



Annual Report 2011



Department of Fisheries, Bangladesh
Ministry of Fisheries and Livestock

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Minister
Ministry of Fisheries and Livestock
Govt. of the People's Republic of Bangladesh
Bangladesh Secretariat, Dhaka

June 2012

Message

Fisheries in Bangladesh have both prospects and challenges. Fisheries sector is contributing a significant role in the economy of Bangladesh. Department of Fisheries (DoF) is carrying out activities related to providing animal protein to the huge population of Bangladesh through fisheries conservation, proper management and planned development of fisheries resources to uplift socio-economic condition of the fishers, creating employment opportunity for the rural unemployed and landless people, earn more foreign currency by exporting fish, shrimp and fisheries products. Department of Fisheries has been assisting government in formulating policies and acts required for the sustainable development and integrated natural resources management and fisheries conservation.

Fish alone is supplementing about 60% of the animal protein of our daily diet. In order to ensure overall development of the sector, DoF is implementing several projects and programmes under both development and revenue budget. The annual report 2011 brought together the brief of the activities performed by the DoF, mainly demand driven extension service; community based fisheries management, hilsa conservation, environment friendly shrimp culture, HACCP, and traceability based quality control of fish and fish products, integrated natural resources management, sustainable marine fisheries management etc. The report also presents the development of fisheries sector to visualize the potential and achievements in the contemporary period.

I believe that this annual report will be very helpful for the concerned personnel specially the field officials of DoF to refresh the knowledge and to prepare the need based future development plan of the sector. I appreciate my colleagues and thank to them who have given time and endeavour in preparing this Annual Report.

Md. Abdul Latif Biswas, MP



Secretary
Ministry of Fisheries and Livestock
Govt. of the People's Republic of Bangladesh
Bangladesh Secretariat, Dhaka

June 2012

Message

Bangladesh is blessed with rich extensive inland and marine fisheries potential resources with a wide variety of indigenous and exotic fish fauna. Fisheries sector represents one of the most productive and dynamic sectors in Bangladesh. The sector has been earning substantial amount of foreign exchange and at present 2.73% of the country's export earning comes from this sector. The key objectives of the sector are enhanced fisheries production; poverty alleviation through creating self-employment and improvement of socio-economic paradigm of the fishers; meet the demand for animal protein; achieve economic growth and earn foreign currency by exporting fish and fisheries products and maintain ecological balance; conserve biodiversity and improve public health. We are aware that departmental mission is to support sustainable growth in fish and shrimp production with other aquatic resources for domestic consumption and exports as well and management of open water fisheries resources through community participation leading to equitable distribution of the benefits generated for optimal economic and social growth of Bangladesh.

The annual report 2011 represents the brief compilation of fisheries sector activities performed by Department of Fisheries. This report covers the important attributes towards harnessing the maximum potential from this sector.

I strongly believe that this report will benefit the departmental personnels, planners, researchers and other key stakeholders such as the private sector, research bodies (including universities), other governmental agencies working in similar fields, NGO's, fish farmers and fishers. I would like to acknowledge the contribution of those colleagues who have given their valuable effort and necessary information to make this work possible.

Ujjwal Bikash Dutta



Director General
Department of Fisheries
Bangladesh

June 2012

Preface

Fisheries and Aquaculture has a prime role in supporting livelihoods and in national economy of Bangladesh. Bangladesh is blessed with vast and rich fisheries resources in the form of rivers, beels, baors, haors, lakes, ponds, floodplain, estuaries, a part of the Bay of Bengal etc. The Department of Fisheries plays an important role in supporting the fisheries industry through transfer of technology, services providing training and extension, conservation of fisheries resources quality control of fish products, and regulatory policies guiding the management, environmental and production aspects of this sector.

Fish alone is supplementing about 60% of the animal protein of our daily national diet. In order to ensure overall development of the sector and management excellence, Department of Fisheries is implementing several projects and programmes under both development and revenue budget. For the conservation and improvement of the bio-diversity, department has established fish sanctuaries in selected water bodies through its development project. Bio-diversity has significantly improved through these sanctuaries.

For livelihood sustenance hilsa fishers are supported with food grains during the ban periods for four months. During this period total ban was imposed in the defined areas through enforcement of relevant laws and rules by the appropriate authorities. According to Honorable Prime Minister's commitment, total 14.47 thousand MT food-grains were distributed among 186.26 thousand hilsa beneficiaries under 85 upazilas of 15 jatka prone districts in 2010-11 FY under governments VGF program in 2011-12.

Neemgachi project area is one of the unique fisheries resources under the Department of Fisheries, covering four upazilas of Sirajganj and Pabna districts. Its a mega establishment of potential fisheries resources. This complex was under the control of Grameen Fish Foundation of Grameen Bank for long 25 years. It has been observed with serious concerned that the communities involved in management have had no savings and their livelihood have not been developed at a minimal level, thats why DoF again took over the management control of the project to uplift the socio-economic condition of the concerned communities, improve aquaculture practices.

Annual Report 2011 brought together the brief of the revenue and development activities performed by the Department of Fisheries. This report will provide information to all concerned about the services of the Department.

We believe this report will be helpful for the field officers of DoF, planners, researchers, development partners, extension workers, NGOs and all other stakeholders related to fisheries sector. I appreciate my colleagues who have given their valuable time, effort and endeavour in preparing this report. I offer my heartfelt thanks, gratitude and acknowledgement to them.

Syed Arif Azad

1. Introduction

Bangladesh, a riverine country blessed with many rivers-canal, depressions and oxbow lakes, ponds and floodplains, covering a huge area of water resources of 4.575 million hectares. Besides, there is a huge marine fisheries resources expanding over an Exclusive Economic Zone (EEZ) of 1,66,000 sq. km. Since time immemorial, these inland coastal and marine waters are the main sources of fish. As an agro-based country, the contribution of fisheries sector to national economy has always been important, and main source of animal protein, employment opportunities, food and nutritional security, foreign earnings, aquatic biodiversity conservation and socio-economic development. Fisheries sector contributes 4.43% to GDP and 22.21% to agricultural GDP. Fish supplements to about 60% of our daily animal protein intake. About 10% of the population dependents directly and indirectly on the fisheries for their livelihood.

Extension programs of sustainable aquaculture technologies for fish and shrimp, conservation and management of the fresh water and marine open water capture fisheries, optimization and fine-tuning of fish inspection and quality control programs and use of information and communication technologies in fisheries sector has been taken to achieve the much desired targets. As a part of the 'Digital Bangladesh' program the Government initiated e-Extension services of fish/shrimp culture and extension programs to provide appropriate services to the door steps of the farmers. In addition of these, existing laws and acts related to fisheries have been amended and updated to ensure quality fish/shrimp production and availability of quality inputs.

In conformity with the targets of 'Vision-2021' of the present Govt., the Department of Fisheries (DoF) has also envisioned some important programs and targets to achieve expedite that goal. Initiation of good practices in environment friendly fish/shrimp farming for promotion of export, biological management of jalmohals, establishing of easy access of real fishers to the open water capture fisheries, creation of employment opportunities and other various pragmatic programs have been taken by the DoF to facilitate achievement of vision-2011. It is expected that all these programs will contribute to reduce present poverty from 6.5 crore to 2.2 crores by the year 2021.

This annual report reflects some snap-shots of development and achievement of fisheries sector from July 2010 to June 2011.

2. Background

Department of Fisheries, Bangladesh was first established in the undivided Bengal of the British India in 1908 and since then it has experienced many changes. In 1910, the DoF was merged with the Department of Agriculture, but as per the recommendations of Mr. T. Southwell, the DoF regained its status as an independent organization in 1917. The DoF was abolished again in 1923. However, after a long gap, following the recommendations of Dr. M. Ramswami Naidu, the DoF was revived in May, 1942. Since the inception of the then East Pakistan, the activities of DoF had been continued. After the independence of Bangladesh in 1971, the organization renamed as Department of Fisheries (DoF) instead of the Central Fisheries Department in April 1975, and in 1984, the Central Marine Fisheries Department merged with the DoF as Marine Fisheries wing.

3. Mission of the Department of Fisheries (DoF)

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

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

4. Mandate of the DoF

- ❖ To disseminate improved aquaculture technologies through training and demonstration and to extend advisory services to the farmers.
- ❖ To enhance fisheries resources through facilitating conservation and management measures.
- ❖ To assist the administrative ministry in formulation of policies, acts etc.
- ❖ To enforce quality control measures and issuance of health certificates for exportable fish and fish products.
- ❖ To conduct fisheries resources survey and assessment of stock to develop fisheries database for proper planning.
- ❖ To facilitate arrangement for institutional credit for fish and shrimp farmers, fishers and fish traders.
- ❖ To facilitate alternative income generating activities for rural poor and unemployed people towards poverty alleviation.
- ❖ To formulate and implement development projects towards sustainable utilization of fisheries resources to ensure food security.

5. Organizational Setup of the DoF

DoF has following wings to render its services:

- ❖ Inland Fisheries,
- ❖ Marine Fisheries,
- ❖ Fisheries Resource Survey System (FRSS),
- ❖ Fish Inspection and Quality Control (FIQC), and
- ❖ Training.

5.1 Manpower under Revenue

Table 1: Manpower under revenue budget and manpower in position

Heads	Category		Number of Posts	Number of Vacant Posts	In position
Revenue	Class-I	Cadre	725	232	493
		Non-Cadre	225	82	143
	Class-II		634	183	451
	Class-III		1934	378	1545
	Class-IV		1328	408	910
	Total		4846	1283	3542

5.2 Manpower under Development Projects

Table 2: Manpower under development project and manpower in position

Heads	Category	Number of Posts	Number of vacant posts	In position
Development Projects (16 nos)	Class-I	215	28	187
	Class-II	6	1	5
	Class-III	76	15	61
	Class-IV	37	8	29
	Total	334	52	282

6. Budgetary Allocation

The Departmental Budget is a comprehensive blueprint of the annual activities expressed in financial terms. It authorizes the department to make expenditure in order to perform its functions and to implement its policy to achieve desired objectives stated in mission's statement. The budget has two distinct categories: (a) Revenue and (b) Development.

6.1 Revenue Budget of DoF

Activities which include expenditures of pay and allowances, supplies and services, repair-maintenance and rehabilitation, miscellaneous, civil works and projects and program apart from Annual Development Program (ADP) fall under revenue budget. During the last five years, non-development budget of DoF is shown in Table-1.

Table 3: Non-development budget of DoF

Code No.	Description	2007-08	2008-09	2009-10	2010-11	2011-12
4500	Pay of Officer	1375.30	1524.43	2364.90	2477.33	2548.46
4600	Pay of Staff	2026.16	2098.84	2645.27	2700.46	2181.19
4700	Allowances	2308.62	2169.62	2468.98	3799.07	3606.10
4800	Supplies and Services	1484.41	1879.60	1929.47	2102.42	3197.12
4900	Repair-Maintenance	110.74	167.8	170.37	203.85	467.00
7000	Civil Works	0	0	0	0	0
6800	Assets Procurement	-	-	-	-	210.00
Total		7305.23	8840.29	9578.99	11283.13	12209.87

6.2 Development Budget of DoF

Development budget includes all expenditures included in Annual Development Plan (ADP).

Table 4: Development budget of DoF

(Taka in lakh)

Financial Year	Number of Project	Development budget						Achievement
		Expenditure			Allocation			
		Total	LC	PA	Total	LC	PA	
2006-07	17	4617.33	2948.10	1669.23	4829.00	3381.00	1448.00	97%
2007-08	16	5544.13	8960.53	1583.60	6370.00	4567.00	1804.-00	87%
2008-09	17	5840.11	3147.92	2692.19	7905.00	3817.00	4088.00	74%
2009-10	21	8851.71	5132.41	3719.30	10119.00	5342.00	4777.00	87%
2010-11	23	12903.42	-	-	13547.00	-	-	96%

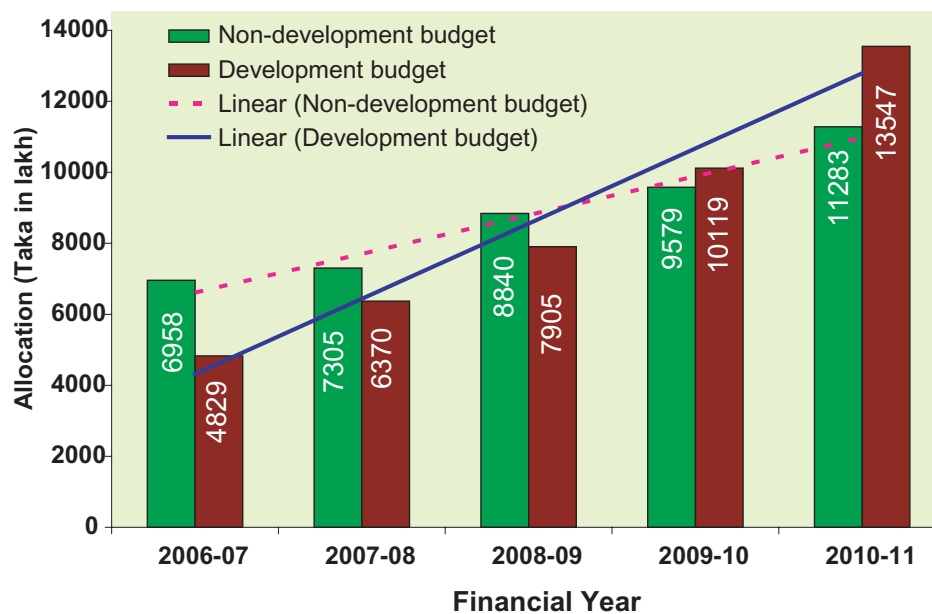


Figure 1: Development and Non-Development budgetary allocation of last five years

7. Sources of Revenue Earnings

There are two major sources for government revenue earning:

1. Tax Revenues (TR)
2. Non-tax Revenues (NTR)

All revenue earning by the DoF is Non-tax Revenues. During last five years, non tax revenue earned by the DoF is shown in Table 5.

Table 5: Non tax revenue earned in last five years

(Taka in Thousand)

Economic Code	Description	Financial Year				
		2007-08	2008-09	2009-10	2010-11	2011-12
2037	Rent of Govt. Vehicles	17	24	70	80	42
2047	Fish hunting fee	1636	40	150	450	250
2071	Other service fee	0	158	0	4	0
2111	Rent of Residences	0	11	0	900	40
2326	Fish and fisheries product	66437	70434	80483	102537	88737
2366	Tenders and other documents	2544	2400	4500	2950	6000
2371	Non usable materials and scrap etc.	10	15	140	250	250
2376	Miscellaneous non commercial sale	1033	1322	1000	1950	1750
2671	Refund of extra payment	4167	3331	5010	9960	5860
2681	Miscellaneous revenue earning	10243	12631	28647	25646	15548
	Total	86087	90366	120000	144727	118477

8. Status of Fisheries Resources and Production

Bangladesh is endowed with rich and extensive fisheries resources. Due to natural conditions and geographical location, Bangladesh has huge fisheries resources having high potential of increasing fisheries production. Country's fisheries resources are divided into two major groups such as inland fisheries and marine fisheries. Inland fisheries is further divided into two groups i.e. aqua-culture and inland capture. Inland fisheries occupies an area of 45.75 lakh ha and marine capture covers 1, 66,000 sq.km. The culture fisheries includes ponds, ox-bow lakes and coastal shrimp farms.

The flood-plains and the beels, which cover an area of



The Bay of Bengal

29.5 lakh ha, offering tremendous scope and potential for augmenting fish production by the adopting aquaculture-based enhancement techniques.



Inland open water

The country has huge opportunities for the development of brackish water aquaculture boosting shrimp production and earning substantial amount of foreign currencies. Production of shrimp from culture and capture fisheries increased to a great extent in the beginning of 1980's. Since then, brackish water shrimp farming has been expanded to over 2.14 lakh ha of

land by 2011 from 1.4 lakh ha in 1980. It is expected that with the introduction of improved scientific method of shrimp culture, the present production of shrimp will be increased substantially. The country has limited access to marine fisheries resources in the Bay of Bengal. Only demarsal fish and shrimp are being trapped from here. Other potential marine resources are yet to be exploited on commercial scale. Only 18% of total fish production comes from Marine capture fisheries and 82% from inland fisheries. The status of fisheries resources and fish production of the Country is shown in *Annexure 1* and *Annexure 2*.

The present democratic government has undertaken new policy for sustainable aquaculture production; provide need based aquaculture extension services, implements fish conservation activities which increase the national fisheries production as well as the growth rate in fisheries sector. Besides these, fisheries extension and conservation activities, AIGs and rehabilitation programs for poor fishers etc. were undertaken. Through the Execution of Fisheries Friendly Policy of the present government, total fish production has been increased from 27.00 lakh metric ton in 2008-09 to 30.62 lakh metric ton in 2010-11.

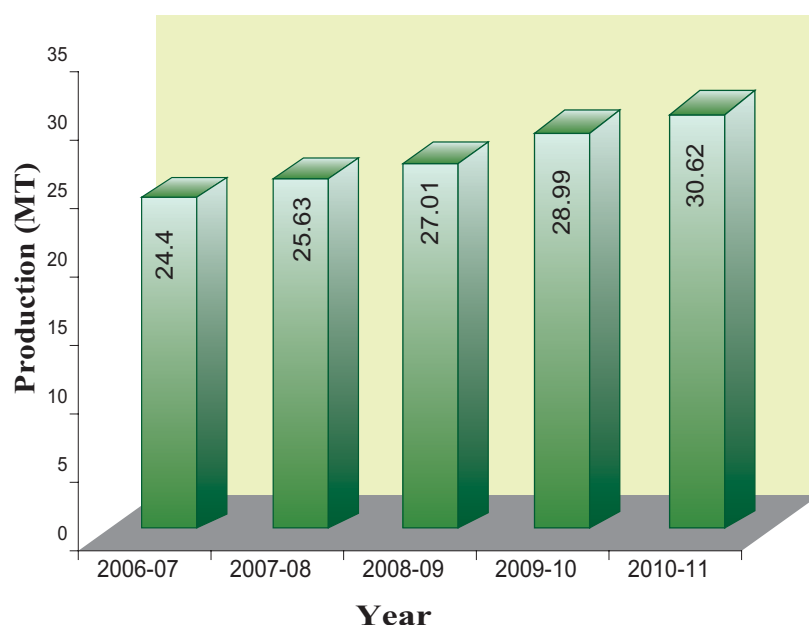


Figure 2: Fish production of last five years

9. Fisheries Extension Activities

9.1 Fish Seed Production

9.1.1 Spawn collection from natural sources and fry production

During sixties and early seventies aquaculture activities included mainly rearing of natural carp hatchlings collected from the river Jamuna, Padma, Boral, Old Brahmaputra and fertilized eggs from the river Halda of Chittagong and other natural sources during the monsoon (April-August). Availability of hatchlings from natural sources is being declined due to habitat destruction and change in ecological system. The carp hatchlings production from natural sources during 2007 to 2011 period is shown in the following Table. The production from natural source contributes only 0.69 % to the total production of hatchlings (2011) depicting the extent of environmental degradation.

