Welcome to
All Distinguished Participants

Fisheries Statistics in Bangladesh:
Issues, Challenges and Plans

Department of Fisheries, Bangladesh

Workshop to Establish a National Agricultural and Rural Survey Calendar based upon Integrated Planning of Agricultural Census and Surveys

Date : 31 July – 05 August, 2016

Place : Pattaya, Thailand

Fisheries Resources Survey System in Bangladesh (FRSS)
Department of Fisheries (DoF)

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&

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Department of Fisheries

Bangladesh

Vision & Mission (DoF)

Vision :

- Safe & Secure fish protein for all.

Mission :

- Meet the demand of fish protein by enhancing fish production
- Productivity and Value addition of Fish.

Aims & Objectives :

- Increase Fishery resources and fish production
- Enhancing export fish & fish products
- Maintain ecological balance, conserve bio-diversity
- Generate employment towards poverty alleviation.

Vision 2021 (Bangladesh Government)

Vision 2021 calls for Bangladeshi socio-economic environment to be transformed from a low income economy to the first stages of a middle-income nation by the year 2021, when poverty would have all but disappeared, where society would be full of caring and educated people living healthy and happy lives.

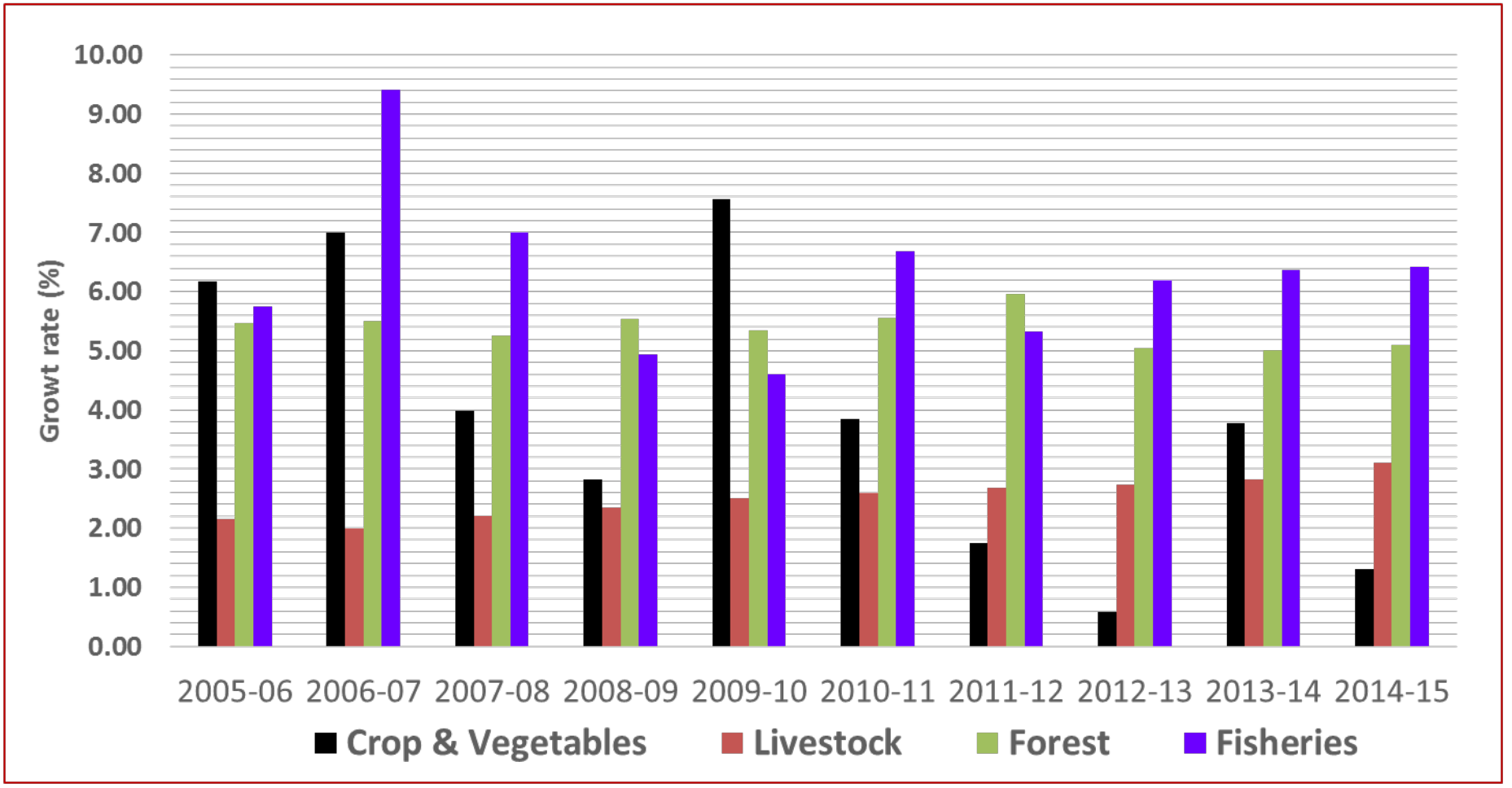
BANGLADESH

- The total area of the country is **147,570 sq km** (56,977 sq. miles).

- A wide portion of land is covered by large rivers such as the **Padma**, the **Jamuna**, the **Teesta**, the **Meghna**, the **Brahmaputra**, and the **Surma**.

- There are also thousands of tributaries with a total length of about **24,140 km**. These rivers are connected to the Bay of Bengal.

Fisheries Sector Contributes Significantly to National GDP



- Fisheries Contribution to National GDP 3.69%
- Fisheries Contribution to Agricultural GDP 23.12%

Export Earning (2nd largest, next to RMG) **2.01%**

Country Situation

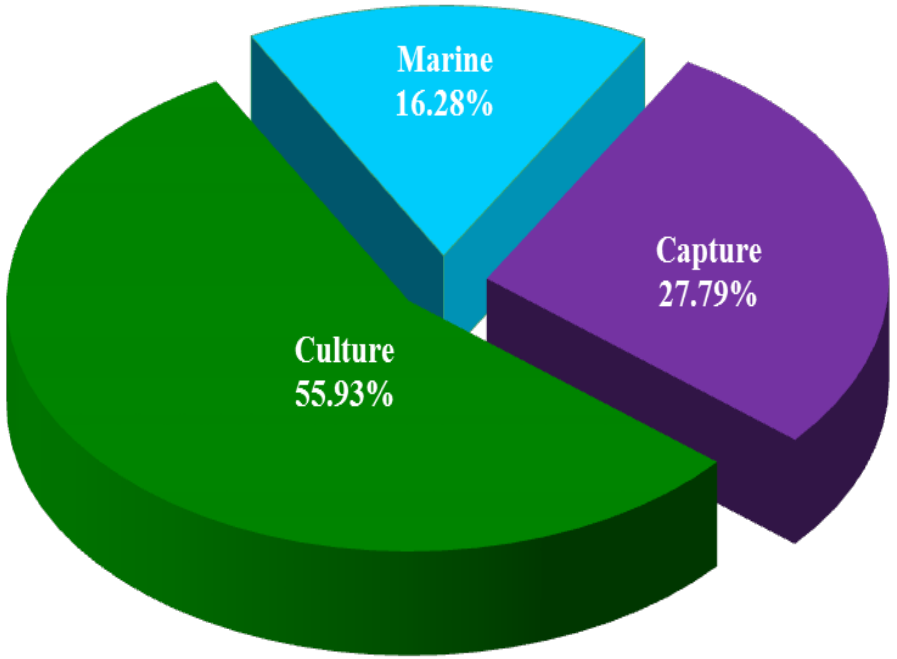
- Animal protein supply (≈) 60%
- Current fish intake (g/person/day) 53.00
- Desirable fish intake (g/person/day) 60.00

- Employment (full time & part time) 17.80 million
  (≈ 11% of total population)
- Women employment 1.40 million
  (≈ 8.5% of fisheries sector employment)

Source: Department of Fisheries Report 2015

Fish Production (2014-15) 3.684 m MT

Inland Closed Water (culture)	2.060 m MT
Inland Open Water (capture)	1.024 m MT
Marine Fisheries	0.600 m MT



Aquaculture production from inland closed water-bodies is 55.93% of the total production.

