CHAPTER 7
AGRICULTURE

Bangladesh is predominantly an agricultural country where agriculture sector plays a vital role in accelerating the economic growth. It is therefore important to have a profitable, sustainable and environment-friendly agricultural system in order to ensure long-term food security for people. Broad agriculture sector has been given the highest priority in order to make Bangladesh self-sufficient in food. The government determined to develop the overall agriculture sector keeping in view of the goals set out in the Seventh Five Year Plan and National Agriculture Policy. Over the last few years, there has been an increasing trend in food production. According to preliminary estimate of BBS, in FY2017-18, food grains production stood at around 413.25 lakh metric tons (MT). In the same fiscal year, the total internal procurement of food grains was 16.7 lakh MT against the target of 17.3 lakh MT. In addition, an amount of Tk.20,400 crore was targeted to be disbursed as agricultural credit against that Tk.21,393 crore was disbursed till June 2018, which was 104.87 percent of the target. In order to scale up productivity, subsidy in agricultural inputs was increased, as well as enhanced coverage and increased availability of agricultural credit was ensured. Programmes have been launched to popularise the use of organic and balanced fertilser to maintain soil fertility and productivity. Considering the importance of increased productivity of agricultural products, an amount of Tk.6,000 crore was allocated in the revised budget of FY2017-18 to provide subsidy on fertiliser and other agricultural inputs.

Agriculture sector plays an important role in overall economic development of the country. The broad agricultural sector (crops, animal farming, forests and fishing) contributes 14.23 percent to GDP, provides employment about 40.62 percent of the labour force according to Quarterly Labour Force Survey 2016-17. Moreover, agriculture is the source of wide range of agricultural commodity markets, especially in rural areas.

Management of Agriculture

Achieving the target of self-sufficiency in food is one of avowed goals of the government. To attain this goal the government has placed highest importance on the overall development of agriculture sector. With a view to develop the agriculture sector, the government has taken a number of steps. These include expansion of small irrigation facilities, reduction of water logging, production of improved quality and high yielding varieties of seeds and their preservation and distribution. Agricultural research has been given special priority for the development and expansion of the draught and saline tolerant varieties, short-duration crops and varieties of crops adaptable to the weather and environment of a particular region and producing crops suitable for a particular kind of soil as well as proper use of fertiliser and Integrated Pest Management (IPM) for pest control. Saline tolerant and short duration crop variety and technology have been invented using nuclear technology and bio-technology. Saline tolerant crop varieties have extended the coverage of rice cultivation in the vast coastal areas of

southern region.

Steps have been taken to scale up subsidy on agricultural inputs, ensure fair price and supply of agricultural inputs. Moreover, expansion of irrigation facilities and increased availability of irrigation instrument, agriculture extension as per target, quality control of agricultural products and ensuring sufficient storage facility of food grains have been scaled up. Implementation of various programmes are underway to increase food production by expanding the coverage of agricultural land and by creating the opportunities of multiple cropping line of expansion of irrigation by using ground water in various regions of the country, reduction of water logging and planned drainage of water in *haor* areas.

Food Grains Production

According to the final estimate of BBS, the volume of food grains production in FY2016-17 stood at 386.96 lakh MT of which *Aus* accounted for 21.34 lakh MT, *Aman* 136.56 lakh MT, *Boro* 180.16 lakh MT, wheat 13.12 lakh MT. In FY2017-18 food grains production stood at 413.25 lakh MT of which *Aus* accounted for 27.09 lakh MT, *Aman* 139.94 lakh MT, *Boro* 195.76 lakh MT, wheat 11.53 lakh MT and maize 38.93 lakh MT. Table 7.1 shows the food grains production status during the period from FY2010-11 to FY2017-18.

Table 7.1: Food Grains Production

(In lakh MT.)

Food Grains	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18
Aus	21.33	23.33	21.58	23.26	23.28	22.89	21.34	27.09
Aman	127.91	127.98	128.97	130.23	131.90	134.83	136.56	139.94
Boro	186.17	187.59	187.78	190.07	191.92	189.38	180.16	195.76
Total Rice	**335.41**	**338.90**	**338.33**	**343.56**	**347.10**	**347.10**	**338.06**	362.79
Wheat	9.72	9.95	12.55	13.02	13.48	13.48	13.12	11.53
Maize*	15.52	19.54	21.78	25.16	23.61	27.59*	35.78*	38.93
Total	**360.65**	**368.39**	**372.66**	**381.74**	**384.20**	**388.17**	**386.96**	**413.25**

Source: Bangladesh Bureau of Statistics (BBS),*DAE, Ministry of Agriculture

Food Budget

Internal Procurement of Food Grains

In FY2017-18, the internal food grain procurement target was 17.3 lakh MT. Against this target, as much as 16.7 lakh MT was procured. Wheat procurement did not followed during the fiscal year.