Table 6: Carp hatchlings collection from natural sources

Year	Fish hatchling (Kg)
2007	2061
2008	1872
2009	1984
2010	2204
2011	4370

9.1.2 Fish seed production through induced breeding

During 1961-62 to 1974-75 the government has established Fish Seed Multiplication Farms (FSMFs) to supply quality and required quantity of seeds to the fish farmers. During that period, mostly wild fish seeds collected from the rivers were reared in the FSMFs and supplied to the fish farmers. In addition, fish farmers were provided to practical on-hand training on rearing and production of carp seeds in these fish seed multiplication farms. In the mid 60s, due to reduction in the availability of wild carp seeds in the rivers, the DoF initiated research and studies on artificial propagation of carps and their seed rearing. In 70s, fisheries scientists have succeeded in it and developed artificial sustainable technology of carp seed production. Consequently, the increased fish culture efforts demands increased carp seeds production. At the same time, as the natural fish seeds were not able to meet the demand of the fish farmers, the Govt. has established fish hatcheries to produce quality fish seed and to extend induced breeding technology. Since then, a total number of 121 Government, 854 private carp hatcheries and 7,307 nurseries have been established throughout the country. At present the country is self-sufficient in carp seeds production, though quality fish seeds are produced in a limited scale. For that DoF has introduced Hatchery Act 2010 for quality spawn and fingerlings for registered hatchery and Farm.



Quality brood produced by Brood Bank Project

In the mean time, sustainable aquaculture technologies for commercial purposes of carps, catfishes, pangus, koi, shing, magur and tilapia fish have been developed and quality hatchlings and fingerlings of those fishes are produced in the country. In the year 2011, around 1.08% of total fish hatchlings were produced in the government FSMFs and 98.33% in the

Table 7: Production of carp hatchling in 2008-2011

Source of Production	Year-2008		Year-2009		Year-2010		Year-2011	
	No of hatchery	Production (kg)	No of hatchery	Production (kg)	No of hatchery	Production (kg)	No of hatchery	Production (kg)
Government fish farm	77	7040	77	4516	76	5592	76	7168
Private hatchery	873	416946	854	459803	865	499578	845	617637
Total	950	425858	931	466303	941	505170	921	629175

Table 8: Production of fry in 2008-2011

Source	Year-2008		Year-2009		Year-2010		Year-2011	
	No. of nursery	Production (in lakh)	No. of nursery	Production (in lakh)	No. of nursery	Production (in lakh)	No. of nursery	Production (in lakh)
Govt. fish farm	112	275.96	119	208.82	120	211.01	124	217.00
Private nursery	8332	54903.52	8881	96001.00	8921	98387.01	10298	81821.00
Total	8824	62390.40	9000	96209.82	9041	98598.02	10422	82038.00



Fish seed produced by induced breeding

private fish hatcheries. Through Brood Bank Establishment Project, DoF has taken initiative to produce quality brood fishes free of genetic drifts and in-breeding problems. Both Government and private fish hatcheries are producing quality hatchlings and fingerlings using improved brood fishes produced through the Brood Bank Establishment Project. In 2011 a total of 624477 kgs of fish spawn and 82033 lakh fingerlings were produced by 121 Govt. FSMFs and 845 private fish hatcheries and 121 Govt. FSMFs and 10298 nurseries respectively (Tables 7 and 8). Information regarding expenditures and income of Government FSMFs fish spawn and fingerlings production is shown in Annexure-3.

9.2 Post Larvae (PL) Production

9.2.1 PL collection from natural sources

At presents shrimp farming (both golda and bagda) is mainly depends on hatchery produced PL. According to recent statistics, the total number of golda and bagda hatchery in Bangladesh is around 70 and 30, respectively. There had been practices of natural PL collection before the year 2000. To protect to natural biodiversity, government has imposed ban on natural PL collection by ammending The Protection and Conservation of Fish Act 1950.

9.2.2 PL Production in hatchery

Due to extension of breeding technology of *golda* and *bagda*, many private entrepreneurs have established shrimp hatcheries for shrimp post larvae (PL) production. About 70 Galda and 60 Bagda hatcheries have been established by both Govt. and private sector which produced 51000 lakh bagda 10800 lakh golda PL in the country in 2011 (Table 9).

Table 9: Production of golda and bagda PL in 2011

Name	Year -2008		Year-2009		Year-2010		Year-2011	
	No. of hatchery	Production (PL in lakh)	No. of hatchery	Production (PL in lakh)	No. of hatchery	Production (PL in lakh)	No. of hatchery	Production (PL in lakh)
Golda	30	518.65	70	1,867.02	60	51000	60	51000
Bagda	45	30500.00	60	81,353.00	70	10800	70	10800
Total	75	31018.65	130	83,220.02	130	61800	130	61800

10. Fish and Shrimp Culture

10.1 Fish Culture

10.1.1 Pond aquaculture

Currently pond aquaculture has been practiced in a total area of about 3.5 lakh ha which is 7.4 % of total inland water. Pond aquaculture is producing about 1199866 mt fish which contributing 47.70% of total inland production in 2010-11. The pond production involves composite culture produces an average 3430 kg/ha whereas there are records of 63 mt/ha production of pangas under intensive farming in Mymensingh region.



Fish culture in pond

Table 10: Status of pond culture (2010-11)

Pond type	Area (ha)	Production (MT)
Cultured pond	349814	1199866
Cultivable	17478	17698
Derelict	4017	2172
Total	371309	1219736

10.1.2 Fish culture in paddy field

Paddy fields and seasonal floodplains are promising and potential resources for aquaculture. It has been estimated that paddy fields cover an area of about 80 lakh ha of which 28.34 lakh ha floodplains which remain 4-5 months under water. Previously Government has taken initiative to increase fish production from these flood plains through stocking fish fingerlings. Through 2nd ADP and 3rd Fisheries project, farmers were motivated to stock in suitable floodplain. SHISHUK (an NGO) has been leading community based floodplain aquaculture in Daudkandi of Comilla District and achieved an average production of 2100 kg/ha/year (SHISHUK 2009). DoF along with partner NGOs has taken initiatives to maximize fish production from rice

fields and to extend the coverage area. If 10% of paddy field will come in this culture system where paddy field go under water, then near about 85 lakh mt more fish will grow annually producing 300 kg fish per ha.



Fish culture in paddy fields

10.1.3 Fish culture in borrow-pit and *khal*

Different types of waterbodies improved under Integrated Fisheries and Livestock Development Project in Flood Control, Drainage and Irrigation (FCDI) Project area and other waterbodies also included in the aquaculture systems. Information of developed waterbody and its area are shown in Table 11.



Aquaculture in borrow-pit

Table 11: Improvement of different types of water body through FCDI project

Types of water body	1 st phase	2 nd phase	3 rd phase	Total developed water body (ha)
	Developed water body in hectare 1993- 94 to 2000-2001 Financial year	Developed water body in hectare 2000-2001 and 2002-2003 Financial year	Developed water body in hectare 2006-2007 to 2009-2010 Financial year	
Borrow-pit	1136.236	207.965	230.277	1574.478
Close Khal	212.338	105.632	54.138	372.108
Dead river	138.145	75.49	47.393	261.028
Ponds	66.748	58.052	122.762	247.562
Total	1553.467	447.139	454.570	2455.176

10.1.4 Fish culture in baor (Ox-bow lake)

A total of about 600 baors having an area of 5,488 ha are situated in the south west part of the country. Different development projects have been implementing to increase the fish production from baor. The total water area of baors have been developed and brought under improved aquaculture through fingerling stocking and management practices. Six baors of Jessore district were under disposal of DoF till Feb/2009 and now these baors are under disposal of Department of Fisheries according to the MoU signed



Fish harvesting in baor

between Ministry of Land and Ministry of Livestock and Fisheries for next 6 years. Besides this, 30 baors are managing by OLP-2 project of DoF with the financial support of IFAD. These baors covered area of 1137 ha and fish production has increased from 80 kg to 750 kg/ha (DoF 2008). Local fisher communities are being involved in the baor management and improved their livelihood.

10.1.5 Cage culture

Several decades ago, attempts were taken to raise fish in cages under different development projects by several institutions/organizations of the country. Though it is well practiced in other countries but it is not yet popular in our country for many reasons. At least 2 projects and a number of NGOs have been working with cage culture using different materials like bamboo, steel rod, net and feed and feed ingredients like rice bran, fish meal, green grass etc to culture fish species like monosex tilapia, pangas, koi, singh, magur, rui, GIFT, thai sorpunti etc.



Cage aquaculture in open water

Cage aquaculture has been identified as a means of livelihoods for landless people. Northwest Fisheries Extension Project (NFEP) in Parbatipur, Dinajpur and Patuakhali-Barguna Aquaculture Extension Project (PBAEP) demonstrated cage aquaculture as pilot basis. The production achieved through cage culture was encouraging and satisfactory but the activities were discontinued due to socio-economic condition of the farmers and some constrains. Cage culture of monosex tilapia is being practiced in Chandpur, Laxmipur Faridpur, Barishal, Mymensingh, Dhaka, Munsigonj, Gopalganj and other regions of Bangladesh. In 2011, about 6750 MT fish produced from 6000 cages.

10.1.6 Pen culture

Pen culture is also one of the potential means of producing fish from vast water body or water channel. In recent years, pens are made with different materials like bamboo, net, iron-meshed, wooden pillar etc. The area of pen also varies in size from half to few ha. The fish species reared in the pen are carp, tilapia, pangas etc. Feeds are also applied in pen culture system but not regularly. Both single and multi owner are found in pen management. Culture period also varies from June to December depending on availability of water. Pen culture is becoming popular in and around Dhaka and Narayanganj and expanding every year.



Pen culture in open water

10.2 Shrimp Culture

10.2.1 Shrimp (*bagda*) culture

Black tiger shrimp (*Penaeus monodon*) in Bangladesh is known as Bagda. Bagda grows faster and bigger in size, the species is very popular for coastal aquaculture among shrimp species available in Bangladesh. Bagda culture has been starting in the South-West region of the country using agricultural land since early 1970s. The larvae of shrimp and other fish are trapped into the crop fields during high tide and reared for several months. With the increasing demand of shrimp and prawn in the international market rapid expansion of shrimp farming was observed in dyke elevated rice fields (traditionally known as gher).



Shrimp aquaculture in the coastal areas

In 1994 government declared the coastal region as 'Open for brackish water shrimp farming' through a government order. From then, brackish water shrimp farming has been expanded rapidly. By 2011 over 246,198 ha of land were brought under bagda culture and till it is increasing. The highest shrimp culture area was in South-West region i.e. Bagerhat, Khulna and Satkhira region because of abundant source of saline water and shrimp post larvae (fry) in the Sundarbans mangrove forest and surrounding rivers and estuaries. Among the coastal districts, the highest production of bagda was observed in Bagerhat, Khulna, Satkhira and Cox's Bazar. The culture system of bagda involves traditional extensive to improved extensive. In 2010-11 bagda production in Bangladesh was 56569 MT.

Table 12: Shrimp farming and production

Year	Area farmed (ha)	Shrimp production (MT)	Remarks
2006-2007	172817	40837	Paddy and salt are produced in very near to coast as alternative crops. White fish and crabs are produced in some places as by-culture.
2007-2008	172817	42593	
2008-2009	172817	49710	
2009-2010	186145	43154	
2010-2011	213617	56569	

Source: Fisheries statistical yearbook of Bangladesh 2010-2011, FRSS, DoF

10.2.2 Prawn (*golda*) culture

Traditionally the Giant freshwater prawn (*Macrobrachium rosenbergii*), called as Golda in Bangla, were being trapped and reared with other fishes in the tidal pond and low lands. Generally, the species were harvested from the river/canals, flood plains and beel areas which have connectivity with rivers. At present macrobrachium sp. is being cultured in gher in organized way along with other aquaculture, agriculture and horticulture crops. Different culture systems such as monoculture, poly-culture along with other fishes, and aquaculture in paddy fields along with paddy are being



Golda farming in gher

practiced. The unit production of Golda under the different systems ranged from 375 kg/ ha to 750 kg / ha. The highest production was observed in monoculture (750 kg / ha). Currently golda are farming in gher, pond and paddy field covering an area of about 0.63 lakh ha. About additional 0.60 lakh MT fish are produced along with golda.

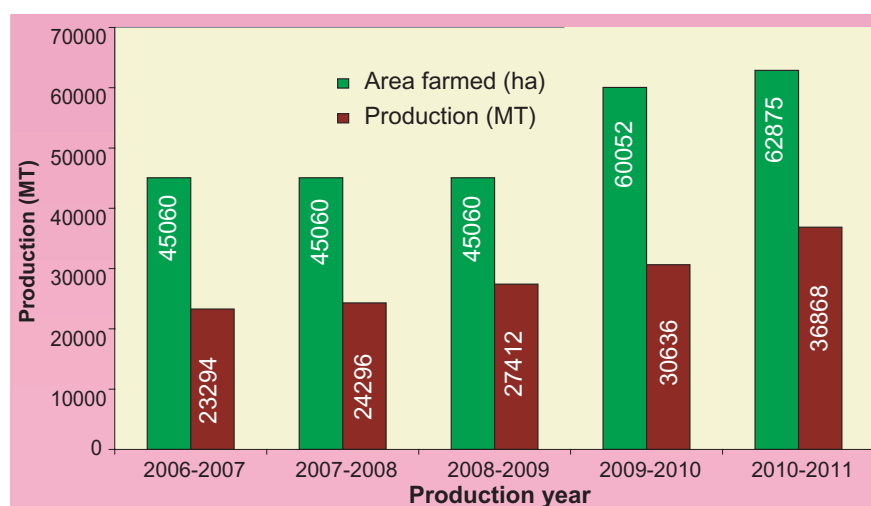


Figure 3: Year-wise production of golda

Table 13: Prawn (*golda*) farming and production

Year	Area farmed (ha)	Production (MT) Prawn
2006-2007	45060	23294
2007-2008	45060	24296
2008-2009	45060	27412
2009-2010	60052	30636
2010-2011	62874	30868

10.2.3 Marketing and export

Almost all farmed produced shrimps are exported as processed frozen sea food and is the second largest export item in Bangladesh. The contribution of fisheries sub-sector to the total export earnings during 2010-11 was 2.73%. Presently 82 processing plants are in operation, all are HACCP certified and licensed by DoF for export of fish and fish products to European Union (EU), USA, Japan, Russia, Korea, China and India. In order to find out new market destination, Ministry of Fisheries and Livestock has already sent proposal to sign MoU with five East-European Nations for exporting fishery products.

As consequence of repeated Rapid Alert System of Food and Feed (RASFF) against Bangladeshi fresh water prawn being contamination with Nitrofurans metabolites especially Semicarbazide (SEM) in May 2009. Bangladesh Government had been imposed six-month voluntary ban on export of fresh water prawn to EU market. The number of RASFF was increased in 2009 because of adopting faulty protocol by Belgian testing laboratory. The Belgian laboratory started testing shrimp with tail and exo-skeleton instead of flesh. Under this circumstances, Bangladesh along with donors and private initiatives undertook several measures to identify source of Nitrofurans contamination. As well as the country has been engaged an international residue expert to research the issue. Finally the fact was identified that live crustaceans are able to synthesize SEM naturally and accumulate it in their shell and tail.

In order to check the quality of exported shrimp the EU authority has imposed 20% mandatory testing requirement at border entry of European countries. MoFL along with DoF taken serious measures to rectify the controlling measures, legal provisions as well as monitoring measures of food contamination. As a result the EU authority has lifted the 20% mandatory testing requirement of exported products at EU border and it is notable that this mandatory requirement still prevails in some large shrimp exporting countries.

Table 14: Contribution of shrimp in frozen food export

Financial year	Total quantity of Fish and Shrimp exported (MT)	Contribution of shrimp/Prawn			Remarks
		Quantity (MT)	Exported (%)		
			Volume	Value	
2006-2007	73704	53361	73.40	89.25	Shrimp loses about 35% of total body weight during beheading and shell off processing
2007-2008	75299	49907	66.28	84.33	
2008-2009	72888	50368	69.10	84.60	
2009-2010	77647	51554	66.39	84.65	
2010-2011	96469	54891	56.90	77.50	

11. Fisheries Resource Management

11.1 Inland Open Water Fisheries Resource Management

Bangladesh has potential of inland open water resources, including 853,863 ha of rivers and estuaries, about 177,700 ha of Sundarbans, 114,161 ha of natural depressions or beels, 68,800ha of reservoir and about 5.5 million ha of floodplains. Annual flooding during the rainy season inundates up to 60% of the total land surface. After China and India, Bangladesh is the third largest country in the world in inland fisheries. The inland open water is inhabited by 260 species of fish and 25 species of shrimp. Despite the existence of huge resources the inland capture fisheries has over the years been replaced as top fish producing source by aquaculture, due mainly to decline and degradation of resources. The priority is given to improve biological management that will restrict the declination of resources and production. The DoF has prepared a sub strategy on Inland Capture Fisheries based on the National Fisheries Strategy 2006 and National Fisheries Policy 1998.