Projected Fish Production in 2015-16 is 3.85 m. MT

Sector-wise Annual Fish Production *2014-15*

Sector of Fisheries	Water Area (Ha)	Production (MT)	%
A. Inland Fisheries			
(i) Inland Open Water (Capture)			
1. River and Estuary	853863	174878	4.75%
2. Sundarbans (Mangrove)	177700	17580	0.48%
3. Beel (Natural Depression)	114161	92678	2.52%
4. Kaptai Lake	68800	8645	0.23%
5. Floodplain	2692964	730210	19.82 %
Capture Total	**3907488**	**1023991**	**27.79 %**

Sector-wise Annual Fish Production *2014-15……*

Sector of Fisheries	Water Area (Ha)	Production (MT)	%
(ii) Inland Closed Water (Culture)			
6. Pond	377968	1610875	43.72%
7. Seasonal cultured water body	133330	201280	5.46%
8. Baor (	5488	7267	0.20%
9. Shrimp/Prawn Farm	275583	223582	6.07%
10. Pen Culture	8326	16084	0.44%
11. Cage Culture	10	1969	0.05%
Culture Total	**800705**	**2061057**	**55.93%**
Inland Fisheries Total	**4708193**	**3085048**	**83.72%**
B. Marine Fisheries			
12. Industrial (Trawl)		84846	2.30%
13. Artisanal		515000	13.98%
Marine Fisheries Total		**599846**	**16.28%**

- Bangladesh ranked 5th as aquaculture producing country in the world (FAO, 2015).
- Last 10 years average growth rate of fisheries is 5.4%.
- Where aquaculture shows the growth performance of 8.2%.

Farmed food fish production in 2012

(FAO Report, 2014)

1.China	41 108 306
2.India	4 209 415
3.Viet Nam	3 085 500
4.Indonesia	3 067 660
5.Bangladesh	1 726 066
6.Norway	1 321 119
7.Thailand	1 233 877
8.Chile	1 071 421
9.Egypt	1 017 738
10.Myanmar	885 169

Fisheries Resources

Inland Closed Water (in million ha) 0.741 m ha

Pond (nos. ≈ 2.5 million)	0.338 m ha
Seasonal cultured water body	0.122 m ha
Baor (Dead River)	0.006 m ha
Shrimp/Prawn Farm (nos. ≈ .23 million)	0.275 m ha

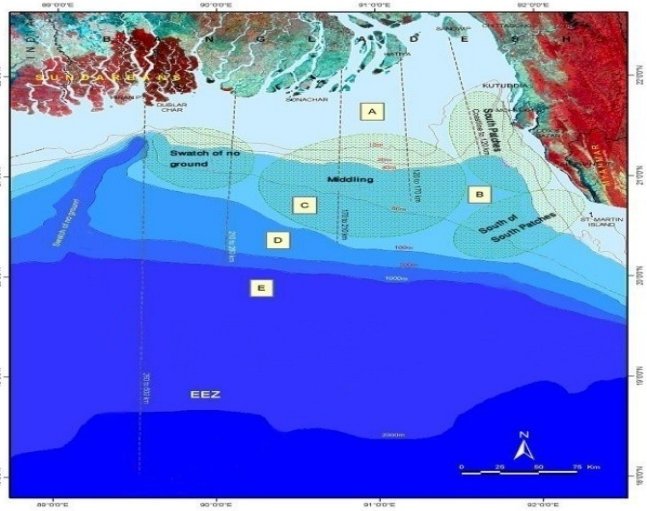
Inland Open Water (in million ha) 4.025 m ha

River and Estuary	0.854 m ha
Sundarbans (Mangrove)	0.178 m ha
Kaptai Lake	0.069 m ha
Beel (Natural Depression)	0.114 m ha
Flood Plain	2.810 m ha

Marine Fisheries Resources

- Marine Water (Territorial) 9,060 km^2
- Maritime Boundary 118,813 km^2
- Coast line 710 km

