector	Project proposal by DOF by June 2006, for implementation from July 2007	Will initially require project support. Use experiences from FFP, PBAEP, and GNAEP
9.8.2. Low quality feed affects production levels	Establish a database and register all commercial feed producers	DOF in collaboration with private sector	Database by June 2007 and all registered by 2009	
9.8.3.	<p>Develop standards for feed quality for different species, different stages of their lifecycles and culture methods</p> <p>Ensure that regulations regarding marking of products are used in the feed industry.</p> <p>Develop system for self-certification assuring quality of feed</p> <p>Develop awareness of standards and regulations with all stakeholders involved</p> <p>Provide training and technical advice for the feed industry</p>	<p>DoF in collaboration with BFRI</p> <p>BSTI</p> <p>DOF takes the initiative to engage the private sector</p> <p>DOF, other service providers and BFRI</p> <p>DOF and other service providers</p>	<p>By 2010</p> <p>Continuous</p> <p>By 2010</p> <p>Continuous</p> <p>Continuous</p>	

9.8.4. Slow development of industries to support aquaculture	Tax holiday for approved items imported to help develop aquaculture	DOF to prepare a proposal for submission to MOFL	Proposal by June 2007 and implementation from July 2008	Machinery and raw materials required in the preparation of formulated feeds.
9.9. Chemical Inputs				
9.9.1. Indiscriminate use of chemicals in agriculture	Promote the implementation of Integrated Pest Management methods to reduce the risk of injuring the fisheries surrounding agricultural land, by including this in extension messages	DOF in collaboration with DAE	By 2010	
9.9.2. Indiscriminate use of chemicals in aquaculture and marketing	Develop appropriate regulations on the use of chemicals used in the sector	DOF to prepare proposal for submission to MOFL	Proposal by July 2008	
9.10. Marketing				
9.10.1. Lack of adequate fish marketing centres and those that exist are poorly managed	Improve infrastructure of marketing centres with the collaboration of local government Improve sanitation and hygiene standards in local markets with the support of health inspectors.	LGED, LGI, BFDC and private sector	By 2010 By 2010	
9.10.2. Fish are transported to markets under poor conditions	Review existing regulations and if required revise to ensure that all fish transported to markets are done so in refrigerated and covered vehicles Ensure enforcement of regulations	DOF to review and submit eventual revisions to MOFL DOF and Department of Health	Review and eventual revisions by 2008	
9.10.3. Farmers receive unfair price for their products compared to margins taken by middlemen	Supply fishermen/farmers and other stakeholders with information on market prices for different species	Fishermen Associations	Continuous	
9.10.4.	Develop farmers' cooperative markets to improve marketing options.	DOF in collaboration with Department of Agricultural	Continuous	

		Marketing and fishermen/fish farmers associations		
9.11. Finance				
9.11.1. Development of aquaculture hampered by insufficient credit offered to farmers or the demands for collateral for loans	Assess the need and accessibility of credit for poor farmers	DOF to prepare a proposal for MOFL	By Dec 2007	
9.11.2.	Review the existing system for banks to provide credit to poor fish farmers and the use of the allocated budget, and formulate appropriate revisions	DOF to prepare a proposal for MOFL	Continuous	MOU between Janata Bank and MOFL
9.11.3. Small credit amounts not considered by banks as administratively too demanding	Expand micro credit system by specialised institutions such as PKSF, Grameen Matshya Foundation	NGO sector	Continuous	
9.11.4.	Improve role of local government in supporting applications for loans.	LGRD	Continuous	Local union officials can act as guarantors for small loans
9.12. Local Govt Support				
9.12.1. Limited support at local level to develop aquaculture.	Activate the standing committee on Livestock and Fisheries at union level.	Ministry of Local Government and Rural Development	By 2010	Standing committee recognised at union level for helping to develop fisheries and livestock.
9.12.2.	Facilitate the monitoring of the activities of standing committee through UDCC.	DOF	Continuous	
9.13. HRD				
9.13.1. Aquaculture is not using the full manpower resource effectively.	Develop a comprehensive data base of aquaculture professionals	DOF	Within 5 years	
9.13.2. Out of date knowledge on fish diseases by most field professionals	Develop courses to improve field staff's understanding and knowledge of fish diseases.	Universities	Within 5 years	