11.1.1 Community based fisheries management

Community based management of resources is a time-derived and successful activity initiated by DoF. Bangladesh is emerging as a country of having positive lessons from community based management of open water. Consultative Group on International Agricultural Research (CGIAR) awarded CGIAR Science Award-2004 to Community Based Fisheries Management Project (CBFM-2) of DoF for its outstanding innovative performance in the field of community-based fisheries management. At present 6 out of 16 ongoing development projects under implementation includes community based fisheries management and more than 0.20 million people are enjoying the benefits.

Establishment of Community Based Organizations (CBOs) and village level sub committees has been recognized as the first and fundamental step in creating sustainable co-management of fisheries resources in the decision making process by user's group. Initial work on networking by community-based organizations has been started at regional level. More emphasis has been given to work with community based fisheries management in the inland capture fisheries sub-strategy.



Community based organization meeting

Floodplains comprises the area of about 70% of the total inland water resources. Among these floodplains, most of them were unused which remain 4-6 months under water. Aquaculture activities are established for generating income of Stakeholders of surrounding areas of the floodplains. SHISHUK is an NGO which for the first time has been implementing a project named 'Pankouri' in Daudkandi upazila of Comilla district. At present six upazila's viz. Doudkndi, Muradnagar, Homna, Titas, Chandina and Meghna of Comilla district has been implementing fish culture in floodplains covering an area of about 4400 hectares and average area of each project near about 30 hectares. The expenditure of the projects is maintaining through the distribution of primary shares. The primary share has been fixed as Tk. 500 to 1000, but 90% of the shares are in Tk. 1000. Beside these, DoF has implemented a development project in the district of Comilla as entitled 'Infrastructure Development for Flood Plain Aquaculture in Comilla District.

11.1.2 Integrated natural resource management

Department of Fisheries is implementing Integrated Natural Resource Management Systems (INRMS) by local users contributes to conserving the biodiversity and livelihoods in the selected wetlands and floodplains of the Jamuna- Padma delta region through Wetland Biodiversity Rehabilitation Project. This activity may be extended in other suitable areas in due course of time.

11.1.3 Fingerling stocking

Natural recruitment of carp spawn and fingerling declining due to human interferences and environmental degradation hampered the productivity of open water capture fisheries resources. To improve the productivity of open water the Ministry of Fisheries and Livestock through the Department of Fisheries initiated regular program from revenue budget to release fingerlings of major carp in open water bodies, floodplains and closed water bodies throughout the country. Stocking of fish fingerling into beels and floodplains is a temporary mitigation measure to address the quick declination of fish production in open water. DoF implements its fingerling-stocking program both under development projects and revenue program.



Fingerling stocking in Dingapota haor

Table 15: Stocking of fish fingerling in open waterbodies and floodplains

Financial Year	Fund allotted Tk. (crore)	Water area (hectare)	Fingerling released		No. of beneficiaries	Remarks
			number (million)	weight (MT)		
2005-06	2.70	124,726	13.94	-	520728	About 40% of the stocked fingerling attain to table fish.
2006-07	2.60	84,815	9.08	-	353709	
2007-08	3.06	58,572	14.13	213.30	399827	
2008-09	3.06	105,787	16.24	218.44	542478	
2009-10	3.37	103,567	14.4	200.45	530347	
2010-11	4.00	123.092	123.92	241.12	2363631	

11.1.4 Beel nursery

Beel nursery has been proved to be a significant tool for increased production of natural water bodies and to increasing fish production. DoF has continued the program in various dead rivers, beels, haor and government/non-government water bodies from 2009-10 fiscal year. During last year 80 beel nurseries were successfully established only the cost of 34.5 lakh taka which produced 247.43 lakh fingerlings (DoF-2010). DoF has continued the program for establishing beel nurseries in suitable water bodies as regular activity from revenue budget to increase natural production in beel areas and the surrounding link water bodies i.e.; low lying rice field, floodplain, other beels, canals, rivers etc. During 2010-11 fiscal year DoF allocated 61.5 lakh taka to establish beel nurseries in various upazilas.



Beel nursery program

11.1.5 Establishment of fish sanctuary

To stop the degradation of aquatic biodiversity specially species diversity of fish and other aquatic species in open water, a set of technical interventions like establishment of fish sanctuaries, fish habitat restoration have been undertaken during the past years. Establishment of aquatic sanctuary is one of the effective tools for conserving fish stock, protecting biodiversity and increasing fish production. During the last five years, total number of 566 fish sanctuaries were established by DoF in different selective water bodies. As a result, a substantial increase in production of fish was found in those water bodies. At the same time there found abundance of endangered species



Fish sanctuary

like Chital, Foli, Kalibaosh, Air, Tengra, Meni, Rani, Sarputi, Pabda, Kajoli, Gojar, Tara baim etc. These efforts also restored the aquatic bio-diversity. On the other hand, to ensure the migration of fish during the breeding period, different connecting canals of rivers, dead rivers and beels were excavated and re-excavated by DoF. Besides, for the conservation and development of Hilsha fishery five sanctuaries were established in the selected river system. Hence, establishment of sanctuary has become obligatory to protect and conserve these species from extinction and increase fish biodiversity.

11.1.6 Fish act implementation

The provisions of Fish Act-1950 safeguard the breeding and growth of carp and other important fishes contributing to increase fish production in the country. Public awareness program were chalked out and implemented by the upazila fisheries offices and during observance of National Fish week 2009 to create mass awareness about Fish Acts. Different awareness materials like posters, leaflets, booklets etc. were printed and distributed. TV spot prepared and broadcasted, street drama staged, workshops/seminars organized to create mass awareness. Appropriate measures were taken to implement the Fish Act-1950 with assistance from local administration and police. Mobile courts were conducted throughout the country and seized and forfeited illegal fishes and nets. Offenders were also penalized on the spot.

Table 16: Enforcement of Fish Acts and Rules during 2010-11

Division	No. of undispensed case in the last year (No)	Present Cumulative no. of case filed (No)	Present Cumulative no. of case disposed (No)	Present no. of undispensed case (No)	Fine imposed by court (Tk)	No. of case	Punishment imposed by mobile court		
							No. of Current Jal seized	Jail	Fine (Tk)
Barishal	1	0	10	0	0	0	312	3	66600.00
Khulna	29	2	0	31	3000.00	0	0	0	12000.00
Rajshahi	21	1	21	21	27	1	452	0	9000.00
Dhaka	141	10	27	124	0	0	82	0	32840.00
Sylhet	79	40	7	112	0	07	8424	12	86800.00
Chittagong	0	0	13	0	48500.00	13	75	0	3400.00
Rangpur	51	11	1	61	1500.00	1	635	26	17700.00
Total	331	64	139	289	53027	22	9980	41	2283.40

Due to the implementation of the fish conservation and protection rules the fishers are affected. Considering the livelihoods of the fishers in the off seasons and during implementation of fish acts, different income generating activities (IGA) program have been undertaken for the affected fishers. The Fig.17 shows the engaged members of the fisher families in different IGA activities.



Fish act implementation

Table 17: Enforcement of Tank Improvement Act and Rules during 2010-11

Division	Last year details of notice		Last year details of notice		Last year details of notice	
	no	area	no	area	no	area
Barishal	17	10.47	0	0	17	10
Khulna	0	0	0	0	0	0
Rajshahi	0	0	0	0	0	0
Dhaka	15	892	0	0	15	8.92
Sylhet	45	12.08	0	0	45	12.08
Chittagong	06	14.24	0	0.65	25	14.24
Rangpur	0	0	02	0	0	0
Total	83	34.59	02	0.65	10.2	45.4

It is observed that more fish acts and rules breaching tendency in the Dhaka, Sylhet, Chittagong and Barisal division during enforcements of the fish acts. This might be due to the abundance of natural water bodies in these areas.

11.2 Marine fisheries resources management

11.2.1 Extension activities

Several meeting were organized to implement Marine Fisheries Ordinance 1983 as an instrument to manage and conserve the marine fisheries resources. Recently, marine fish harvesting directives are being finalized by the active participation of all stakeholders and concerned agencies. Policy for trawler replacement and exploitation of resources is under process and is now in the final stage.

It is mandatory to take fishing license for every fishing boat according to Marine Fisheries Ordinance 1983. Marine Fisheries Office issues the fishing license and renews the license after registration and fitness certificate issued by the Marine Mercantile Department. Awareness building program is going on in coastal districts and upazilas among local fishers, fisher's representative and public representative, local administration and NGOs.



Members of fisher families in income generating activities

Enacting Acts, Rules and Policies

The Fish and Fishery products (Fish Inspection and Quality Control) 1997 provides guidelines for production of safe seafood in trawlers. Post harvest practices are not adequate in artisanal fishery and there are no legislations ensuring quality of imported fishery products. Government has enacted necessary Acts and Rules to ensure quality fisheries production and has already been published the **Fish Feed and Animal Feed Act 2010** and **Fish Feed Rule 2011** for quality and safety food production. Government also issued the **Fish Hatchery Act 2010** and **Fish Hatchery Rule 2011** to produce quality fish seed. Micro credit policy is in final stage too that will be helpful for poor and marginal fish farmer. Besides, the following policies are in pipeline.

- ❖ The Fish Quarantine Act;
- ❖ Necessary action for resizing the Jatka size;
- ❖ Fish Sanctuary Act.

11.2.2 Hilsha fishery development

Hilsha (Ilish) is the National Fish of Bangladesh. As a single species, it has the highest contribution in the country's total fish production which is about 12% of total production. Juvenile hilsha is known as Jatka, sized less than 23 cm. So, it is the very important to protect jatka for ensuring targeted hilsha production. Government has adopted a coordinated programme to protect jatka in the fiscal year of 2003-2004. Government also created a new economic code in the name of jatka protection. Since 2007, Jatka Conservation Week has been being observed in 91 coastal upazilas of 20 districts as a national program to protect jatka and ensure its growth to adult size hilsha. The objective of this programme is to aware all stakeholders regarding the importance of hilsha fishery in our national economy. Every year, the government have executed comprehensive programme for the protection of this natural wealth by ensuring active participation of all stakeholders including local-public representatives, local administration, Coast Guard, Bangladesh Navy, DoF, fishers and mass people residing on the bank of rivers and coastal belt. During ban period, the Jatka/hilsha

fishers are being provided with food-grain at the rate of 30 kg per household (1,64,740 family) for 4 months since February to May each year. Government provided financial incentives and distributed trade materials of about 50 million taka to 1,86,264 Jatka/Hilsha fishers as Alternative Income Generation (AIG) in the year of 2009-10 for not catching jatka during the ban season. As alternative income generating activities, Jatka/hilsha fishers were provided with financial support to run small businesses like rearing of poultry and livestock, operation of rickshaw, van, cart, fruit and vegetables business, running of grocery and tea stall, use of pump and sewing machine, net making etc. Consequently, hilsha production increased from 1.99 lakh mt. (2003-2004) to 3.40 lakh mt. in 2010-11.



Chilling of hilsha for transportation

11.2.3 Marine fisheries resource survey

After liberation, some survey works was done with the help of foreign experts under UNDP assistance. The two survey vessels, R.V. Anushandhani and R.V. Machranga under Marine Fisheries Survey Management Unit is out of commission is awaiting to be disposed as scrap . Eighty three survey cruises have been done by R.V. Anushandhani up to the year of 2001 and nineteen survey cruises have been done by R.V. Machranga up to the year of 1996. So far the pre and post liberation surveys detected 4 fishing grounds, estimated fish and shrimp stock & MSY and two peak breeding season of shrimp. Government also declared a "Marine Reserve" in the Bay of Bengal. As per the Marine Fisheries Ordinance 1983 and the Marine Fisheries Rule, it is established that the fishing area for mechanized and non-mechanized boat is limited within the 40 m depth and for industrial fishing trawler fleet is beyond the 40 m depth.

Table 18 : Gear wise harvesting of fish and shrimp during January to December 2011

Month	Gear					
	ESBN	MSEN	Tong Jal	SMD	LMD	Rocket Jal
January	117.03	2659.45	0.2	320.62	206.31	108.48
February	58.02	144.81	0.22	117.14	100.58	69.58
March	59.61	2119.23	-	279.47	178.82	53.25
April	54.34	2216.99	-	212.8	134.25	71.38
May	68.16	408.44	-	67.8	158.21	709.77
June	73.07	166.53	3.2	96.22	137.53	68.09
July	10.32	128.03	32.69	52.64	-	33.12
August	1.02	75.21	54.22	115.65	21.8	3.23
September	47.94	1981.72	136.66	181.7	57.61	47.94
October	48.32	7312.5	20.67	104.68	287	94.5
November	88.54	7874.49	-	149.15	202.5	55.86
December	71.31	9559.02	-	102.64	29.86	82.62
Total	697.68	34646.42	247.86	1800.51	1514.47	1397.82

At present, a land base survey work is being conducted in selected 13 landing centers in Teknaf, Cox's Bazaar, Sitakunda, and coastal region of Chittagong by technical staffs and scientists of Marine Fisheries Survey Management Unit. From data and information generated of this land base survey, it is possible to know the amount of harvested fish/shrimp in artisanal sector, species composition, catch composition of ESBN catch, length frequency, landed boats, used gears, destructive gear etc. Gear wise harvested fish/shrimp is shown in Table 18 and Figure 4.

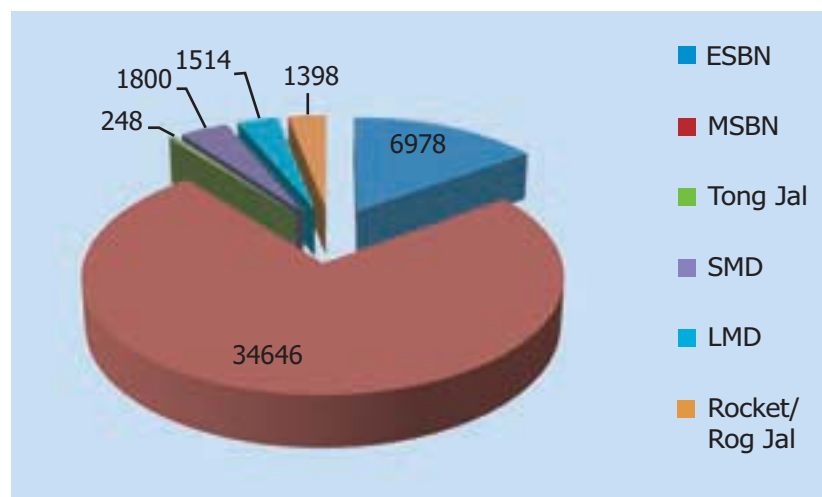


Figure 4 : Gear wise total marine catch (%) at Chittagong and Cox's Bazar in 2011

11.2.4 Fish capture from marine: Shown in Annexure-4

11.2.5 Licensing activities of fishing crafts

It is mandatory to take fishing license for every fishing boat according to Marine Fisheries Ordinance. The license fee is Tk.750-75000/- depending on carrying capacity of deep sea fishing vessel. Marine Fisheries Office issues the fishing license and renews the license after registration and fitness certificate issued by is Mercantile Marine Department (MMD). For the license, every boat has to pay fixed amount as fee by treasury challan.

a. License of fishing trawler

There were 170 trawlers engaged in fishing in the Bay of Bengal in 2010 out of 243 trawlers approved by permission of the Board of Investment (BoI) and Ministry of Fisheries and Livestock and by the order of the Honorable High Court. Out of 57 trawlers permitted by order of the Honorable High Court, 25 trawlers were licensed trawlers and 32 trawlers engaged in fishing on trial basis. In the year 2010, Tk.25,86,000/- (Twenty five lac eighty six thousand taka only) was collected as Govt. revenue by issuing/renewing fishing license. Number of government approved trawler fleet is shown below.

Table19: Government approved trawlers

SL.	Approving authority	Permitted Trawler	Engaged in fishing	Not Engaged in fishing
1.	BOI and MoFL	133	113	20
2.	Hon'l High Court	110	57	53
	Total	243	170	73

b. License of mechanized boat:

According to the survey report by Marine Fisheries Capacity Building Project (MFCBP) in 2010, there are 26,859 mechanized and 23,329 non-mechanized fishing boats engaged in fishing in the Bay of Bengal. Registration and fitness certificate from MMD is pre-requisite for issuing the fishing license. Due to shortage of manpower of DoF in coastal region and prerequisite of MMD registration and fitness only 3,700 mechanized boats was brought under licensing till 2010. In the year 2010, Tk.13,47,050/- (Thirteen lac forty seven thousand and fifty taka only) was collected as Govt. revenue by issuing and renewal of license of mechanized boats.

11.2.6 Inspection of trawler, mechanized boat and equipments

Marine Fisheries Office issues the sailing permission (SP) for the period of 15 days for non-freezer trawler and 30 days for freezer trawler according to Marine Fisheries Ordinance. After completion of each trip fishing trawlers report to the Marine Fisheries Office with submission of fishing logs. The Inspectors of marine fisheries office observe the unloading and collect information about catches. Besides, they check the trawl net and fishing gear during inspection before the sailing of trawler. Inspectors randomly inspected 35-40 trawlers in every month.

Mechanized boat: There is only one Surveillance Check Post at Patenga, Chittagong under Marine Fisheries Office Provisions for checking trawler was kept in the check post but it could not be done due to technical reasons. At present checking license of boat, fishing gears and catches is being done in the check post. Total 421 mechanized boat's license and other papers and gears have been checked in 2010. In this period Tk.5,000/- have been fined for noncompliance.

Inspection of imported net: Some of the net and equipments which are used in trawler are imported by trawler owners as per their requirements. Inspectors inspect the imported nets at unloading and monitor the proper or improper use of imported net.

11.2.7 Identity card (ID) of marine fishers

It is compulsory to take identity card for marine sailors and fishers according to Marine Fisheries Ordinance, 1983. But provisions of introduction of ID card has been stayed by order of the Honorable High Court due to application of Trawler Owner's Association.