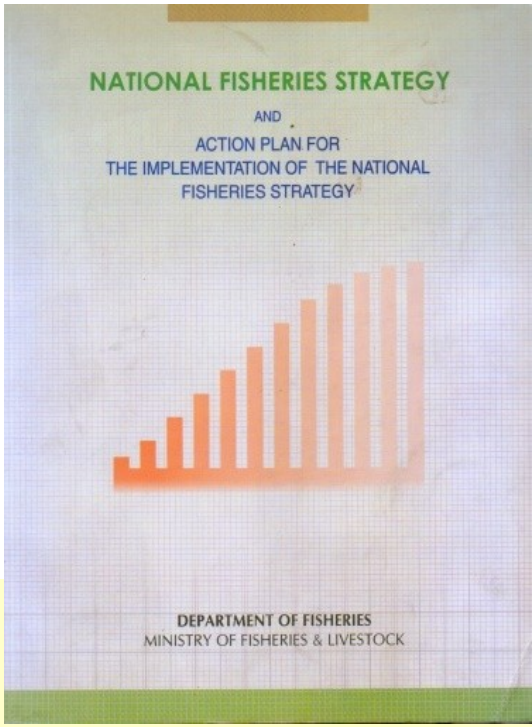
- 225 industrial trawlers of which 24 are mid-water
- Around 68 thousand mechanized and non-mechanized boats
- Marine fisherman: > 0.5 million



Well Enriched in Fish Biodiversity

- Freshwater fish species 260
- Exotic fish species 12
- Marine fish species 486
- Freshwater shrimp species 24
- Marine shrimp species 36

Policy and Legal Framework



A. National Fisheries Policy (NFP) 1998

B. National Fisheries Strategy (NFS) 2006

NFS with 8 building-block sub-strategies

- ❑ **Seventh Five Year Plan (7FYP) (2016-2020)**
- ❑ **Sustainable Development Goals (2015-2030)**

D. Recent Act and Regulations

- Feed and Animal Feed Act, 2010
- Fish Feed Regulation, 2011
- Fish Hatchery Act, 2010
- Fish Hatchery Regulation, 2011

Number of Fishermen/ Farmers

- Total fishermen = 1.316 million
  (Inland fishermen = 0.80 million
  (Marine fishermen = 0.516 million)
- Fish Farmers = 13.864 million
- Shrimp farmer = 1.15 million
- Marine Fishermen families = 0.16 million
- Shrimp Fry collector = 0.44 million
- Shrimp farm = 5080 nubs
- Fish processing plant = 129 (EU aproved-53) nos.
- Marine fish landing center = 253 nos.

Purpose of the catch assessment surveys

- **To publish "Fisheries Statistical Report of Bangladesh" every year comprising as :**
  - **by districts (administrative unit, 64 districts)**
  - **by months**
  - **by gear used &**
  - **by species**
  - **estimation total fish production (sector-wise) by year**

Survey System

Catch assessment survey has formulated :

- for catch of the different sectors of fisheries
- sample survey of three-stage or two-stage sampling
- frame survey of basic information such as fishing village, fishing boats, fishing units etc.
- Fixed sample villages for several years
  - for keeping track of the annual trend and seasonally changes of total catches
- Catch data collected by officers at district & Upazila level (administrative unit)
- Data processing by sophisticated software.

Source of Data Collection

Department of Fisheries usually collect data and information through FRSS mainly from three sources of fisheries resources to estimate yearly production. These three sources have been divided into thirteen sub-sources for accurate data collection..

I. Inland Fisheries	Fisheries within the sea coast line
A. Inland Open Water (Capture)	Water opened to the other waters
1. River & Estuary	Fisheries in rivers & estuarine waters
2. Beels	Fisheries in beels
3. Floodplain	Fisheries in flood lands including small canals around paddy fields
4. Kaptai Lake	Fisheries in Kaptai lake only
5. Sundarban	Fisheries in Sundarban only
6. Subsistence fishing	Non-commercial fishing in inland waters

B. Inland Closed water (Culture)	Water closed from the other waters
7. Ponds	Fisheries in ponds and tanks
8. Seasonal cultured water body	Fisheries in seasonal waterbody
9. Baors	Fisheries in baors
10. Shrimp Culture/Prawn farm	Shrimp culture in estuarine waters and prawn culture in fresh water
11. Pen culture	Fisheries in pen
12. Cage culture	Fisheries in cage

II. Marine Fisheries	Fisheries out of the sea coast line
13. *Industrial Fisheries (Trawl)*	Fisheries using large boats such as trawlers
Artisanal Fisheries	Fisheries using smaller boats
A. Mechanized	Fisheries using mechanized boats
B. Non-mechanized	Fisheries using non-mechanized boats