9.13.3. Fish farmers require support to identify fish diseases and fish poisoning	Explore the potential for using and expanding veterinary laboratory facilities to include fish disease and poison identification.	DOF to prepare a proposal for MOFL	Proposal by Dec 2007	
9.14. Fisheries Extension and Training Centres/ Fish Seed Multiplication Farms				
9.14.1. Original mandate of FETC/ FSMF no longer relevant	Reassess requirements for FETC / FSMF as private sector takes on existing roles (i.e. quality seed, gene bank, brood bank and production, new species, research and extension) and prepare a proposal for future use	DOF	By 2008	

10. Action Plan for the Aquaculture Extension Sub-strategy

What are the key issues	How do we resolve them	Who is responsible for the action	When should this happen	Resources/ Comments
10.1. Peoples' participation				
10.1.1. Primary stakeholders are passive beneficiaries not active participants in extension	Develop extension messages and activities based on needs, problems and potentials on farm level using PRA techniques also to ensure that indigenous knowledge is properly utilised and create awareness of the importance of active participation	DOF to initiate together with NGOs and stakeholder groups	Start in January 2007, continuous	DOF has a cadre of almost 200 Extension Officers hired on project basis for FFP up to June 2006
10.1.2.	Training of extension staff in PRA techniques	DOF	Plan by October 2006 for completion 2007	Divisional Trainers who have received training through FTEPII and FFP should be used as trainers
10.1.3.	Preparation of Upazila level extension plans in consultation with stakeholder groups	DOF and when established the Upazila Fisheries Committee	From January 2007, continuous	Compare the National Fisheries Strategy regarding the Upazila Fisheries Committee
10.1.4.	Promote and support creation of farmers' groups and associations at all administrative levels for participation in planning, implementation and monitoring and evaluation of extension Promote and support creation	DOF to initiate	Continuous	
10.1.5.	Establish regular meetings between stakeholder groups and extension service providers on Upazila level to coordinate extension activities	DOF to initiate and, when established, the Upazila Fisheries Committees will have a leading role	From January 2007, continuous	

10.2. Equity and gender				
10.2.1. The poorer sections and women are disadvantaged with regard to access to extension services	Ensure poorer section's and women's active participation and sharing of benefits through giving priority to these groups in selection of farmers' groups	DOF through application of PRA ranking techniques in collaboration with stakeholders and service providers	Continuous	FFP has documented equity and poverty focus issues in monitoring and evaluation of aquaculture extension, which can guide the work
10.3. Extension approaches				
10.3.1. There is a mismatch between extension messages and the capabilities of different categories of farmers	Implement awareness campaigns among farmer groups to enhance the understanding of extension approaches and capabilities to ensure the move towards demand led extension	DOF to implement in collaboration with other service providers, and farmer groups	DOF plan by Oct 2006 for implementation from 2007	Requires initially programme/project support
10.3.2.	Adopt and integrate systematic group dynamics and group management and motivation norms as well as adult learning norms in training of and training manuals/materials for extension providers,	DOF to implement in collaboration with other service providers	From Oct 2006	
10.3.3.	Ensure that different categories of farmers are served through a flexible approach to extension with extension messages adapted to the needs expressed through farmer led needs analysis in groups	DOF to implement in collaboration with other service providers	Continuous	
10.3.4.	Establish, plan and implement a system where larger-scale/commercial farmers are provided extension on a fee-for-service basis as clients and where small-scale farmers are provided extension for a nominal fee Define categories of fish farmers Establish and study the capacity to and interest of each category to request	DOF to initiate and implement with other service providers and farmer groups	DOF to initiate fact finding by October 2006, prepare a plan by 2007 for implementation from 2008	This approach will require a change of attitude among government staff as well as the stakeholders which can be addressed through the awareness campaigns planned above