11.3 Implementation of Marine Fish Acts**11.3.1 Penalties/case against breaching fish acts**

Bangladesh Navy sometimes seizes foreign fishing vessels and file case against sailors for their illegal activities. The seized trawlers are handed over to Marine Fisheries Office and are disposed off as per Marine Fisheries Ordinance. Marine Trawlers Owners Associations sometimes appeal in the court against Marine Fisheries Ordinance. The government prosecutors appear before the court on behalf of Marine Fisheries Office. Government prosecutors also defend the Department of Fisheries and Ministry of Fisheries and Livestock in the case of license, trial permission etc. with petition filed.

11.3.2 Seizure of fishing vessel

Bangladesh Navy seizes foreign fishing vessel and trawler for illegal entrance in our water area and hand over to Marine Fisheries Office, Chittagong. A total of 56 trawlers and 65 vessels were handed over till now. Marine fisheries office takes every responsibility of the seized trawler and vessel until these are disposed off. At present 4 seized trawlers are under control of Marine Fisheries Office.

12. Fish Inspection and Quality Control (FIQC):

The importance of exportable fisheries products' quality was realized in tandem with the expansion of export market vis-à-vis consumer's demand for quality and safe food. Envisaging this context, government implemented the National Fish Inspection and Quality Control Project in 1976 establishing two regional offices located at Chittagong and Khulna. The office of Dhaka zone was established in 1980 under 'Establishment of National Fish Inspection and Quality Control Service (NFIQC) project at Matshya Bhaban. Without having own laboratory, the initial activities under FIQC, Dhaka were restricted to inspection of fish processing establishments and infrastructure, advisory services for the developments of fish processing plants and processed products as well. Also microbiological tests have been carried out with the assistance of microbiological laboratory of Institute of Post Graduate Medicine and Research (IPGMR presently BSMRMU), Dhaka. Department of Fisheries (DoF) has established another FIQC Laboratory by reshaping construction design, on the 11th floor of Matshya Bhaban building in 1994. Since the creation of lab facilities, testing of microbial quality of exportable fish and fishery products has routinely been performed by the officials of FIQC, Dhaka.

In 2011 there are four LC-MS/MS machines are operating in FIQC labrotary, Dhaka to check the contamination of prohibited antibiotic residues in fishery product. In 2011-12 two more new LC-MS-MS machines have been installed in FIQC laboratory, Dhaka to check the contamination of prohibited antibiotic residues in fishery product. The analysts of the laboratory have trained both locally and abroad to operate the machine as well as performing tests as per ISO 17025. Presence of Chloramphenicol(CAP), Nitrofurantoin(NF) metabolites, Malachite Green (MG), Crystal Violet(CV), Anthelmintics etc. in fishery product are being tested by these LC-MS-MS machines. Besides FIQC Laboratory in Dhaka, two more modern laboratories having chemical and microbiological sections have been established at Chittagong and Khulna by the financial assistance of UNIDO-SFIQC project during 2008-09. Chemical tests for toxic elements in exportable fishery products are being carried out in the laboratories of Bangladesh Council of Scientific and Industrial Research (BCSIR), Bangladesh Atomic Energy Commission (BAEC), Dhaka and Bangladesh Agriculture Research Institute (BARI), Gazipur. More over DoF has started to establish national reference laboratory of international standard through EU-Project Aid.

The export earning of the country was Tk. 3352.89 crore by exporting 73704 MT of the fish and fishery products in 2006-07 during the previous government. In 2009-10 export value and quantity of fish and fishery products was Tk. 3408.52 crore and 77643 MT respectively and in 2010-11 total remittance was Tk. 4604.00 crore for exporting 96469 MT of fish and fishery products. During three years regime of present government, export earnings from fish and fishery products increased by 37.30% in spite of the world's economic recession.

12.1 Licensing Activities:

Licenses are issued or renewed annually considering overall condition of Fish processing plants, Fish packaging centers, Factory trawlers, Non-packer exporters, Fish drying yards, Fish suppliers and Depots according to Fish and Fishery Products (Inspection and Quality Control) Rules, 1997 (amended in 2008). The number of fish processing plants, factory trawlers, fish packaging centers, non-packer exporters, etc. are as follows.

Table 20: Number of different of establishments involved in fish export value chain

SL.	Type of Establishment	Number (Licensed in 2011)	SL. NO.	Type of Establishment	Number (Licensed in 2011)
1.	Fish Processing plants	82	2	Fish drying yards	16
3	Factory Trawlers	65	4	Suppliers	60
5	Fish Packing Center	31	6	Depots	634
7	Non Packer	64	8	Service/Landing center	48

12.2 Routine Monitoring of Quality Assurance Program (QAP)

To ensure HACCP system of fish processing plants, factory trawlers, packing centres and other establishments involved in fish processing activities are regularly inspected and monitored as per provisions of Fish and Fish products (Inspection and Quality Control Rules 1997) (amended in 2008), given emphasis on:

- ❖ Hygiene and sanitation of the establishments concerned,
- ❖ Personal hygiene of working personnel,
- ❖ Monitoring of the activities involved in fish process line,
- ❖ Monitoring and verification of own-check systems of the establishments concerned,
- ❖ Verification of traceability documents,
- ❖ Evaluate Good Manufacturing Practices (GMP) and verification of HACCP documents,
- ❖ Annual inspection of fish processing establishments for renewal of licenses, and
- ❖ Provide necessary advice and suggestions to ensure QAP.

12.3 Fish Products Inspection:

DoF competent authority inspects a declared consignment of exporter after getting an application along with commercial invoice, packing list, purchase contract or L/C copy for pre-shipment inspection and application fees. Assigned Inspector usually verifies traceability documents, stock, storage condition, packing, labelling and relevant documents of processed products during inspection. Then Inspectors check organoleptic quality of randomly selected samples. Having satisfactory organoleptic assessment and product documentation the assigned Inspector draws samples as per sampling plans for bacteriological and chemical analysis as required by importing countries. Finally, Inspector submits report on products, processing practice and relevant documentation process to the competent authority for pre-export test and certification.

12.4 Quality Assurance of Fish Products:

12.4.1 Microbiological tests

Samples drawn by Inspectors are tested in Microbiological Laboratory under respective FIQC office for assessment of *Salmonella* sp, *Vibrio cholera*, *Vibrio parahaemolyticus*, Total and Faecal coliforms and to estimate Standard Plate Count (SPC). Reports of microbial tests are evaluated for compliances with Microbiological standards stated in ISO/ICMSF for issuing Salubrity certificates.

12.4.2 Chemical tests

Presence of prohibited antibiotics especially Chloramphenicol (CAP) and Nitrofurantoin (NF) metabolites in shrimp has become the major concern for EU countries in the recent years. FIQC laboratory, Dhaka is conducting tests for analysing residues of CAP and NF metabolites (AMOZ, AOZ, AHD & SEM) Crystal violet (CV) and Malachite green (MG) and its metabolites (LCV & LMG) as well as Flubendazole by LC-MS-MS as per EU regulation. Moreover FIQC, Chittagong laboratory is conducting tests for analysing Stilbenes and Steroids. BAEC is conducting tests for heavy metals (Lead, Cadmium, Mercury, Chromium and Arsenic, BCSIR is for Tetracyclines & Mycotoxins and BARI is for Pesticides.

12.4.3 Water, ice and swab tests:

Monitoring samples of water, ice and swab samples collected from fish processing industries are analyzed for SPC and total/faecal coliforms in order to assess the quality of water and ice of fish processing industries, and swab tests results indicate general hygienic and sanitation condition of contact surfaces (workers hand surface and food contact surfaces). Any non-compliance situation if detected by test is soon reported to concerned factory authorities for taking corrective measures as per Fish and Fish products (Inspection and Quality control) Rules 1997 (Amended in 2008).

12.4.4 Aquaculture residues monitoring through NRCP

Monitoring of residual existence of antibiotics, pesticides, hormones and other chemical elements in farmed shrimp, fish, feed or water is one of the main activities in FIQC. For effective monitoring of Chemical residues in aquaculture products, National Residue Control Plan (NRCP) has been introduced since 2010. NRCP samples of shrimp, fish, feed, water etc are collected and tested in FIQC laboratories and in associated laboratories (BAEC, BCSIR and BARI) as per provision of NRCP policy guideline. NRCP plan 2011 is given in the Annexure- 6 and 7.

12.5 Export of Fish and Fisheries Products

Bangladesh exports frozen shrimp and other fish and fisheries products to EU, USA, Japan, Russia, Hong Kong, Singapore, Saudi Arab, Sudan and other developed countries. This success is due to export of quality shrimp processed by introducing HACCP and traceability system implemented in the country according to the requirement of European Union (EU) and USA. Year wise export volume and value of fish and fisheries products shown in the Table 20.



Shrimp producing farms

Farm produced black tiger shrimp (bagda)

Table 21. Year wise export of fish and fisheries products

Financial Year	Quantity Exported ('000 MT)	Earning (Crore BDT)	Financial Year	Quantity Exported ('000 MT)	Earning (Crore BDT)
2003-2004	54.00	2363	2007-2008	75.00	3396
2004-2005	64.00	2572	2008-2009	73.00	3274
2005-2006	69.00	3030	2009-2010	78.00	3408
2006-2007	74.00	3353	2010-2011	96.50	4604

Moreover, the present government is supported exporters by providing 10% cash incentive, reduced interest rate on capital etc. to sustain continuous growth of exports of this sector. The exporters are introducing new value added products instead of traditional block products to meet the demands of the global market. The global fishery markets have expanded from east to west and north to south over the years.

12.6 Traceability

To ensure the traceability of shrimp value chain ensured by incorporating Rule-23 in the Fish and Fish Products (Inspection and Quality Control) rules 1997 (amended in 2008). The Upazila Fisheries Officers as well as shrimp farmer of the shrimp producing areas trained up on implementation of traceability. About 190,000 shrimp farms and 9624 fin fish farms were registered for implementing Traceability. About 22000 number of officers, shrimp farmers and other stakeholders who are directly involved in this sector were trained on HACCP system and Traceability for strengthening fisheries quality control program. Beside this, job of the 41 personnel shifted from project to revenue set up.

12.7 Hazard Analysis and Critical Control Point (HACCP) implementation:

Safe and reliable production of quality seafood for global market is a recent challenge for Bangladesh. Previously quality issues mainly dealt with decomposition, filth content and contamination of pathogenic bacteria of post harvest chain. Recently, environmental aspects, human rights, i.e. child labor, gender issues, etc. have gained prominence. These have been compounded by enactment of the Bio-Terrorism Act, Anti Dumping Act, Food Safety Modernization Act 2011 and Traceability Regulation for this business sector. To ensure safe fish and fish products for the markets, the government has undertaken stringent measures to improve QAP and strong compliances of HACCP guidelines. Department of Fisheries has imparted training to the relevant manpower on HACCP system. Sanitary and Phyto-sanitary measures are followed as per WTO agreement. Transportation network was developed. Waste water treatment plants (ETP) were installed. Awareness building training provided on traceability and Eco-leveling Act to the processors and suppliers.



Processing activities in fish processing factory

FIQC Dhaka laboratory audit by EU-FVO Mission 2011

12.8 Task Force Committee:

In shrimp production and processing areas Task Force Committee was formed mainly in Khulna and Chittagong to control the unhygienic systems in every stages of the production, transportation and processing of shrimp. District level Task Force Committee was made headed by respective Deputy Commissioner with member Secretary of respective District Fisheries Officer. Their activities are to develop depot, landing centres and registration of Shrimp hatchery, nursery and shrimp farm /Gher etc. Ensure establishment of sanitary latrine removing unhygienic kacha latrine in the adjacent shrimp farming area. According to HACCP system, shrimp production and processing should be ensured by task force committee.

12.9 FIQC Training Activities:

As training is essential tool for increasing skills and competence to provide quality services, the department provides training for the officers of FIQC on Food Safety, ISO standards, GMP, GAP and GLP, operation of LC-MS/MS machine and other Lab related activities and other necessary topics related to quality control regularly. Some FIQC officers were trained from abroad both in Laboratory (microbiological and chemical aspects) and Inspection side. Report of training conducted shown in Annexure-8.

Action Plan and its Implementation: Shrimp of aquaculture origin of Bangladesh being contaminated by the NF metabolites evolved through repeated Rapid Alert System for Food and Feed (RASFF) from EU in 2009. National Working Committee (NWC) was formed comprised of representatives from MoFL, MoC, MoL, MoEF, DLS, BDA, development partner's, food business operators, promoters of aquaculture and quality control sector headed by Joint Secretary (Fisheries), MoFL. The NWC is working since 2009 to combat the issue by formulating annual action plan.

13. Human Resource Development

Human resource development is mandatory for DoF to enhance administrative, management and technological capacity in fisheries sector. The HRD activities meant to enhance capacity in the area of administrative, management, technological aspects and relevant cross cutting issues for conserving and managing the fisheries resources in sustainable manner. The ultimate objective is to augment productivity in fisheries sector, alleviate poverty, address gender issues, reduce unemployment and contribute balanced development having regard to goals and objectives of the national development plans. As a part of National Fisheries Policy implementation, DoF has developed a Human Resource Development Sub-strategy. DoF has organized both in-country and overseas training as major tool for technology transfer and extension activities in order to disseminate new technologies at field level. For this purpose regular training programs are being conducted from both revenue and development budget of DoF for the skill development of concerned personnel including DoF officials, fishers, fish farmers, unemployed youths, distress women, landless and marginal farmers etc. For the continuation of fisheries training, Government already created a new sub-head named "training" in the revenue budget. The progress of training activities at a glance is shown in Table 22.



Farmer's training on fish culture

Table 22: Progress of training activities

Financial Year	In Country Training	Foreign Training		
	Government personnel	Fish Farmers/ Fishers/ NGO personnel	Government personnel	Fish Farmers/ Fishers/ NGO personnel
2005-2006	1258	54,228	84	05
2006-2007	4309	57,128	44	02
2007-2008	2050	45,258	49	01
2008-2009	2801	51,761	118	06
2009-2010	3230	54,527	69	08
2010-2011	3500	60000	99	13
Total:	17693	3,17,647	658	91

13.1 Gender Issue

About 50% of our population is women. Therefore, women's participation in aquaculture and fisheries activities is very crucial for the socio-economic development of the country. Department of Fisheries (DoF) is trying to introduce women friendly aquaculture and fisheries technology so that more and more women especially poor women can come up with these activities to make them self dependent as well as empowered in the family and in the society. With this view, Department of Fisheries has been carrying different development projects and programs throughout the country where at least 25% women's participation is mandatory. Department of Fisheries also has been providing need based training specially for women in different field of aquaculture and fisheries. On the other hand, women also showed their capability by successful operation of some of these programs.

13.1.1 Gender equity

There has been spacefic provision in the development projects and programmes of DoF to include 25-30% women in the community groups. Department of Fisheries (DoF) is responsible for the protection, conservation and development of fisheries resources in Bangladesh. For this purpose, DoF has been executing various programs and plan of actions irrespective of social stratification, geo-location, and gender. However, from the recent past, Department of Fisheries has shifted its focus from single approach to community based approach, from common aquaculture to pro-poor aquaculture and also shifted focus on gender issues.

13.1.2 Women participation in fish culture

At present women (specially rural women) are getting success in different types of aquaculture like pond aquaculture, integrated aquaculture, fry raising, shrimp culture, crab culture etc, and also fish feed preparation. Fourth Fisheries Project (FFP), one of the biggest projects of DoF, which covered 211 Upazilas of the country, has trained up 200,000 farmers in different aspect of aquaculture.



Fish harvesting by a rural women from pond

Out of these 200,000 farmers 25% (about 50,000) are women. In IFAD project of Faridpur 96% beneficiaries are women. In Greater Noakhali Aquaculture Extension Project (GNAEP), total 35,064 beneficiaries are engaged in aquaculture, out of which 50% (17081) are women. In poverty alleviation through integrated aquaculture project, at least 40% are rural women beneficiaries. Some national and local NGOs involve women in aquaculture activities along

with DoF. The participation of women in NGO assisted aquaculture is also very encouraging. The aquaculture program run by CARITAS included 53% women participants.

13.1.3 Women participation in fish harvesting and processing

Bangladesh is earning a substantial amount of foreign currency by exporting processed fish and shrimp. In the fish processing industries throughout the country, 90% are women workers. DoF has been providing necessary training on HACCP and traceability as well as health-hygiene of the workers as such more and more women are involved in this process and exporters can export their goods maintaining EU regulations. A large number of women are also engaged in icing and drying fish especially in the coastal region of the country. Some are engaged in fish trade and some are working as middle men. In the rural Bangladesh, women are taking part in pond digging, de-weeding, de-watering etc. Fishers' women of Bangladesh are also engaged in net making and other gears making activities.

13.1.4 Women participation in jalmohal management

During the recent years, women are working in the beel, haor, baor, flood plain etc. along with the male members and sometimes in a separate female group. DoF has special package of training program for these female groups. As a result, they are now managing these types of jalmohals very successfully and contributing the national production. On the other hand, female members are encouraging people not to use harmful insecticides and pesticides in the agricultural land and water bodies. They are also playing a vital role in the execution of fish act by motivating people.



Fish harvesting by a rural women from jalmohal

14. National Fish Week 2011

The Father of the Nation Bangabandhu Sheikh Mujibur Rahman inaugurated **More Fish Culture Movement in 1974** by releasing 20,000 carp fingerlings at Gonobhabon Lake. Following that movement, National Fish Campaign is being observed throughout the nation to create mass awareness to impart in the process for harnessing the potential from fisheries sector for economic growth of the country since 1993. National Fish Week 2011 has been observed country wide from 20-26 July with due emphasis on fish culture for food safety. The commemorative slogan for National Fish Week 2011 was *Nirapad Mache Varbo Desh, Bodle dibo Bangladesh*. At the instruction of the Prime Minister, the Ministry of Fisheries and Livestock through the Department of Fisheries took up a program to build up awareness for conservation of fisheries resources among the people and to motivate them for participation in technology based improved fish culture for increased production of fish and shrimp.