Source wise different Formats

Sector	Monthly report	Half-yearly report	Yearly report
River	Form River -1	-	Form River-2
Pond	-	Form Pond	Form Pond
Shrimp Farm	-	Form Shrimp	Form Shrimp
Subsistence	-	Form Subsistence	Form Subsistence
Beel	-	-	Beel-2,3A,3B,4
Baor		Form Baor	Form Baor
Seasonal CWB		Form SCW	Form SCW

Standard Classification of Fishing Gear for Statistical Purposes in Bangladesh

Code	Type of gear	Definition
1. **Inland Fisheries**		
A. Net.		
01.	**1. Gill Net**	**Fish are caught by mesh entangled around gill covers.**
02.	**2. Clap net**	**An elliptical net is hanged in the water, and is closed like a purse when fish enters to the net.**
03.	**3. Seine and drag**	**An area of water is encircled by a net and fish inside are caught by reducing the area.**
04.	**4. Lift net**	**A net with frame is dipped at bottom of water for sometimes, then it is lifted to catch fish.**
05.	**5. Set bag net**	**Two wings of net and a bag net at the center are settings a river. Fish enter into the bag net due to tidal current**
06.	**6. Cast ne**	**A conical shaped net is thrown to each fish.**
07.	**7. Long line**	**A long line with many hook an d lines with some interval .**
08.	**8. Traps**	**Various types of traps.**
09.	**9. Others**	**Spear , by hand, dewatering & other**

Standard Classification of Fishing Gear for Statistical Purposes in Bangladesh

Code	Type of gear	Definition
2.	Marine Fisheries	
B.	Net.	
10.	1. Trawl net.	Shrimp and fish at the bottom of the sea, or mid water, are caught with a bag net hauled by a large Vessel.
11.	2. Gill net	The same as for inland, also for the following.
12.	3. Seine net	
13.	4. Set bag net	
14.	5. Other net.	
15.	6. Long line	
16.	7. Others.	

Standard Classification of Fish Species for Statistical Purposes in Bangladesh

Code	Type of Fish	Local name
Inland Fish		
01.	Major carp	Rui, Catla & Mrigel
02.	Exotic carp	Chinse Carp, Silver Carp, Grass Carp etc.
03.	Other carp	Kalbasu, Ghania, Kalia etc.
04.	Telapia	Telapia , Nilotica etc.
05.	Cat fish	Rita, Boal, Pangas, Silen, Air Becha etc.
06.	Shake heed	Shol ,Gagar, Taki etc.
07.	Live fish	Koi ,Singi, Magur ,Jagur
08.	Other inland fish	Poa,Punti, Chapila, Chela, Baila, Pabda, Bata, Keski & Annyana, Mach etc.
09.	Diadromus Fish : Hilsa	Illish, Illisha, Chandana , Illish etc.

Standard Classification of Fish Species for Statistical Purposes in Bangladesh

Code	Type of Fish	Local name
Marine Fish		
10.	Bombay duck	Lotia
11.	Indian Salmon	Lauka
12.	Pomfret	Rupchanda,Hail Chanda, Makhan Chanda, Baila Chanda
13.	Jew fish	Poa, Rupa poa, Loonbu, Kala Datina, Lalpoa etc.
14.	Sea cat fish	Kata mach
15.	Sharks and rays	Hangar, Katnot,Haturi, Hangar, Moishya, Hangar, Pitambari
16.	Other marine fish	Chela,Churi,Tapassi and Annyaynya Mach
17.	Big sprwns & shrimp	Icha Mach, Golda Chingri, Bagda Chingri etc.
18.	Small Shrimps	Icha Mach, Chotta Chingri, Chaka etc.
19.	Crabs	Kakra
20	Turtle & tortoise	Kachhep

Standard Classification of Major Rivers for Statistical Purposes in Bangladesh

Code	Name of River	Districts along River
01.	Lower Meghna	Chandpur, Shariatpur, Lakhipur, Barisal, Noakhali
02	Upper Meghna	Comilla, Brahmanbaria, Habigonj, Narsingdi, Narayangonj, Kishoregonj, Munshigonj
03	Lower Padma	Rajbari, Faridpur, Manikgonj, Dhaka, Munshigonj, Madaripur, Shariatpur
04	Upper Padma	Rajshahi, Chapainawabgonj, Natore, Pabna, Khustia, Rajbari
05	Jamuna	Manikgonj, Pubna.Tangail, Sirajgonj, Bogra, Jamalpur, Gaibanda
06	Brahmaputra	Jamalpur, Gaibanda, Kurigram.