	extension for a fee Establish fee rates for different categories of farmers			
10.4. Coordination, collaboration and linkages				
10.4.1. All potential extension providers are not fully acknowledged and motivated to provide systematic services	Identify potential extension service providers (Government agencies, NGOs and, private sector), define and agree on respective roles Organise a national seminar and divisional and district workshops with participation of potential service providers	DOF in collaboration with other extension service providers and farmer groups	National seminar by October 2006, Divisional and District workshops from January 2007	
10.4.2.	Feed information and proposals into the inter-ministerial and inter-departmental committee system proposed in the National Fisheries Strategy, through policy briefs and impact reports for policy level coordination of extension	DOF and other extension service providers	Continuous	
10.4.3.	Feed information and provide proposals for the operation of the Upazila Fisheries Committees for decentralised planning of extension activities	DOF to initiate, to be self-generating through the operation of the committees	From 2007, continuous	
10.4.4. Weak linkages between research and extension	Motivate research in aquaculture to be focussed on needs as identified by farmer groups Establish a direct link between extension and research through six-monthly “aquaculture research seminars”	DOF to initiate in collaboration with BFRF, which will be the convener of the seminars	From 2007, continuous	
10.4.5. Shortage of extension material on local level	Provide Upazila Fisheries Offices with a list of available extension material with different extension providers	DOF	From 2007	

	Motivate all extension providers to distribute lists of extension material and the material itself to Upazila Fisheries Offices			
10.4.6. Skills and techniques are not optimally utilised	Assess skills and techniques of all extension service providers at Upazila, District, Division and Headquarter levels to build linkages and partnerships in their working communities	DOF in collaboration with other service providers	By 2007	
10.5. Decentralisation				
10.5.1. Centralised planning procedures does not ensure needs based extension services	Build awareness and consensus in DOF about the need and potential of decentralisation of planning and management of extension services, through internal discussion meetings, seminars	DOF	From July 2006	
10.5.2.	Define the roles of the Extension Wing in relation to Upazila Fisheries Offices and District Fisheries Offices with the planning and implementation functions devolved t Upazila level and the normative and monitoring functions at the level of the Extension Wing	DOF	By October 2006	
10.5.3.	Decentralise funding of extension activities to Upazila level	DOF to prepare a proposal for submission to MOFL	Proposal by June 2007	To be initiated through a specific programme/project
10.5.4.	Support organisation of farmers' groups through awareness building and community mobilisation for active participation in the planning procedure	DOF to initiate with NGOs and other service providers	From June 2007	Initially need for programme/project support
10.5.5.	Define the role of the Upazila Fisheries Committee and engage it in planning, coordination, implementation and monitoring of extension services by all	DOF	Proposal by October 2006	Linked to other sub-strategies

	service providers			
10.6. Human Resources Development				See also Action Plan for the HRD Sub-strategy
10.6.1. The staff of DOF and other extension service providers lack adequate training for needs based and decentralised extension service	Identify specific training needs for demand driven, decentralised extension services, including management skills, social issues and community mobilisation, PRA techniques, group dynamics, planning methodology, monitoring and evaluation as well as technical skills required by extension officers	DOF in lead role but with collaboration and coordination with other service providers and farmer groups	Identification of training needs by June 2007	Initially need for programme/project support
10.6.2.	Preparation and implementation of a staff training programme for DOF and other service providers	DOF to initiate	Plan by October 2007 and implementation from Jan 2008	Needs programme/project support
10.6.3.	Revise the Terms of References for staff to empower Upazila level officers to be responsible for planning and implementation of extension services in collaboration with other service providers and stakeholders	DOF to prepare a proposal for submission to MOFL	Proposal by March 2007 for implementation from July 2008	
10.6.4.	Prepare Terms of References for Extension Wing Officers to take on normative and monitoring roles	DOF to prepare proposal for submission to MOFL	Proposal by March 2007 for implementation from July 2008	
10.6.5.	Revise Terms of References for District Fisheries Officers and their staff for their role in coordination and monitoring of extension activities	DOF to prepare proposal for submission to MOFL	Proposal by March 2007 for implementation from July 2008	
10.7. Environment				Information/extension aspects addressed here. Technical issues, legal and policy issues

				are dealt with under the Inland Capture Fisheries, Aquaculture, Shrimp, and Marine Capture Fisheries sub-strategies and action plans
10.7.1. Lack of awareness amongst stakeholders about environmental issues, including biodiversity related to and impacting on aquaculture	Compilation of information/fact sheets on the impact of environment on aquaculture and the impact of aquaculture on the environment, including impact on biodiversity	DOF in collaboration with stakeholders	First compilation by October 2006, continuous	Needs programme/project support
10.7.2.	Implementation of information and awareness campaigns directed towards policy makers, senior management staff, extension service providers, civil society and fish farmers	DOF in collaboration with stakeholders	From Jan 2007	Needs programme/project support
10.8. Monitoring and evaluation				Covered by the Action Plan for the Monitoring and Evaluation Sub-strategy