Inauguration session of the National Fish Week 2011



Fingerling releasing by the Honorable Prime Minister Sheikh Hasina

A distinctive character of the "National Fish Week" has been the direct participation of the head of the state, the President; head of the government, the Prime Minister; Speakers of the National Parliament; Cabinet Ministers. The Honorable Prime Minister of Bangladesh has inaugurated the national event on 21 July 2010 in the Osmani Memorial Auditorium. Before the inauguration a grand Road Rally was arranged where the Hon'able Minister and respected Secretary MoFL, DG, DoF and BFRI, Chairman, BFDC and officials from MoFL, DoF, BFRI, BFDC, DLS, NGO representatives and other sections of peoples were present. In the inaugural day, special supplements were published in four national dailies- The Daily Star; The Daily Prothom Alo, The Daily Janokontha and The Daily Samokal. A press briefing was also arranged on 19 July 2011 to disseminate the significance of the national Fish week. Four seminars were organized on various topics of fisheries importance. Various events like discussion and awareness meeting, fish fair, organized training for unemployed youths, essay competition for school and college students, art competition, execution of Fish Acts and mobile courts were also arranged.

Table 23: List of the winners for National Fish Week 2011 awards

Sl. No.	Field area	Name of the Person/Organization	Award
1	Spawn production	Jalak Fish Spawning center Hatchery Ajit Kumar Chowhan Gouripur, Mymensingh.	Gold Medal, 30000/- cash and a Certificate
2	Fish production	Afil Aqua Fish Ltd. Alhaj Sheikh Afil Uddin MP Jessore Sadar, Jessore.	Gold Medal, 30000/- cash and a Certificate
3	PL production of shrimp (Golda)	Hangfu Shrimp Industries Dilip Kumar Saha Gopalganj Sadar, Gopalganj.	Gold Medal, 30000/- cash and a Certificate
4	PL production of shrimp (Bagda)	Radiant Hatchery Md. Safikur Rahman Chowdhury Ukhia, Cox's-bazar.	Gold Medal, 30000/- cash and a Certificate
5	Export of fish products (Frozen shrimp/fish/dried fish)	Kuliarchar Sea Foods (Coxsazar) Alhaj Mohammad Musa Miah Kuliarchar Kishorganj.	Gold Medal, 30000/- cash and a Certificate
6	Spawn production	Niribili Polli Hatchery Md Anwer Hossan Sardar Chachra, Jessore Sadar, Jessore	Gold Medal, 30000/- cash and a Certificate
7	Spawn production	Mammi Matsya hatchery Md Rahamat Ali Shekh Tatibhanda, Sujanagar, Pabna.	Silver Medal, 20000/- cash and a Certificate
8	Spawn production	Mahalaxkmi Matsya Khamar and Projonon Cando, Badal Myatra, Talsan, Adamdikhi, Bagora.	Silver Medal, 20000/- cash and a Certificate
9	Fry/Fingerling production	Desh Bandhu Nursery and Hatchery Md. Mansur Ali and Promod Barman Mymensingh sadar, Mymensingh.	Silver Medal, 20000/- cash and a Certificate
10	Fry/Fingerling production	KK Dairy, Poultry and Fisheries Kohinur Kamal. 1367, CDA, Chittagonj, Sadar, Chittagonj.	Silver Medal, 20000/- cash and a Certificate
11	Fish production	Remi Farms Lt. Md. Meran Ali Jhayerpar, Trishal, Mymensingh.	Silver Medal, 20000/- cash and a Certificate
12	Fish production	Bismilla Maysta Beez Utpadon Cantro and Khamar, Md. Samchuddin Kalo Langolcoat, Comilla.	Silver Medal, 20000/- cash and a Certificate
13	Fish production	GE Maytsa Khamar Md Mamnur Rashid Birampur, Denajpur	Silver Medal, 20000/- cash and a Certificate
14	Fish production	Md Altaf Hossain Tarsh, Serajgonj.	Silver Medal, 20000/- cash and a Certificate
15	Fish production	Monatch Jadoganala Matsya Chas Samobay Somity Ltd. Biplo Chakma Khagrachori, Sadar.	Silver Medal, 20000/- cash and a Certificate
16	Shrimp (Bagda) production	Md. Aktar Hasan Koyra, Khulna.	Silver Medal, 20000/- cash and a Certificate
17	Contribution/Technology/ Innovation in Fisheries Resource Development	District Administration, Chandpur On behalf of District Task Force Committee.	Silver Medal, 20000/- cash and a Certificate

15. Implementation of Development Projects

Government has taken necessary initiatives at the very beginning to increase investment for expected development of fisheries sector. An amount of taka 13547.00 lakh has been allocated for 23 development projects in the financial year 2010-2011 under the annual development program of DoF. The actual expenditure and achievements were 12903.42 lakh and 96% respectively. Some programs are also submitted to the ministry for budget allocation from revenue head. The list, allocation and expenditure of DoF development projects and programs for vision 2021 are shown in Annexure 9 and 10.

16. Information and Communication Technology in Fisheries

While Awami League's Charter for Change announced the concept of Digital Bangladesh as an integral component of **Vision 2021**. The 6th Five Year Plan and Bangladesh Country Investment Plan places an equal importance to Digital Bangladesh as part of the nation's development strategy. The Information and Communication Technology (ICT) Policy 2009, ICT Act 2009, Right to Information Act 2009, various local government acts promulgated in 2009 laid the foundation for identifying the Digital Bangladesh priorities for the government.

As such, a strategy document 'Setting Digital Bangladesh Priorities' is being drafted to integrate the goals of Digital Bangladesh with those of key development sectors to harmonize top level priority setting through a participatory and inclusive approach. Digital Bangladesh is an idea that includes the IT use for management, administration and governance to ensure transparency, accountability and answerability at all levels of society and state.

ICT section of DoF is also a combination of physical backbone and intellect. Computer

Systems, Network Machineries, Software, Wire and Wireless Connectivity Systems, Broadcast Hardware and many other Hardware and Accessories are the physical backbone. DoF already supplied computer and accessories in 381 upazila offices and all division and District level for ICT development and digital communication. The trained human behind the backbone are the intellect. To materialize the idea of digital Bangladesh,



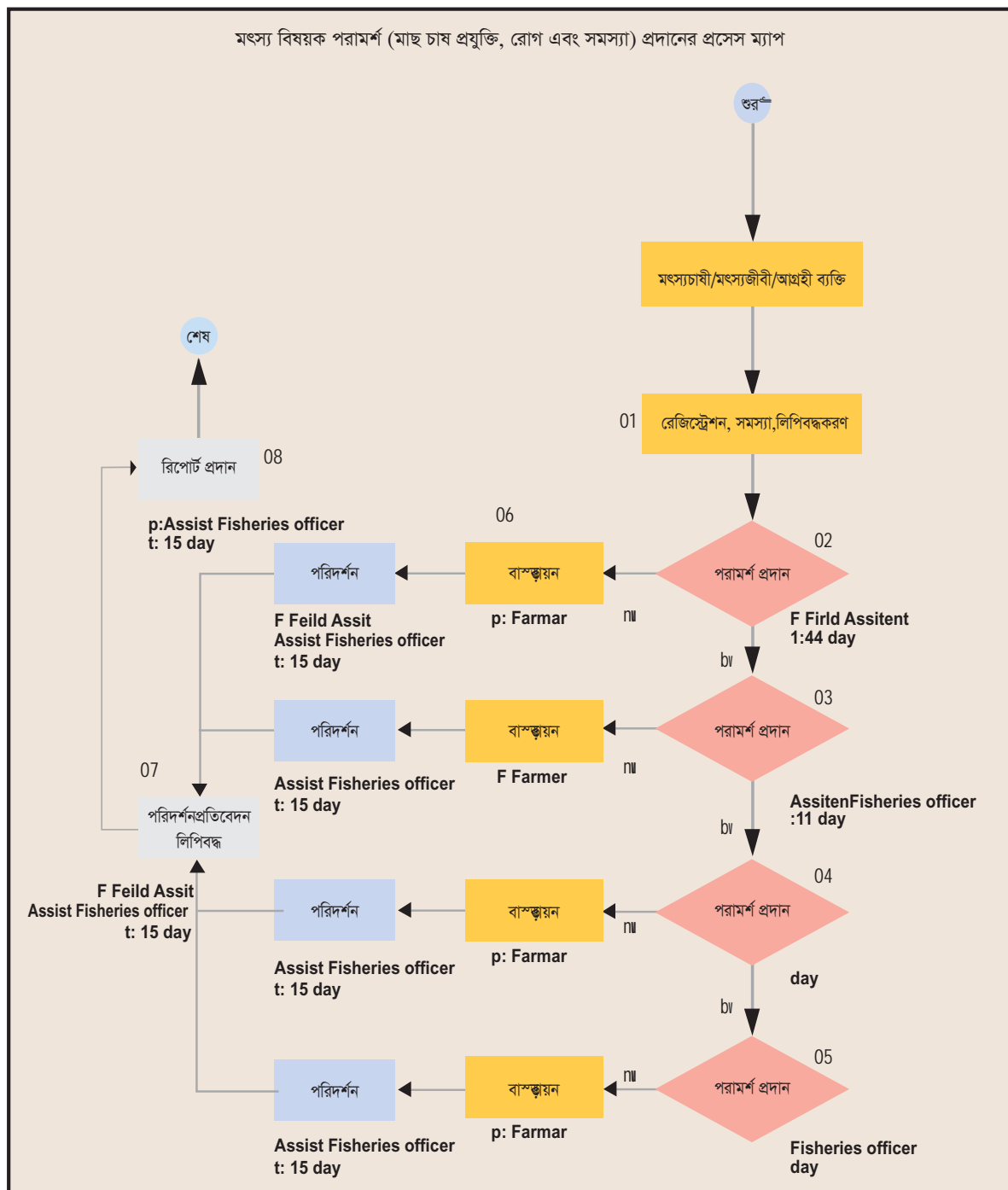
DoF Server

development of countrywide backbone and expected number of human resources are the basic needs. So that DoF has built up an ICT core team. On the other hand, while mass people are concern, availability, accessibility and affordability must be ensured; otherwise the objective of building a digital Bangladesh could not be achieved properly.

Educated workforce is important for another cause. IT is not only a hardware that could be run by a particular skill only. It is a knowledge driven technology. So, it need to run with them who have skill, knowledge, information and a level of education. So that, DoF is gradually developing DoF personnel through network based training both for ICT core team members and other personnel of the department of Fisheries.

Doorstep Services:

This issue covers what delivery channels are used for solving the fish farmers' problem for taking services to citizens in disadvantaged areas. This issue covers Digital Communication particularly, DoF Headquarters to Upazila level. Last year 2011 DoF connected Headquarters to District level office under E-mail connectivity for quick service. Ten upazila and 10 villages under A2I program also connected under digital communication. Implementation of 'e-Extension Services for Need Based Aquaculture Extension' program through the Department of Fisheries, MoFL would be used of IT in the fisheries sub-sector, a forward step towards 'Digital Bangladesh'. A2I or one stop service flow chart is given bellow-



16.1 Activities of Fisheries Information and Communication Center (FICC)

'e-Extension Services for Need Based Aquaculture Extension' is an on-going pilot program of DoF. The program is being implemented by "Access to Information Program (A2I)" of the Prime Minister's Office with technical and financial assistance of UNDP. The main objective of the program is to ensure quick delivery of services on fish culture and extension to relatively remote areas through using of information and communication technology (ICT).

This pilot program of 'e-Extension Services for Need Based Aquaculture Extension' will provide important contribution to fisheries sub-sector. The fish farmers can receive the following services:

- ❖ Fish farmer will get support in solution of their problem from e-LEAF(e-Local Extension Agent for Fisheries). If the e-LEAF cannot solve the problem or unable to solve any problem, he (e-LEAF) would immediately contact with the Senior/Upazila Fisheries Officer or District Fisheries Officer through mobile phone/teleconference or videoconference and discuss the particular problem with them for getting suitable suggestions of the problem.
- ❖ Successful implementation of this FICC program will ensure and provide quick and on spot solutions to fish farmers.
- ❖ Information regarding fish culture/aquaculture will be easy reachable to general mass through this program. FICC will be enriched with extension videos, audios and other extension materials and tools regarding fish farming.
- ❖ As per demand of fish farmer e-LEAF will visit fish farmers' pond/farm/gher and suggest on spot to solve the problems.
- ❖ This program will augment mass awareness among those who wants to go for fish farming or those who are engaged in fish farming.
- ❖ Fish farmers will get hand-on practical and technical knowledge regarding fish farming.
- ❖ E-LEAF can provide easy and door steps service delivery on fish farming and extension to fish farmers using IT equipments and related accessories.
- ❖ Selected e-LEAF will serve on honorary basis (with no salary) without affecting the aims and objectives of the FICC. It may support to his livelihood using the IT tools.
- ❖ For unknown and special problems SUFOs/UFOs and the DFOs have to consult with respective personnel of DoF HQ through video conferencing to get quick solution of the problem. A video conference team is already formed by DG of DoF to provide such services immediate solution of farmer's problem.

This 'e-Extension Services for Need Based Aquaculture Extension' program being primarily implemented in 10 villages of the country with the technical and financial assistance of the UNDP, will not only contribute to increase fish production but will enhance IT capability of the local people. Depending on the success, the program would be extended to other parts of the country. In 2011 by implementing "Access to Information Program (A2I)" a large number of Fish farmer and rural people are benefited which are given bellow.

Table 24: Service of e-LEAF to fish farmer and general people

SI No.	Reporting Year	No. of fish farmer directly benefited from FICC	No. of people directly benefited from FICC
1	2011	2772	4920

Participate in Digital Innovation Fair 2011

Prime Minister Sheikh Hasina inaugurated the three-day Digital Innovation Fair 2011 on Thursday, 6-8 July at Bangabandhu Novo Theatre Complex in Dhaka aimed at showcasing the government initiatives to digitize the country in line with its electoral pledges of building a Digital Bangladesh. UNDP-supported Access to Information (A2I) Program at Prime Minister's Office (PMO) and Ministry of Science and ICT jointly organized the fair. Almost all the ministries and departments took part in the fair including Department of Fisheries.

Displayed materials in the digital innovation fair-

- ❖ Display interactive and dynamic website of MoFL and DoF;
- ❖ Display live video and teleconferencing of fish farmers with the field level officers, HQ of DoF; through the established FICC;
- ❖ Display Fish advice system web portal;
- ❖ Audio-visual display of DoFs institutional materials;
- ❖ Display of documentary and videos on fish culture, management and conservation;
- ❖ Display videos on all on-going development programs of the DoF.



Digital Innovation Fair 2011

16.1.1 FICC entrepreneurs training program

Review training for entrepreneurs of the Fisheries Information and Communication Centre (FICC) was held in districts of Bangladesh near FICC with a view to increase fish cultivation by providing necessary information services to rural area. The DoF will set up 21 FICCs in different areas across the country. Access to Information (A2I) Program has been providing technical assistance and training to entrepreneurs and DoF officials. In 2011 DoF attached the e-leaf's for 15 days to local Government Fish farm for practical experience.

16.1.2 "Quick Wins" service in e-Governance

Ensuring access to the Digital Bangladesh for all citizens, poor or rich, literate or illiterate, urban or rural is another foundation of Digital Bangladesh. As the government moves to delivering information and services through different ICT channels, citizens' awareness, capacity and access to these services must commensurately grow. Shared ICT access points in public locations such as local government institutions, post offices, and schools will be established. Fish advice system, a Bangla web portal and Smart FAQ has developed and delivered through internet. Two way communication channel to promote participation of grassroots in decision making and provide feedback to the government will be instituted.

An e-Governance review meeting at the Prime Minister's Office has revealed that citizens are now getting e-services from at least 12 e-Governance initiatives of various ministries, divisions and agencies. As many as 50 government officials from different ministries gathered at the Prime Minister's Office on which had been earlier taken to provide quick services to citizens' doorsteps through user-friendly electronic devices. The UNDP supported Access to Information (A2I) Program, an umbrella initiative at the Prime Minister's Office which plans and coordinates the on-going and future e-Governance activities, organized the event.

Department of Fisheries acts as the Monitoring Unit of this pilot project. Establishment of Fisheries Information and Communication Centre (FICC) by DoF is an important step to this program. An e-LEAF is entrusted with the management and operation of FICC. Fish farmer can ask for one stop technical service in the FICC for fish farming problems.

16.2 Future Plans

With the aim of building 'Digital Bangladesh' by the year 2021 the Government is committed to support and ensure the use of IT in the respective areas of aquaculture and management. For timely and need based service delivery to the door steps entrepreneurs, fish farmers and fishers can be ensured with transparency and good governance.

- ❖ Introduce e-extension strategies
- ❖ Dynamic website management
- ❖ Prepare database on geo-physical environment related to fisheries and regular update
- ❖ Prepare resource-wise database on inland open waters and regular update
- ❖ Introduce use of geographical information systems (GIS) in fish culture and resource management planning
- ❖ Introduce IT based monitoring, control and surveillance in marine fisheries management
- ❖ Introduce IT based management information system (MIS)

16.3 Success Story of ICT Section of DoF

The ICT section of the Department of Fisheries has established a separate web-based fish advice system and "Quick win" services as and linked to DoF's main website as directed by the Prime Ministers' Office. This web portal is built in Bangla for fish farmers and other stakeholders. A farmer will get suggestions from FICC/AICC/Union Communication Center as they expected from Senior Upazila/Upazila Fisheries Officer directly. This site is divided into two parts- (1) Fish disease advice system and (2) Fish culture technology advice system- both are totally dynamic. This advice is produced as desire of fish farmers. DoF can feel proud for this attempt so that other agriculture related agencies/ organizations could not built up that type of dynamic website. This website was displayed in 2011 digital innovation fair held in Bangobandhu Novothearte and was highly appreciated by visitors. This is totally a separate web portal, address is www.fishadvice.gov.bd. This is linked in main website. The home page of this website is shown here.



Home page of the website of DoF

17. Good Aquaculture Practice

There are a good number of success stories in both public and private sectors for enhanced aquaculture production and fisheries resources management through participatory co-management system. It is imperative to disseminate the success stories of this sector under the preview of "Dissemination of Good Practices in Fisheries Sector" for promotion and expansion of the technological interventions to other regions of the country for improved resource management. In these dissemination workshops all categories of stakeholders viz. the beneficiaries, NGO's, DoF officials, local administration, social workers and local representatives get the opportunity to share the best practices which expand the possibility to replicate it to other regions or locations.