Key Challenges in Fisheries Sector

- Habitat degradation/ gradual resource depletion
- Scarcity of good quality spawn, fries/PL, feed and other inputs.
- Blocking migratory routes of indigenous fish species.
- Expansion of coastal aquaculture and climate smart technologies
- Lack of secure lease and access to public water bodies.
- Alternative livelihoods support to fishers during banned fishing seasons.
- Poor institutional linkage among the relevant stakeholders.
- Lack of exploratory survey on stocks assessment
- Entry of illegal fishing vessels and pouching in our EEZ
- Licensing of fishing boats and control of effort at sustainable level
- Implementation of the relevant rules of the FAO/UN CCRF
- IUU fishing

Blue Growth Initiative

- ✓ Protect, restore and expand mangrove forestation
- ✓ Train and educate artisanal fishers for resource conservation and management- establish social justice
- ✓ Overfishing, coastal hypoxia, invasive spp., coastal habitat loss, ocean acidification be addressed
- ✓ Investing in capacity building- human resources/financial/ transfer of technology-Cooperation from Regional/Int. communities
- ✓ Marine spatial planning- allocating space for various use and protection: MPA, FAD, cross sectional
- ✓ Integrated objective- environment, economic and societal
- ✓ Rebuild overfished species- control over harvest of juveniles
- ✓ Reduction of post harvest loss

Goals, Targets under 7FYP

Goals	Targets
01. Attain self-sufficiency in aquaculture and fisheries production and generate surplus for export	a. Increased 45% aquaculture production by 2020 b. Increased 20% fisheries production by 2020 c. Raise per capita protein intake to 60 g from domestically produced fish and fisheries product by 2020 d. Raise export earnings to US$ 1.25 billion by 2020 from frozen shrimp, fish and value
02. Improve conservation of aquatic biodiversity in inland open water-bodies	a. Reappear at least 75% of endangered fish species in sanctuary area by 2020 from baseline b. Increased 20% hilsa fish production by 2020
03. Enhance coastal and marine fisheries production in line with Blue Economy Initiatives	a. Increased 18% marine fisheries production by 2020 b. Introduction of mariculture by 2020 c. Diversified coastal aquaculture

Goals, Targets under 7FYP…..

Goals	Targets
04. More income and equitable distribution of benefits	a. Creation of more (25%) employment opportunity for unemployed youths b. Fish farmers/ fishers income raise by 20% by 2020. c. Participation of women in aquaculture production, fisheries CBOs and fish/ shrimp processing industries increase to 25%
05. Improve food safety	a. Good Aquaculture Practices (GAP) and Good Manufacturing Practices (GMP) at all stages of fish/shrimp supply chain to comply international market. b. Food safety measures for domestic

Key Issues/Challenges in line with Fisheries Statistics

- Old survey framework (1983-84)
- Diversified fisheries resources
- Enriched biodiversity
- Stock assessment of marine fisheries resources
- Assimilation of socio-economic aspects in fisheries statistics
- Updating survey framework
- Human Resource Development

Plans for Updating Fisheries Resources Survey System of Bangladesh (DoF Initiatives)

- Data and statistics are important pre-requisites and essential tools for resource management and development. Sound knowledge base and updated information pool help to know and understand current status of resources for planning and management.
- DoF has developed project proposal to update survey framework in collaboration with development partners
- DoF has collected a Research and survey Vessel for marine stock assessment and Research

Potential Fields of Cooperation for Updating Fisheries Statistics of Bangladesh

- ✓ Comprehensive survey framework for inland fisheries resources
- ✓ Stock assessment of marine fisheries resources
- ✓ Institutional capacity building
- ✓ Develop GIS/MIS

Way to Forward

- Up gradation of Frame Survey of fisheries resources & fishing units ,
- FAO's technical support,
- Collaborative program for smooth survey system with FAO & Other agencies (EGIS, SPARSO etc),
- Strengthening FRSS,
- More sophisticated software for data input & production estimation
- Manpower development through participatory training
- Institutional Capacity Building through Introduction of sound technology

Thank You All

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