Food Grains Import

In FY2017-18 the food grains import through government was 97.7 lakh MT. Of which rice 38.9 lakh MT, wheat 58.8 lakh MT. On the other hand, in private sector a total of 83.8 lakh MT food grain (rice:30.1 lakh MT, wheat:53.7 lakh MT) was imported during the same period.

Public Food Distribution

The government provides support for food to the fixed-income government employees and low-income people through different channels of Public Food Distribution System (PFDS). Under this programme, food grains are distributed through monetised channel includes subsidised distribution programme such as-Open Market Sale (OMS), Fair Price Card (FPC), Essential Priority (EP), Food for Work (FFW), Test Relief (TR), Vulnerable Group Feeding (VGF), Vulnerable Group Development (VGD), Gratuitous Relief (GR) and others.

In FY2017-18, the government distributed 21.17 lakh MT foods through different channels (monetised channel 17.09 lakh MT and non-monetised channel 4.08 lakh MT). In the FY2017-18 budgetary provision was 22.66 lakh MT.

Food Grain Storage Capacity

Up to June 2018, public food storage capacity stood at around 21.18 lakh MT.

Food Safety

In order to ensure contaminant free and food safety for the people, the government has started implementing the 'Food Safety Act, 2013' from the 1 February 2015. Eventually, 'Bangladesh Food Safety Authority' was activated on the 2 February 2015. Along with the inception of the implementation of the 'Food Safety Act, 2013', the Government has also taken steps to raise people's awareness of food safety and about the fundamental concepts of the law. The government has also taken efforts to increase the capabilities of the key organisations and concerned people so that the law is implemented properly. 'Bangladesh Food Safety Authority' will ensure a smooth collaboration among all the organisations that are concerned with food safety management. The authority will be responsible for the overall monitoring of safe food following farm to fork approach, viz. production, processing, storage and marketing of food and food stuffs. It will also be responsible for establishing good practices and updating methodologies for risk analysis in the food chain.

Seed Production and Distribution

Quality seed is the prime input to increased agricultural production. Quality seed alone can contribute to the increase of yield by 15-20 percent. At present, quality seed for different crops is being provided from public sectors as per demand. A number of seed producing organisations and NGOs are implementing quality seed distribution activities of hybrid rice, maize and vegetables. Some part of seed is produced, preserved and used privately specially at farmer's level. Bangladesh Agricultural Development Corporation (BADC) produces foundation seeds from breeder seed of cereal crops on its 24 farms, jute seeds on 2 farms, vegetable seeds on 2 farms, potato seeds on 2 farms and pulse and oil seeds on 4 farms, 2 vegetable seed production farms. Besides, certified seeds of rice, wheat, maize, jute, spices, potato and pulse and oil seeds are also being multiplied at 75 contract growers' zones. Furthermore, 9 horticulture development centers and 14 agro service centres of BADC are producing and distributing the seedlings and other planting materials throughout the country.

Taking into account the demand for quality seeds in Bangladesh, in FY2017-18, the target of seeds distribution to the farmers set by BADC was 1.40 lakh MT. Up to June 2018, BADC has supplied 1.40 lakh MT quality seed of different crops. The production and distribution of seeds through BADC's own farms and contract growers are shown in Table 7.2:

Table 7.2: Seed Production and Distribution through Seed Multiplication Farms and Contract Growers' Zones

(In metric ton)

Name of the Seed	Achievement in FY2015-16		Achievement in FY2016-17		Achievement in FY2017-18	
	Production	Distribution	Production	Distribution	Production	Distribution
Rice	80546	74558	83386	82038	85361	87668
Wheat	16532	20667	181161	16575	17956	18177
Maize	5	571	13	5	21	5
Potato	26453	25134	32901	25352	33044	31321
Pulses	1699	1323	2315	1699	2476	1888
Oil	3266	1300	775	1567	1245	1023
Jute	880	724	834	722	723	223
Vegetables	83	83	87	80	45	73
Spices	104	80	117	105	110	105
Total	**129568**	**124440**	**141296**	**128143**	**140981**	**140483**

Source: Ministry of Agriculture.