Department of Fisheries through assistance from Strengthening Institutional capacity of DoF Project, IPAC, WorldFish Centre organized seven dissemination workshops in different districts as titled "Dissemination of Good Practices in Fisheries Sector" in Deputy Commissioner's Conference office under the chairmanship and Secretary, Ministry of Fisheries and Livestock was the Chief Guest of the seminar covering a hundred of participants in related discipline including all categories of stakeholders. The good practices on open water management and other innovative technologies were highly appreciated in the seminar and the administration was convinced to cooperate in dissemination process.

18. International Co-operation and Liaison with Development Partner Agency

To intensify the enhancement fisheries development of the country DoF has joined the international Fisheries Cooperation. DoF maintain a close liaison with a member of donors for technical and financial assistance for implementation of diversified activities under the sector. DoF recognizes the assistance receipt from the donors with great pleasure and importance. DoF welcomed more involvement of donors for manage the diversified fisheries resources of the country to obtain the benefits for her population. At present UNDP, FAO, World Bank, USAID, GIZ, IFAD,, EU, DANIDA, IDB, The World Fish Center etc. are the development partners of the different ongoing projects.



A delegation lead by Honorable Secretary, MoFL in Bremen, Germany

19. Conclusion

It is expected that implementation of fisheries activities will facilitate the creation full time employment opportunity of 4.62 lakh (unemployed people) during the financial year 2012-13 and 7.88 lakh during the financial year 2020-21. Besides this, the sector will be able to create part-time employment for 9.91 lakh in the financial year 2012-13 and up to 32.71 lakh by the financial year 2020-21. The total fish production will be increased up to 34.00 MT by the end of the FY 2012-13, in view of achieving the targeted food security by the year 2013 as declared by the Honorable Prime Minister Sheikh Hasina. MoFL and DoF have undertaken massive activities to achieve desired production of fish to meet the animal protein requirements up to 63%. It is believed that if the increasing trend of development activities of the present democratic government continues, it will be possible to achieve the Millennium Development Goal (MDG) by enhancing production, creating employment opportunity, reducing poverty and ensuring food security to facilitates achieving of the Sonar Bangla, the dream of the Father of the nation, Banga Bandhu Sheikh Mujibur Rahman.

Annexure

Annexure 1: Year-wise fish production in Bangladesh during last 10 years [Unit: Metric Ton]

Source	Production Year									
	2001-02	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11
A. INLAND FISHERIES	1,475,039	1,566,289	1,646,819	1,741,360	1,848,735	1,952,573	2,065,723	2,381,917	2,381,916	25,15354
(a) Inland Openwater (Capture)	688,435	709,333	732,067	859,269	956,686	1,006,761	1,060,181	1,029,937	1,029,937	10,54585
(1) River and Estuaries	143,592	137,848	137,337	139,798	137,859	136,958	136,812	153,695	153,695	144566
(2) Sundarbans	12,345	13,884	15,242	15,724	16,423	17,751	18,151	8,109	8,109	22451
(3) Beel (Depression)	76,101	75,460	74,328	74,925	76,365	75,137	77,524	70,209	70,209	81564
(4) Kaptai Lake	7,247	7,025	7,238	7,379	7,548	8,085	8,248	7,117	7,117	8980
(5) Flood Plain	449,150	475,116	497,922	621,443	718,491	768,830	819,446	790,807	790,807	797024
(b) Inland Closewater (Culture)	786,604	856,956	914,752	882,091	892,049	945,812	1,005,542	1,351,980	1,351,979	327285
(1) Pond and Ditch	685,107	752,054	795,810	756,993	759,628	811,954	866,049	1,140,485	1,140,484	1270966
(2) Semi-Closed	0	0	0	0	0	0	0	0	46,902	51230
(3) Baor (Ox-bow Lake)	3,892	4,098	4,282	4,388	4,498	4,698	4,778	8,727	8,727	4868
(4) Shrimp/Prawn Farm	97,605	100,804	114,660	120,710	127,923	129,160	134,715	145,585	155,866	184939
B. MARINE FISHERIES	415,420	431,908	455,207	474,597	479,810	487,438	497,573	517,282	517,282	322896
(a) Industrial	25,165	27,954	32,606	34,114	34,084	35,391	34,159	34,182	34,182	41665
(b) Artisanal	390,255	403,954	422,601	440,483	445,726	452,047	463,414	483,100	483,100	504668
COUNTRY TOTAL (A+B)	1,890,459	1,998,197	2,102,026	2,215,957	2,328,545	2,440,011	2,563,296	2,899,199	2,899,198	3061687
ANNUAL GROWTH RATE (%)	6.14	5.70	5.20	5.42	5.08	4.79	5.05	7.3	7.32	5.6

Annexure 2: Resource wise annual fisheries production

Resource type	Water Area (ha)			Production (mt)			Catch/Area (kg/ha)			% of total production		
	2010-11	2009-10	2008-09	2010-11	2009-10	2008-09	2010-11	2009-10	2008-09	2010-11	2009-10	2008-09
A. Inland Fisheries												
(i) Capture												
1. River and Estuaries	853863	853863	853863	144566	141148	138160	169	165	162			
2. Sundarbans	177700	177700	177700	22451	20437	18462	126	115	104			
3. Beel	114161	114161	114161	81564	79209	79200	714	694	694			--
4. Kaptai Lake	68800	68800	68800	8940	7336	8590	131	107	125			
5. Flood Land (including haor)	2810410	2810410	2810410	797024	781807	879513	250	276	310			
Capture Total	4024934	4024934	44024934	1054585	1029937	1123925		-	-	34.44	35.52	49.61
(ii) Culture												
1. Pond and Ditch	396744	350596	305025	1270966	1187386	866049	3203	3388	2839			
2. Baor	5488	8556	5488	4864	8727	4778	886	1020	871			
3. Coastal Shrimp Farm	276492	246198	217877	184939	155866	134715	669	633	618			
Culture Total	678724	605349	528390	1460769	1351979	1005542		-	-	47.71	46.62	39.23
Inland Total	4703658	4703658	4703658	2515354	2381916	2065723		-	-	82.16	82.16	80.59
B. Marine Fisheries												
(i) Industrial Fisheries (Trawl)	-	-	-	41665	34182	35429						
(ii) Artisanal Fisheries	-	-	-	504668	483100	479215						
Marine Total	-	-	-	546333	517282	514644				17.84	17.84	19.41
Country Total	-	-	-	3061687	2899498	2701370						

Annexure 3: Production, extension work, expenditure and income of fish seed multiplication farm, 2010-2011

Sl. No	Division	Production							Extension work				Expenditure (lakh tk.)	Income (lakh tk.)	Remark
		Carp spawn (kg)	Carp fingerling (lakh)	Polyculture (kg)	Natural brood (kg)	Prawn (kg)	Fingerling (other sp.) (lakh)	Galda P.L (lakh)	Training	Office advice	Pond visit	Contact farmer			
1.	Dhaka	1222	35.20	1204	7061	0	5.07	1.09	1600	1032	1032	38	48.31	67.01	
2.	Chittagong	1048	34.68	3000	8046	2552	4.61	0.04	276	676	676	11	54.43	81.40	
3.	Khulna	1535	43.71	4225	12454	3156	0.30	3.75	802	1242	1242	105	54.47	81.76	
4.	Rajshahi	1558	20.26	3235	3000	0	7.52	0.35	629	1354	1354	47	36.43	52.47	
5.	Rangpur	823	15.38	2287	5151	53	3.50	2.58	228	605	605	8	27.16	39.79	
6.	Sylhet	421	17.14	257	3301	0	3.01	1.15	441	613	613	168	16.91	25.13	
7.	Barisal	232	15.80	500	0	0	1.97	0.118	373	779	779	18	17.57	25.49	
	Total	6839	182.19	14708	39013	5761	25.99	9.08	4349	6301	6301	395	255.30	373.06	

Annexure 4. Annual total catch of marine fisheries, 2010-2011

Type of Fishing	Number of Craft (Trawler/Boat)	Number of Unit Gear/Net	Catch in Metric Ton			
			Shrimp	Hilsha	Other Fish	Total
A. Industrial						
Trawl Fishing						
a) Shimp Trawler	35	-	2681	3	2212	4896
b) Fish Trawler	123	-	104	20	36645	36769
TOTAL INDUSTRIAL	158		2785	23	38857	41665
B. Artisanal						
1. Gill Net Fishing						
a) Mechanised	19223	72829	6946	182152	74747	256899
b) Non-mechanised	6861	35211	16735	43150	21065	64215
SUB TOTAL	26084	108040	22693	225302	95812	321114
2. Set Bag Net Fishing						
a) Seasonal (M.B)	1,151	2515	6946	0	26145	33091
b) Seasonal (N.M.B)	4,688	19179	16735	0	72916	89651
b) All Seasonal (N.B.M)	7,255	29828	22693	0	3283	25976
SUB TOTAL	13094	51522	46374	0	102344	148718
(3) Long Line Fishing						
a) Mechanised	1352	13965	0	0	13623	13623
b) Non-Machanised	321	1801	0	0	679	679
c) Other Long Line	1121	9772	0	0	626	626
SUB TOTAL	2794	25538	0	0	14928	14928
(4) Trammel Net Fishing	1123	7122	5742	0	5214	10956
(5) Other Gears' Fishing	2282	31636	2088	0	6864	8952
TOTAL ARTISANAL	45377	223858	54204	225302	225162	504668
GRAND TOTAL (A+B)			56989	225325	264019	546333

Unit	Total	Gear	Total
		Gill Net	10804
Trawler	158	Set Bag Net	51522
MB (Mechanized Boat)	21726	Long Line	25538
NMB (Mechanized Boat)	23661	Trammel Net	7122
		Other	31636

Annexure 5. Species-wise annual catch of marine fisheries, 2010-2011

[Unit : Metric Ton]

Type of Fishing	Hilsha	Bambay Duck	Indian Salmon	Pomfret	Jew Fish	Cat Fish	Shark/ Skate/ Ray	Other Marine Fish	Shrimp	Total
A. Industrial										
Trawl Fishing	23	267	0	362	1340	977	0	35911	2785	41665
B. Artisanal										
1. Gill Net Fishing										
a) Mechanized	182152	8933	4016	16726	21232	10206	1328	12306	0	256899
b) Non-mechanized	43150	0	0	819	4506	0	338	15402	0	64215
SUB-TOTAL	225302	8933	4016	17545	25738	10206	1666	27708	0	321114
2. Set Bag Net Fishing										
a) Seasonal	0	49950	0	21659	918	0	435	26099	23681	122742
b) All Season	0	690	0	0	0	313	174	2106	22693	25976
SUB-TOTAL	0	50640	0	21659	918	313	609	28205	46374	148718
3. Long Line Fishing										
a) Mechanized	0	0	483	0	4853	3859	1525	2903	0	13623
b) Non-mechanized	0	0	22	0	191	151	28	287	0	679
c) Other Long Line	0	0	0	0	132	145	288	61	0	626
SUB-TOTAL	0	0	505	0	5176	4155	1841	3251	0	14928
4. Trammel Net Fishing	0	0	0	632	2652	904	89	937	5742	10956
5. Other Gears' Fishing	0	910	0	280	815	638	0	4221	2088	8952
TOTAL ARTISANAL	225302	60483	4521	40116	35299	16216	4205	64322	54204	504668
GRAND TOTAL (Industrial+Artisanal)	225325	60750	4521	40478	36639	17193	4205	100233	56989	546333
%	41.24	11.12	0.83	7.41	6.70	3.15	0.77	18.35	10.43	100.00

Annexure 6:. Brief on NRCP during 2011

Group of Compounds	Test Parameters	Number of Samples tested		Total
		Shrimp	Fish	
A1	Stilbenes	-	18	18
A3	Steroids	-	18	18
A6	Antibiotics	322	18	340
B1	Antibacterial substances	326	54	380
B2a	Anthelmintics	131	20	151
B3a	Pesticides	47	08	55
B3c	Chemical elements	47	08	55
B3d	Mycotoxin	47	08	55
B3e	Dyes	55	08	63
Total		975	160	1135

Annexure 7: Regional NRCP plan

Group of Compounds	Name of Compounds	No. of Test	Tests are done by					
			FIQC- DHK		FIQC-CTG		FIQC-KLN	
			Shrimp	Fish	Shrimp	Fish	Shrimp	Fish
A1	Stilbenes	18	-	7	-	11	-	-
A3	Steroids	18	-	7	-	11	-	-
A6	Antibiotics	340	7	7	50	11	265	-
B1	Antibacterial substances	380	7	20	51	34	268	-
B2a	Anthelmintics	151	2	7	20	13	109	-
B3a	Pesticides	55	1	3	8	5	38	-
B3c	Chemical elements	55	1	3	8	5	38	-
B3d	Mycotoxin	55	1	3	8	5	38	-
B3e	Dyes	63	1	3	10	5	44	-
Total		1135	20	60	155	100	800	-

Annexure 8: FIQC Training Program

Sl. no	Topic	Organisation/Group	No. of Participants	Comments
01	Real Time PCR	FIQC	06	Domestic
02	ELISA and AAS	FIQC	06	Domestic
03	Traceability implementation	Shrimp farmers	1433	Domestic
04	Traceability implementation	Depot owners	369	Domestic
05	Traceability implementation	Shrimp processors	57	Domestic
06	Traceability implementation	Ice plant owners	2	Domestic
07	Traceability implementation	Mobile shrimp collectors	34	Domestic
08	ToT on Water Quality & Food Safety Management, Quality Assurance & HACCP.	DoF, FIQC and extension officers/ University teachers & students	841	Domestic
09	Awareness of harmful antibiotics and preventive measures	Golda farmers/Veterinary medicine shop keepers	202	Domestic
10	Social Compliance and CSR	DOF,FIQC, factories, NGOs, labour contractors	88	Domestic
11	TOT and Course Formulation	DOF,NGO,PL collectors	80	Domestic
12	Water quality management in shrimp and fish farms	DoF officials and factory managers	70	Domestic
13	ToT on Water Quality& Food Safety Management	DoF, FIQC and extension officers	230	Domestic
14	Traceability and Good Aquaculture Practice (GAQPs)	Fish farmers	100	Domestic
15	Implantation of GLP	FIQC Officials & Processors	60	Domestic
16	Prevention of Unauthorised Veterinary Medicinal Products	DFO, SUFO, UFO, AFO	69	Domestic
17	Prevention of Unauthorised Veterinary Medicinal Products	Factory personnel	70	Domestic
18	Prevention of Unauthorised Veterinary Medicinal Products	Shrimp Farmers & Depot owners	969	Domestic
19	Development of food safety & security measures	FIQC Officials	6	Abroad
20	Vibrios in environment	FIQC Officials	1	Abroad
21	SPS	FIQC Officials	1	Abroad
22	Marine products & HACCP	FIQC Officials	2	Abroad
23	GAQPs	FIQC Officials & others	9	Abroad
24	Natural Resource Management	FIQC Officials	1	Abroad
25	Food Safety Management ISO 22000	FIQC Officials	1	Abroad
26	LC-MS/MS machine operation	FIQC Officials	4	Abroad
27	Biotechnology	FIQC Officials	1	Abroad
28	Study Tour	FIQC Officials	18	Abroad

Annexure 9 : List of ongoing development projects (2010-2011)

Sl. No.	Name of the Project & Implementation period	Total PP Cost (Fig. in lakh)	Project Area	Objectives	Major Activities
1.	Aquaculture and Fisheries Management Project in Haor Area (October 2010-June 2014)	2228.91	3 Divisions 7 Districts and 18 Upazilas	<ol style="list-style-type: none"> 1. Increase fish production by Establishing beel nursery, fish sanctuary and stoking of fish fry. 2. Reduce poverty by extension of technologies and create income source 3. Involve the target group in participatory approach for water body management and aquaculture activities 	<ol style="list-style-type: none"> 1. Establishment fish sanctuary in haor and connecting river 2. Stoking of fish fingerlings. 3. Community Based Fisheries Management 4. Training for service providers and fishers. 5. Renovation of 3 fish Hatchery in haor areas 6. Implementation of Fish act. 7. Group formation and community mobilization.
2.	Development and Management of Identified Degraded Water Bodies and Conservation of Small Indigenous Fishes (July 2010-June 2013)	3942.22	64 Districts and 472 Upazilas	<ol style="list-style-type: none"> 1. Increase fish production by re-excavation of fish habitat. 2. Conserve and enhance period of indigenous fish. 3. Community Based Fisheries Management. 4. Improve socio-economic conditions of fishing communities landless and fish farmers. 5. To restore aquatic Biodiversity. 	<ol style="list-style-type: none"> 1. Improve habitat restoration of 72 water bodies. 2. Create CBFM group. 3. SIS conservation campaign. 4. Stoking of indigenous fish fry/ fingerlings. 5. Assist to breeding culture facilities in 500 private and 57 Govt. farms. 6. Excavation and re-excavation of connecting canals and selected water bodies.
3.	a. Infrastructure Development for Flood Plain Aquaculture in Comilla District (Daudkandi model) Project (DoF Component) (July 2006-June 2011)	709.08	64 Districts and 472 Upazilas Comilla District and 5 upazilas	<ol style="list-style-type: none"> 1. Enable environment for floodplain aquaculture. 2. Expansion of community based aquaculture in the floodplains of reater Comilla District. 3. Creation of self employment for the rural poor. 4. Extend need based technical cooperation to support the private sector. 5. Develop linkage among GO-NGO fish farmers 	<ol style="list-style-type: none"> 1. Training for service providers and fishers. 2. Implementation of fish act. 3. Exchange visit 4. Group formation and community mobilization 5. Need based training for GO and NGO. 6. Base line survey
	b. Infrastructure Development for Flood Plain Aquaculture in Comilla District (Daudkandi model) Project (LGED Component) (July 2006-June 2011)	1725.81	-Do-	<ol style="list-style-type: none"> 1. Construction/reconstruction of dam/excavation/ re-excavation of canals in selected floodplain at Comilla district. 2. Develop linkage among GO-NGO fish farmers. 	<ol style="list-style-type: none"> 1. Construction of 123 km embankment 2. Excavation of 58 km pond/canal. 3. Construction of culverts/ dyke/guide wall etc.