Fertiliser

The expansion of modern agricultural farming practices like use of High Yielding Variety (HYV) together with intensified cultivation is needed to ensure food for all, which led to an increasing demand for fertilisers. Therefore, it is necessary to ensure timely supply of both organic and chemical fertilisers to meet the nutritional demand of these varieties. The use of chemical fertiliser is on the increase with the increasing demand for food production in the country. The use of urea fertiliser alone was the highest. In FY2017-18, the total quantity of fertiliser used was 50.93 lakh MT. The year wise use of fertilisers during the period from FY2010-11 to FY2017-18 is shown in Table 7.3.

Table 7.3: Use of Chemical Fertiliser

(In '000'metric ton)

Name of Fertiliser											
FY	Urea	TSP	DAP	SSP	NPKS	MOP	AS	Gypsum	Zinc	Others	Total
2010-11	2652.00	564.00	305.00	0	40.00	482.00	6.00	25.00	7.00	0	4117.00
2011-12	2296.00	678.00	409.00	0	20.00	613.00	6.00	15.00	12.00	0	4049.00
2012-13	2247.00	654.00	434.00	0	25.00	571.00	8.50	40.00	24.00	19.0	4022.50
2013-14	2462.00	685.00	543.00	0	27.00	577.00	3.00	126.00	42.00	0.40	4465.40
2014-15	2638.00	722.00	597.00	0	27.00	640.00	6.22	122.00	39.00	0.00	4791.22
2015-16	2291.00	730.00	658.00	0	39.59	727.00	9.96	229.42	53.43	0.00	4738.40
2016-17	2366.00	740.00	609.00	0	20.00	781.00	10.00	323.30	57.47	0.00	4906.77
2017-18	2427.46	706.62	689.90	0	50.00	789.47	10.00	250.00	80.00	90.00	5093.45

Source: FFM, Ministry of Agriculture.

Irrigation

A well-planned irrigation system is necessary for increasing cropping intensity, yield as well as production. Government has attached more importance on reducing irrigation cost and retains balance of environment by increasing use of surface water and reducing use of underground water. Although the major part of minor irrigation is under private ownership, it is the duty of the government to establish efficient irrigation system such as sustainable irrigation facilities at low cost. The government implements different activities through efficient minor irrigation system. Rubber dam project has been taken in small and medium rivers of prospective areas for using surface water. Removal of water logged, re-excavation of canal, construction of surface irrigation channel and underground irrigation channel, embankment, irrigation structure, installation of power pump, Deep Tube Well (DTW), construction of *Jhiribadh* in hilly areas and installation of artisan well are being implemented.

Data of every moment is being collected by 201 auto water level recorders automatically which installed by BADC. Data monitoring and analysis of underground water is being made possible by preparing digital data bank. By this time, Groundwater Zoning Map has been prepared using those data and updating it from time to time.

Furthermore, irrigation charge can easily be collected by setting and using smart card prepaid meter. Thus, farmers are able to use optimum irrigation timely. Renewal energy such as solar operated pump has been installed by BADC. So far 57 solar pumps have been installed in different districts of the country. Other districts are being considered to install solar operated irrigation pump.

In the FY2017-18, 12 irrigation projects and 15 irrigation programmes were implemented by BADC. By those irrigation projects and programmes BADC expanded 20,600 hectre irrigation area, re-excavation of 343.37 km canal, construction of 392 irrigation structures, 187 km irrigation channel, construction of 2 rubber dam, construction of 2 hydraulic elevator dams were completed in June 2018. The irrigated land area during the period from FY2010-11 to FY2017-18 is shown in Table 7.4.

Table 7.4: Area under Irrigation

(Area in lakh hectare)

Irrigation method	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18
LLP& others	10.39	11.45	11.96	12.46	12.51	13.42	13.85	15.13
Deep tube well	7.19	7.59	9.34	8.78	9.62	11.94	10.63	10.73
Shallow tube well (surface/deep/very deep)	35.05	34.18	32.42	32.79	32.35	29.54	30.79	29.82
Total	**52.63**	**53.22**	**53.72**	**54.02**	**54.48**	**54.90**	**55.27**	**55.58**

Source: BBS, DAE, Ministry of Agriculture.