Sl. No.	Name of the Project & Implementation period	Total PP Cost (Fig in lakh)	Project Area	Objectives	Major Activities
4.	Restoration of the Natural Breeding habitats of the Halda River Project (GOB) (July 2007-June 2013)	1321.32	Halda Karnafuly River, Chittagong district 7 upazilas	<ol style="list-style-type: none"> 1. Develop, protect and preserve the natural spawning grounds in the Halda river 2. Establish fish sanctuaries in the river Halda for restoration of productivity and bio diversity of existing aquatic resources 3. Build up an appropriate institutional management framework for conserving natural spawning 4. Create, provide and explore alternate income generating opportunities during ban season 	<ol style="list-style-type: none"> 1. Establishment of sanctuary 2. Dredging of upstream silted area of Halda 3. Dredging Kua/Katha/Kur/Kum. 4. Construction of Cisterns, overhead tank and boundary wall. 5. Construction of pond 6. Micro credit for alternate livelihoods of fishers/engine boat drivers 7. Modification and operation of existing sluice gate. 8. Research /study
5.	Regional Fisheries and Livestock Development (Barisal Component (DANIDA) (July 2007-June 2012)	12471.00	Barisal Division 6 Districts 40 Upazillas 245 Unions	<ol style="list-style-type: none"> 1. Improved and sustainable productivity and returns from and livestock systems of resource poor households. 2. Effective support to resource poor households through decentralized, integrated and demand driven fisheries and livestock extension services. 3. From Community based organization and farmer's associations. 4. Linkage with private sector improved to enable farmers to access quality inputs and markets. 5. Implementation of Fish act. 	<ol style="list-style-type: none"> 1. Training of trainers and Farmer field school 2. Development of training modules. 3. Field demonstration/on farm research to modify technical recommendations and develop new foci for FS curricula. 4. Promote development of producer and marketing CBOs from FS 5. Develop criteria for qualification for allocation of
6.	Bangladesh Marine Fisheries Capacity Building Project (IDB/GOB) (July 2007-June 2013)	12825.26	14 districts (49 coastal upazilas)	<ol style="list-style-type: none"> 1. Assess the standing stock and MSY of estuarine and coastal fisheries resources 2. Assess the standing stock of pelagic and demersal stocks of aquatic resources 3. Undertake census and establish data bank on different types of fishing crafts and gears. 4. Develop a catch assessment program for routine maintaining of the coastal and marine fisheries as to change due to the dynamics of fishing. 5. Develop mechanism to oversee and manage resources. 	<ol style="list-style-type: none"> 1. Marine fisheries survey and development of management framework 2. Staff training for HRD. 3. Procurement of Survey Vessel. 4. Development of an integrated data base for MCS.
7.	Bagda Shrimp Culture Technology Extension Project (GOB) (July 2007-June 2012)	1931.13	4 districts 24 Upazilas	<ol style="list-style-type: none"> 1. Increase production of Bagda and improve socio-economic condition of the fishermen. 2. Meet demand of Bagda Larvae. 3. To increase the production of shrimp and export earning of the country 	<ol style="list-style-type: none"> 1. Provide training on Hatchery & Nursery Operators in 22 Upazilas 2. Nursery Demonstration & PL production in 4 districts 3. Establish of PCR laboratory

Sl. No.	Name of the Project & Implementation period	Total PP Cost (Fig in lakh)	Project Area	Objectives	Major Activities
8.	Brood Bank Establishment Project (GOB) (July 2007-June 2013)	1370.00	7 Divisions 29 districts	1. Establishment Brood Bank for overall development at aquaculture industry in the country to overcome imbrued problem a ensure supply of quality brood. 2. Increase brood fish production. 3. Genetic improvement of brood stock achieving national target of fish production.	1. Establishment & renovation of fish seed multiplication farm and Hatchery in 32 districts. 2. Establishment of Brood bank for over all development at aquaculture industry. 3. Increase supply of fish fry in 29 districts.
9.	National Agricultural Technology Project (DoF) Component (IDA) (July 2007-June 2012)	5535.00	25 districts 120 Selected upazilas	1. Decentralized, participatory, demand-led and knowledge based approach for agricultural extension 2. Improved post harvest technology and management practices for high value agriculture by promoting farmer market linkages.	1. Establish demonstration farms at different upzila. 2. National and international training 3. Exchange visit every 2 months.
10.	Fisheries Diploma Course Implementation Project (January 2008-June 2013)	994.80	Fisheries Trainings Institute, Chadpur Sadar, Chadpur	1. To develop skilled technical manpower for fisheries sector (Government, Nongovernmental organizations, fish hatchery, fish farm, processing plants, seed mills etc) through offering fisheries diploma course to eligible candidates. 2. Develop facilities at one existing DoF training centre for the purpose of running fisheries Diploma course.	1. Develop fisheries training centre at Chandpur. 2. Construction of hostel, class rooms, 3. Laboratory procurement of instruments. 4. Preparation and printing of books and training modules. 5. Conduct training workshop/ seminar.
11.	Emergency 2007 Cyclone recovery and restoration Project (ECRRP) (August 2008-June 2013)	6026.22	6 districts 13 SIDR effected upazilas	1. To restore the aquaculture production in the cyclone affected coastal areas providing aquaculture inputs to the coastal fish farmers. 2. To restore the livelihoods of cyclone affected coastal fishers providing fishing nets and repair their boats. 3 To ensure the steady economic growth in the fisheries sector of the coastal region.	1. Conduct survey to identify the exiting status of coastal fisheries 2. To supply aquaculture inputs to the affected fish/shrimp farmers. 3. Supply of fishing nets to the distressed fishermen and supply/repair fishing boats. 4. Training for DoF/Fishers/Boat crews/ fishermen etc.

Name of the Project (Period)	Total PP Cost	Project Area	Objectives	Major Activities
12. Greater Pabna Fisheries Development Project (January 2009-December 2013)	1223.00	Pabna and Sirajganj districts (18 upazilas)	<ol style="list-style-type: none"> 1. To increase fish production both from culture and capture fisheries of pabna region. 2. To protect fish bio-diversity through establishing fish sanctuary, stocking endangered fish fingerlings and creating awareness. 3. To improve fish habitat through minor infrastructure development. 4. To ensure livelihood security of the poor people of Pabna region. 	<ol style="list-style-type: none"> 1. Development of Beel/Canal/Dead river/ Khas pond 2. Establishment of fish sanctuaries 3. Nursery pond re-excavation 4. Construction of earthen dyke/box/Pipe-culvert & landing center cum Guard Shed 5. Stocking of indigenous fish & carp fingerlings 6. Alternative income generating activities through livestock 7. Dyke plantation & afforestation 8. Human resource development and capacity building through training: 9. Project beneficiaries and group formation 10. Selection of water bodies and leasing process and implementation of fish conservation Act
13. Jatka Conservation, Alternate Income Generation for the Jatka Fishers and Research Project (July 2009-June 2013)	2071.21	Chandpur, Lakshmipur, Bhola & Patuakhali district (24 upazilas)	<ol style="list-style-type: none"> 1. To Increase Hilsa production by saving Jatka (juvenile Hilsa) and brood Hilsa. 2. Support to strengthen and enhance Hilsa Sanctuary activities; 3. To create alternate job opportunities for the Jatka/Hilsa Fishers for improving their Socio-Economic status. 4. To create mass awareness for the conservation of Jatka-Hilsa. 5. To conduct broad based research on biology and environment aspects of hilsa fisheries both in the riverine and coastal ecosystems 	<ol style="list-style-type: none"> 1. Support to enhance Hilsa sanctuary Activities 2. Conduct mobile court 3. Fishers' training on AIGAs 4. Orientation for Upazila level officers 5. Micro credit for Jatka fishers 6. Procurement of high speed mechanized Boat

Sl. No.	Name of the Project (Period)	Total PP Cost	Project Area	Objectives	Major Activities
Sl. No.				6. Procurement of a medium sized research vessel to carry out research in the riverine and coastal areas 7. Modernization of research facilities at Riverine Station, Chandpur 8. Capacity building and skill development of scientists and support personnel of BFRI in hilsa research	7. Develop and printing/preparation of posters, leaflets, TV spots, video, CD/DVD etc: 8. Research Activities
14.	Expansion of Aquaculture Technology Services up to Union Level July 2009-June 2014	2534.49	51 districts (244 Upazilas)	1. Increase fish production by expeditiously bringing all or a greater number of village ponds and other cultivable water bodies in selected unions under improved technology ensuring participation of the local fish farmers. 2. Establish a Union-based Aquaculture Extension (UAE) system with the joint efforts of the DOF, Union Parishad, and Local Extension Agent for Fisheries (LEAF) and the local fish farmers. 3. Create productive employment opportunities for men and women at the local levels through aquaculture, fry business and other fish-based income generating activities. 4. Involve and utilize the Union Parishad as an effective institution in all local level fisheries development including training and demonstration.	1. Establishment of Union based Aquaculture Extension System (UAE) 2. Development of extension methods 3. Involvement of Union Parishad (UP) 4. Training of beneficiaries 5. Establishment of linkage with BFRI, Mymensingh 6. Aquaculture extension and training at union level 7. Result demonstration of improved quality fish fingerling production 8. Result demonstration of semi-intensive carp polyculture technology 9. Result demonstration of mixed culture of golda with carp 10. Data base preparation and conservation

Sl. No.	Name of the Project (Period)	Total PP Cost	Project Area	Objectives	Major Activities
15.	Project on Aquaculture and Fisheries Management in Bhabodaha Area, Jessore (July 2009-June 2014)	985.57	Jessore district (4 Upazilas)	<ol style="list-style-type: none"> 1. Increase aquaculture production in 11 Beel covering about 12000 ha of Bhabodaha to 1000kg/ha and enhance income of the fishers. 2. Establish, motivate and strengthen rural fisher community organizations to ensure their access to the water resources for their livelihood security. 3. Improve the status of women by involving them in pond aquaculture and providing support to AIGs. 4. Improve community and aquaculture infrastructure for better access to common property resources and market. 5. Facilitate habitat restoration and conservation of small indigenous species in Bhabodaha area. 	<ol style="list-style-type: none"> 1. Carp Polyculture demonstration 2. Shrimp culture demonstration 3. Establishment of sanctuaries 4. Establishment of Integrated fish farm 5. Establishment of Carp Nursery 6. Stocking of Fish fingerlings 7. Training of beneficiaries 8. Re-excavation of beel/ baor/ canal/ nursery/ pond etc 9. Group mobilization and farmer Rally. 10. Establishment of Fish landing centers.
16.	Wetland Biodiversity Rehabilitation Project (July 2009-June 2012)	3169.47	Pabna District (3 upazilas)	<ol style="list-style-type: none"> 1. To improve the natural resource management system (NRMS) in the command area 2. To increase the income of wetland dependent families as well as fish production 3. To increase the populations and numbers of species present for key wetland dependent wildlife 4. To improve the biodiversity of the wetland 5. To improve livelihood of wet land dependent people. 	<ol style="list-style-type: none"> 1. Excavation/ re-excavation of floodplain basin 2. Establishment of sanctuary. 3. Restoration of habitat 4. Community mobilization and training 5. Stocking of fingerlings and endangered species 6. Support for alternate income generating activities (AIGs). 7. Awareness training for local and school children.

Sl. No.	Name of the Project (Period)	Total PP Cost	Project Area	Objectives	Major Activities
17.	Greater Faridpur Fisheries Development Project (July 2010-June 2014)	7384.89	5 Districts (28 Upazilas)	<ol style="list-style-type: none"> 1. To increase fish production from culture and capture fisheries of Faridpur region. 2. To create employment opportunities by various fish culture activities for the poor and landless one member in each family. 3. To protect fish bio-diversity through establishing fish sanctuary, stocking endangered fish fingerlings and creating awareness. 4. To improve fish habitat through development of water bodies and minor infrastructural development. 5. To ensure livelihood security of the poor people of Faridpur region. 6. To make better life for the poor through alternate income generating activities (AIGAs). 	<ol style="list-style-type: none"> 1. Development of boro-pits and Khas/private ponds/Canals 2. Pen culture/ Cage culture: 3. Establishment of sanctuaries: 4. Establishment/ re-excavation of Beel 5. Nursery pond/ Baors and dead river 6. Construction of earthen dyke/ box/Pipe-culvert/ sluice gate 7. Stocking of indigenous endangered fish and carp fingerlings 8. Dyke plantation and afforestation 9. Human resource development and capacity building through training: 10. Implementation of Fish Conservation Act. 11. Group mobilization and facilitate AIGAs through livestock
18.	Poverty Reduction and Livelihoods Security for the people of Economically Depressed Area (April 2010- December 2013)	9149.56	5 Divisions 29 Districts 169 Upazilas	<ol style="list-style-type: none"> 1. To create employment opportunities in the fisheries sector through excavation and re excavation of water bodies for the people below poverty line. 2. To allocate and develop water bodies for the selected poor people of the project area for their long term beneficial and livelihood security. 3. To develop the skill and knowledge of unemployed poor people through training and involve them in aquaculture and other income generating activities. 4. To reduce malnutrition in the poverty region through increase fish culture. 	<ol style="list-style-type: none"> 1. Training for AIG, Small Fish farmers, service provides. 2. Stocking of fish fingerlings. 3. Exchange visit. 4. Establishment of fish sanctuaries. 5. Excavation and re-excavation of ponds/ borrow pits. 6. Installation of spill wally.

Sl. No.	Name of the Project (Period)	Total PP Cost	Project Area	Objectives	Major Activities
19.	Strengthening Institutional Capacity of DoF Project (Danida) (October 2006-September 2011)	1540.33	3 districts (Chittagong, Dhaka and Khulna)	<ol style="list-style-type: none"> 1. Institutional capacity development of the department of fisheries. 2. Strengthening MIS for Establishment of e-governance 	<ol style="list-style-type: none"> 1. Development of MIS of DoF. 2. Support to Seed quality improvement 3. Support to fisheries extension activities 4. Human Resources Development of DoF 5. Support to traceability
20.	Aquaculture and Fisheries Management Program in Haor Area (July 2010-June 2014)	971.40	All over the country	<ol style="list-style-type: none"> 1. Involve the target group in participatory approach for water body management and aquaculture activities. 2. Reduce poverty by extension of technologies and create income source. 3. Increase fish production and protect natural biodiversity in the selected water bodies. 	<ol style="list-style-type: none"> 1. Establishment fish sanctuary 2. Community Based Fisheries Management 3. Create CBFM group 4. Awareness program for fish act 5. Stocking of Fingerlings 6. Establishment of Beel and Nursery.
21.	Recovery and Restoration program for fish farmer and fisher affected by Cyclone Aila (July 2009- June2012)	988.00	16 Districts	Create income sources for fish farmer and fisher affected by Cyclone Aila by producing fish in the pond and dighi	<ol style="list-style-type: none"> 1. Training about the modern technologies 2. Input supply for the poor fisher
22.	Strengthening of Fishery and Aquaculture food Safety and Quality Management System in Bangladesh July/10-December/14	975981	All over Bangladesh	<ol style="list-style-type: none"> 1. To comply and implement of HACCP system in all processing steps from harvesting to export. 2. To improve the quality and safety of shrimp and fish product through hygienic measure in all stages. 3. To Modernize her existing quality control laboratories. 4. To increase export earning through exporting quality fish and fish products. 5. To Improve socio-economic condition of poor people. 	<ol style="list-style-type: none"> 1. Modernization of existing laboratories. 2. Quality assurance and traceability. 3. Product development 4. Development of in-plant quality control system 5. Management development 6. Support services 7. Capacity development of Inspirations 8. Human Resources development 9. Farm demonstration 10. Investigation and study.

Sl. No.	Name of the Project (Period)	Total PP Cost	Project Area	Objectives	Major Activities
23.	Hura sagar Aquaculture of fisheries Management Project. July/2011-June/2014	1709.40	Hura sagar in Belkuchi Kamar Khan da and sadar upazilla of Sirajgang District.	<ol style="list-style-type: none"> 1. To Improve the fish habitat in the riverbed. 2. To improve production of non stocked indigenous fish and biodiversity and establishing fish sanctuaries. 3. To increase high production by stocking fingerling. 4. To produce fish fingerling in the river. 5. To establish CBO approach. 	<ol style="list-style-type: none"> 1. Re-excavation of dead river. 2. Establishment of fish sanctuaries. 3. Fingerling stalking. 4. Establishment of fish nursery. 5. Establishment of cage culture 6. Construction of Road of water regulatory structure.
24.	Control of formalin use in fish preservation and Mass awareness campaign March, 2011-June-2014	699.55 Lakh Taka	7 Division 64 Districts All vulnerable Upazilas	<ol style="list-style-type: none"> 1. To identify the presence of formalin in fish 2. To aware fish traders, consumers and all concerns through the country regarding the attack of formalin as health hazards. 3. To train DoF people as well as other stakeholders to detect formalin in fish. 	<ol style="list-style-type: none"> 1. Procurement of testing kits 2. Training for formalin detection 3. Awareness and training Program.
25.	Re-excavation of Connecting river. Development of irrigation Facilities and fish Culture Project of Gazner Beel Area (Fisheries Component) under sujanagar Upazila in Pabna District Jan/10-June/2013	490.85 GoB	Pabna District. (Sujanagar upazila)	<ol style="list-style-type: none"> 1) To increase fish production both from culture and fisheries in Gazner Beel area under Sujanagar Upazila in Pabna district. 2) To protect fish biodiversity through establishing fish sanctuary, stocking endangered fish fingerling and creating awareness. 3) To motivate fishermen community lives surrounding the beel by stocking of carp fingerling through establishing beel Nursery. 4) To improve habitat through re-excavation of Badai river. 5) To ensure livelihood security of the poor people through community based fish culture and, cage fish culture in the developed water bodies. 	<ol style="list-style-type: none"> 1. community based CBO formation 2. Awareness, publicity and motivation activities 3. Training of the CBOs 4. Stocking of brood fish and fish spawn 5. Establishment of cage culture 6. Fish act implementation
26.	Fish production, conservation and strengthening management project at kaptai lake (Component-B DoF Part) January/2011-December/2013	306.80 Lakh	3 District. Rangamati Khagrachari Bandarban	<ol style="list-style-type: none"> 1. To support to increase fish Production in kaptai lake by producing quality fry/fingerlings production through hatchery and nursery operation. 2. To establish training centre to train the stakeholders for grow up their consciousness through training program. 3. To support legislative enforcement to implement fish at regulations. 	<ol style="list-style-type: none"> 1. Construction of training centre in Rangamati 2. Procurement of speed boat 3. Awareness training. 4. Fingerling stocking.

Annexure10: List of projects under SFYP and CIP (2011-2015)

Project Proposal under SFYP (2011-2015) and CIP

A. Open-water Fisheries

Sl. No.	Name of the project	Main activities	Project Duration	Total project allotment (lakh)	Remarks
1.	Integrated Fish Culture Development Project on Unused Water bodies	<ul style="list-style-type: none"> Re-excavation of water-body (khas pond, dighi, boropit, beel, baor, canal, ox-bow Lake, etc.) Pipe culvert renovation & construction Aquaculture extension and training 	July 10 to June 13	1708.66	GOB/ Green Page
2.	Establishment of Beel Nursery and Fingerling Stocking in Inland Open Waters	<ul style="list-style-type: none"> Fingerling stocking through beel nursery establishment CBO formation through fishers and other stakeholders Training & motivation for community based aquaculture expansion, biodiversity conservation and fisheries resource conservation 	July 10 to June 14	17310.38	GOB/ Green Page
3.	Integrated Protected Area Co-Management Project- DoF Part	<ul style="list-style-type: none"> Re-excavation & renovation of water-bodies for habitat improvement Plantation of aquatic vegetation Establishment of fish sanctuary & strengthening of community based organization HRD AIIGs for fishers Awareness & motivational program for fisheries resource conservation 	July 09 to June 13	3802.51	GOB/ Green Page
4.	Cage and Pen Culture Extension Project	<ul style="list-style-type: none"> Cage & pen culture technology dissemination Beneficiary training & exchange visit 	July 11 to June 15	35036.72	GOB

Sl. No.	Name of the project	Main activities	Project Duration	Total project allotment (lakh)	Remarks
5.	Chalan Beel Fisheries Development Project	<ul style="list-style-type: none"> ▪ Re-excavation of pond, digghi, borpit, dead River beel, floodplain etc. ▪ Establishment of fish sanctuary ▪ Construction of water regulatory infrastructure ▪ Fish landing development ▪ Fisheries training centre development ▪ Beneficiary training 	July 10 to June 15	22500.00	GOB/ Green Page
6.	Project on Fisheries Habitat Restoration in Inland Open Waterbodies	<ul style="list-style-type: none"> ▪ Establishment of fish sanctuary ▪ Habitat improvement for fish grazing area ▪ Fingerling stocking through beel nursery establishment ▪ Pen fish expansion ▪ AIGs for fishers ▪ Beneficiary training 	July 10 to June 15	5779.00	GOB/ Green Page
7.	Community based Baor Fisheries Management Project	<ul style="list-style-type: none"> ▪ Establishment of fish sanctuary ▪ Habitat improvement for fish grazing area ▪ Quality fingerling production through improved hatchery management ▪ Quality fingerling stocking at baor ▪ Baor management committee by involving fishers and other stakeholders ▪ Awareness & motivational program for fisheries resource conservation ▪ HRD 	July 11 to June 15	15000.00	GOB/ Green Page
8.	Integrated Fisheries and Livestock development Project in Flood Control, Drainage and Irrigation (FCDI) Project area and Other water bodies (4th phase).	<ul style="list-style-type: none"> ▪ Formation of beneficiary group by involving landless, marginal farmers, distressed women and unemployed youths ▪ Improvement of derelict and un-used water bodies ▪ Beneficiary training for fisheries & livestock skill development ▪ Fingerling stocking at boropit, canal, dead river and ponds ▪ AIGs for beneficiary 	July 10 to June 15	11488.00	GOB/ Green Page

Sl. No.	Name of the project	Main activities	Project Duration	Total project allotment (lakh)	Remarks
9.	Impacts study of climate variability on Aquatic ecosystem	<ul style="list-style-type: none"> ▪ Identification of climate change impacts on fisheries resources ▪ Innovation & expansion of climate change tolerant species 	July 11 to June 16	4200.00	Climate Change Unit
10.	Integrated Fisheries Livelihood Project- including PPF	<ul style="list-style-type: none"> ▪ Habitat improvement ▪ CBO formation & mobilization ▪ Socio-economic up-gradation of coastal fishers ▪ HRD ▪ AIGs for beneficiary ▪ Fish sanctuary establishment ▪ Infrastructure development 	July 11 to June 17	119800.00	WB & GOB
11.	Floodplain aquaculture management through Infrastructure facilities development	<ul style="list-style-type: none"> ▪ Improvement of degraded water-body ▪ Renovation of water regulatory infrastructure ▪ Fingerling stocking through beel nursery ▪ CBO formation & mobilization ▪ HRD ▪ AIGs for beneficiary ▪ Enforcement of fish acts 	July 11 to June 16	45000.00	CIP proposal
12.	Aquaculture and Fisheries Management in the Haor area through Developing Infrastructure Facilities	<ul style="list-style-type: none"> ▪ Habitat improvement ▪ CBO formation & mobilization ▪ HRD ▪ AIGs for beneficiary ▪ Fish sanctuary establishment ▪ Infrastructure development 	July 12 to June 17	35000.00	CIP proposal
13.	Fresh Water Prawn Culture Extension Project (2nd Phase)	<ul style="list-style-type: none"> ▪ Construction of training centre ▪ Renovation of existing 20 golda hatcheries ▪ Construction of 5 new golda hatcheries ▪ HRD ▪ Beneficiary training ▪ Renovation of Ellarchar Farm ▪ Establishment of 300 demo farm ▪ Brood development at 25 farms 	July 10 to June 15	6785.00	GOB/ Green Page
		Total :		323410.27	

B. Aquaculture

Sl. No.	Name of the project	Main activities	Project Duration	Total project allotment (lakh)	Remarks
14.	Fisheries Development Project in Rangpur Division	<ul style="list-style-type: none"> ▪ Improvement of degraded water-bodies ▪ Renovation of fish farm, fish market and DFO office ▪ Fingerling stocking and demo farm establishment at developed water-bodies ▪ Supply of inputs to beneficiary ▪ Beneficiary training 	July 10 to June 15	6200.00	GOB/ Green Page
15.	Fisheries Sector Rural Development Project (2nd Phase)	<ul style="list-style-type: none"> ▪ Re-excavation of water-bodies ▪ Construction & re-construction of embankments ▪ Infrastructure (WCS, monk, box culvert, iron & bamboo screen, etc) ▪ Establishment of sanctuary ▪ Construction of dyke & pond, canal to address biodiversity and fish-cum-paddy culture 	July 10 to June 15	88948.41	GOB/ Green Page
16.	Aquaculture Development & Fisheries Extension Project in Chittagong Hill Tracts (3rd Phase)	<ul style="list-style-type: none"> ▪ Fingerling stocking through beel nursery establishment ▪ Re-excavation of degraded water-bodies ▪ Beneficiary group formation ▪ Training on aquaculture extension, biodiversity conservation and fisheries resource conservation 	July 10 to June 15	12461.48	GOB/ Green Page
17.	Greater Jessore Fisheries Development Project	<ul style="list-style-type: none"> ▪ Fingerling stocking at open water-bodies through beel nursery establishment ▪ Re-excavation of degraded water-bodies ▪ CBO formation by involving fishers and other stakeholders ▪ Training on community based aquaculture extension, biodiversity conservation and fisheries resource conservation 	July 10 to June 14	9833.32	GOB/ Green Page

Sl. No.	Name of the project	Main activities	Project Duration	Total project allotment (lakh)	Remarks
18.	Integrated Fisheries and Livestock Development Project for the Poverty Reduction of North-West region of Bangladesh; Component-A Department of Fisheries and Component-B Department of Livestock Services	<ul style="list-style-type: none"> Integrated fisheries & livestock development in seasonal and other water-bodies Inputs supply to beneficiary Beneficiary group formation and training 	Jan 10 to Dec 14	6200.00	GOB/ Green Page
19.	Fisheries Development Program in Barind Tract Area	<ul style="list-style-type: none"> Improvement of degraded water-bodies Renovation of existing fish farm, fish market and DFO office Fingerling stocking at developed water-bodies and demo farm establishment Establishment guard-shade cum community centre Inputs to beneficiaries and training 	July 11 to June 16	17500.00	GOB/
20.	Fisheries Development Program in Nimgachi Area	<ul style="list-style-type: none"> Improvement of degraded water-bodies Renovation of existing fish farm and fish market Fingerling stocking at developed water-bodies and demo farm establishment Establishment guard-shade cum community centre Beneficiary training 	July 11 to June 16	10000.00	GOB
21.	Fish Seed Multiplication Farm Development Project	<ul style="list-style-type: none"> Renovation of existing fish farms Brood development Farmers training Quality seed production HRD 	July 11 to June 16	20000.00	GOB
22.	Promotion of quality fish/ shrimp seed supply system to poor and marginal farmers	<ul style="list-style-type: none"> Demo farm establishment Quality seed production and distribution Farmer/ nurserer training on quality seed production HRD 	July 11 to June 16	10000.00	GOB
23.	Socio- economic development of the vulnerable households in the barind tracts through aquaculture production and bio- diversity conservation	<ul style="list-style-type: none"> Adoption of proven aquaculture technology Socio- economic development through AIGs Bio- diversity conservation through sanctuary establishment Beneficiary training 	July 11 to June 16	7200.00	Climate Change Unit

Sl. No.	Name of the project	Main activities	Project Duration	Total project allotment (lakh)	Remarks
24.	Address to climate change through promotion of adaptive aquaculture and fisheries management	<ul style="list-style-type: none"> Adoption in aquaculture technology depending on aquatic resources Implementation of acts/law related to agricultural pesticide use and industrial waste management Adequate training climate change impacts on adaptation Awareness campaign and advertisement on climate change impacts Rehabilitation of affected farmer/fishers AIGs for beneficiary 	July 11 to June 16	5600.00	Climate Change Unit
25.	Socio- economic development of the vulnerable households in the climate change affected areas through aquaculture production and bio- diversity conservation	<ul style="list-style-type: none"> Adoption of technology Socio- economic development through AIGs Bio- diversity conservation through sanctuary establishment Beneficiary training 	July 11 to June 16	2100.00	CIP Proposal
26.	Integrated aquaculture program for agro- ecologically constrained and economically depressed areas	<ul style="list-style-type: none"> Renovation of existing fish farms Quality seed production and dissemination Adoption of technology Farmers training and demo farm AIGs for beneficiary HRD 	July 12 to June 17	12000.00	CIP Proposal
27.	Fisheries Development and Conservation in and Around Sunderban Areas	<ul style="list-style-type: none"> Establishment of fish sanctuary Fishers training to raise awareness AIGs for fishers Identification natural breeding ground & nursery Identification of fish & shrimp species in the Sunderban area 	Oct 11 to Sep 15	4802.92	GOB
		Total :		212846.13	

C. Shrimp Culture & Coastal Aquaculture

Sl. No.	Name of the project	Main activities	Project Duration	Total project allotment (lakh)	Remarks
28.	Shrimp and Aquaculture extension in coastal area through developing infrastructure facilities.	<ul style="list-style-type: none"> ▪ Development of infrastructures related to shrimp industry ▪ Stakeholders training & motivation ▪ HRD & MIS development ▪ Establishment of demo farm; depot, nurserer and market development; landing centre construction; virus free PL supply; and sanitation facilities improvement through PPP ▪ Infrastructure development for adequate water supply 	July 11 to June 16	95000.00	GOB
29.	Fisheries and Aquaculture Food Safety and quality management in Bangladesh	<ul style="list-style-type: none"> ▪ Quality assurance and traceability ▪ Product development ▪ Development of in-plant quality control system ▪ Management development & support services ▪ Capacity development of institutions ▪ Human resource development ▪ Farm demonstration 	July 11 to June 16	35000.00	Donor/ GOB
30.	Strengthening management of coastal eco systems for reduce poverty and vulnerability in coastal zones	<ul style="list-style-type: none"> ▪ Adoption in brackish-water aquaculture technology depending on aquatic resources ▪ Adequate training climate change impacts on adaptation ▪ Awareness campaign and advertisement on climate change impacts ▪ Rehabilitation of affected fishers ▪ AIGs for fishers 	July 11 to June 16	5500.00	Climate Change Unit
31.	Brackish-water fish hatchery and culture method development	<ul style="list-style-type: none"> ▪ Hatchery establishment ▪ Farm demo ▪ Input supply ▪ Beneficiary training 	July 12 to June 17	25500.00	CIP Proposal
		Total :		161000.00	

D. Marine Fisheries

Sl. No.	Name of the project	Main activities	Project Duration	Total project allotment (lakh)	Remarks
32.	Strengthening management of coastal eco systems for reduce poverty and vulnerability in coastal zones	<ul style="list-style-type: none"> Eco-friendly water regulatory system development Development of infrastructures related to shrimp industry Stakeholders training & motivation HRD & MIS development Establishment of demo farm; depot, nurserer and market development; landing centre construction; virus free PL supply; and sanitation facilities improvement through PPP 	July 11 to June 16	49000.00	CIP Proposal
33.	Strengthening of monitoring, control and surveillance (MCS) system in the Bay of Bengal	<ul style="list-style-type: none"> Establishment of 15 new check-post Construction of 15 Jetty, pontoon & 3 regional office Introduce 4 patrol vessels Fishers training on sea safety & responsible fisheries Life-saving appliances for fishers Develop extension materials 	July 11 to June 16	29752.00	GOB/CIP Proposal
34.	Project on Procurement of Two Offshore Petrol Vessels (OPV) for Bangladesh Coast Guard	<ul style="list-style-type: none"> Procurement of Two Offshore Petrol Vessel 	Jan 11 to Dec 15	13621.73	GOB/ Green Page
35.	Project on Development of Coastal Fisheries and Socio- economic Status of Coastal Fishers	<ul style="list-style-type: none"> Rehabilitation of fishers Sustainable development policy through identification of fishing grounds and types Ban on destructive fishing gears Modern fishing & life saving equipments for fishers Data base for fishers HRD 	July 11 to June 16	8500.00	Donor/ GOB
36.	Socio-economic development of the coastal and marine fisher-folk through alternative livelihoods support program.	<ul style="list-style-type: none"> Community formation & mobilization Beneficiary training & motivation AIGs Input supply Insurance facilities for fishers 	July 11 to June 16	37500.00	CIP Proposal
		Total :		138373.73	

E. Institutional Capacity Building

Sl. No.	Name of the project	Main activities	Project Duration	Total project allotment (lakh)	Remarks
37	Establishment of Fisheries Diploma Institute at Gopalganj, Kishorganj and Sirajganj Districts	<ul style="list-style-type: none"> ▪ Establishment of Gopalganj, Kishorganj and Sirajganj diploma institute ▪ Infrastructure development ▪ Curriculum development & text book printing 	July 10 to June 14	12363.00	GOB/ Green Page
38.	Fishermen Registration, Issuing Identity Card to Fishermen and Disaster Rehabilitation Project	<ul style="list-style-type: none"> ▪ Identification of fishers & registration ▪ Issuing of ID card to fishers ▪ Database for DoF ▪ Rehabilitation of fishers 	Jan 11 to Dec 15	16150.94	GOB/ Green Page
39.	Fisheries Resource Survey System Strengthening Project	<ul style="list-style-type: none"> ▪ Modernization of FRSS ▪ Comprehensive MIS establishment ▪ Collection of bio-diversity information ▪ Training on water quality, breeding & nursing ground, fish sanctuary 	Jan 11 to Dec 14	7375.14	GOB/ Green Page
40.	Fisheries Infrastructure Renovation and Development Project	<ul style="list-style-type: none"> ▪ Renovation & rehabilitation of infrastructures ▪ Pond re-excavation, hatchery development ▪ Training on technology adoption & dissemination 	July 10 to June 15	14017.91	GOB/ Green Page
41.	Establishment of Fish Disease Diagnosis, Soil, Water & Fish Feed Quality Testing	<ul style="list-style-type: none"> ▪ Establishment of fish/shrimp disease laboratory ▪ Training of disease identification ▪ HRD on disease identification and management 	July 10 to June 15	15000.00	GOB/ Green Page
42.	Strengthening of marketing and supply chain system to ensure quality fish/shrimp at local market	<ul style="list-style-type: none"> ▪ Renovation & rehabilitation of existing fish markets ▪ Construction of fish markets ▪ Creation of transport facilities ▪ Training on fish transportation & marketing 	July 12 to June 17	15000.00	GOB

Sl. No.	Name of the project	Main activities	Project Duration	Total project allotment (lakh)	Remarks
43.	Establishment of Fish Farmer's Training Institute at Sirajgonj District.	<ul style="list-style-type: none"> Construction of establishments Procurement of Furniture Procurement of Computers, Photocopiers and other accessories Procurement of Laboratory Equipments and Chemicals Training/ Workshop/Seminar 	July 11 to June 15	2170.00	GOB
44.	Establishing e-extension approach for aquaculture and fisheries development	<ul style="list-style-type: none"> Establishment of e-extension approach Logistic supports for upazila 	July 11 to June 15	20000.00	GOB
45.	Support to Assist Landless, Marginal and Small Farmers to Overcome Soaring Input and Food Price in impoverished Areas of Bangladesh	<ul style="list-style-type: none"> Inputs support Training/ Workshop/Seminar 	July 11 to June 15	1141.70	FAO Assisted
46.	Strengthening of institutional capacity in fisheries sector	<ul style="list-style-type: none"> Training of beneficiaries/trainers Training of DoF officer & Staff Renovation work Procurement of necessary goods In-service training for newly recruited officers 	July 12 to June 17	25000.00	CIP Proposal
			Total-	128218.24	