Barind Multipurpose Development Authority (BMDA) has expanded irrigation in all the districts of *Rajshahi* and *Rangpur* divisions. During FY2017-18, BMDA has irrigated about 5.175 lakh hector of land in *Aus, Aman* and *Boro* season through 15,517 deep tube wells and 417 Low lift pumps. To use the surface water for irrigation, the authority has re-excavated 3,098 *khas* ponds, 1972 km. canal and 745 cross dam have been constructed over the canal to preserve the water in the cannel. As a result 95,600 hectares of land has brought under supplementary irrigation.

To increase the use of surface water for irrigation the authority has introduced a system by which water is lifted from the *Padma*, *Mohanonda* and *Atrai* river and transported to the cannel through Buried pipe line. About 33,500 hectares of land has brought under irrigation by using 417 Low Lift Pumps (LLP) beside the cannel, river and other water bodies.

Jute Crop Production

Global awareness about environment friendly jute fiber as a natural fiber is increasing to protect the environment. The government is enacted 'Compulsory Use of Jute Fiber Packaging Act 2010' and 'Rules for Compulsory Use of Jute Fiber Packaging 2013'. According to this rule, jute fiber packaging is compulsory for 17 items. As a result demand of jute fiber is increasing in home and abroad. Production of jute is also increasing. The market price of raw jute in the recent years might play key role in growing interest of farmers to increase area and production. The production was about 88.95 lakh bale from an area of 7.58 lakh hectare in FY2017-18.

Agricultural Credit

Agriculture of Bangladesh is important at the subsistence level which makes agricultural and rural credit significant in ensuring food security. Extended Agricultural and Rural Credit Policy and Programme have been formulated by Bangladesh Bank to ensure agricultural and rural credit disbursement easier and hassle free. The agricultural and rural credit programme is being formulated in order to speed up the agricultural credit in the marginal level.

In FY2017-18, Tk.21,393.55 crore (104.87% of target) has been disbursed as agriculture and rural credit against target of Tk.20,400.00 crore through schedule banks. Table 7.5 shows a summary of agricultural credit disbursement and recovery during the period from FY2010-11 to FY2017-18.

Table7.5: Year-wise Disbursement and Recovery of Agricultural Credit

(In crore Tk.)

Fiscal Year	Target	Disbursement	Recovery	Balance
2010-11	12617.40	12184.32	12148.61	25492.13
2011-12	13800.00	13132.15	12359.00	25974.97
2012-13	14130.00	14667.49	14362.29	31057.69
2013-14	14595.00	16036.81	17046.02	34632.82
2014-15	15550.00	15978.46	15406.96	32936.80
2015-16	16,400.00	17646.39	17056.43	34477.37
2016-17	17550.00	20998.70	18841.16	39047.57
2017-18	20400.00	21393.55	21503.12	40601.11

Source: Bangladesh Bank.

Renovation in Agriculture Sector

Ministry of Agriculture has been implementing different development projects/programmes in the field of agricultural research and education, agricultural extension and training, marketing of agricultural products, agricultural support and rehabilitation, innovation, procurement and management of agricultural input and equipment, seed production, storage and distribution, extension of irrigation facilities, fertiliser management activities, farm mechanisation and crop storage etc. Some important activities are mentioned below:

- Implementing projects in *Haor* areas to increase cropping intensity
- Establishment of Bangladesh Institute of Research and Training on Applied Nutrition (BIRTAN) to reduce nutritional problems, develop skilled human resources and create employment
- Implementing projects to reduce pressure on ground water and enhancing ground water level through recharge wells
- Implementing projects on irrigation and conservation of rain water in the *Barind* Region in order to increase crop production and promote minor irrigation facilities through solar energy driven dug wells
- Invention of flood, drought, salinity and high temperature tolerant crop varieties to cope with climate change effect
- Introduction of crop zoning technology
- Enhancement of extension activities to promote modern cultivation method at the farmer's level
- Enhancement of irrigation facilities to increase crop production through the construction of rubber dams in small and medium rivers
- Implementing projects on the marketing of agricultural products and development of rural communication to ensure fair price of agricultural products
- Implementing projects on farm mechanisation technology to increase crop production and minimise the seasonal labor crisis

- Providing subsidy to farmers in purchasing agriculture equipment's to promote farm mechanisation
- Ensuring supply of quality seed to farmers through establishment of seed cold storage at proper time
- Establishment of seed multiplication farm in the south west region of the country to ensure quality seed supply
- Modernisation of seed production, processing and distribution system to ensure quality seed supply to farmers
- Implementing projects to transform the barren land into arable land through the expansion of irrigation facilities
- Establishment of Community Rural Radio to share information on modern agricultural practices among rural farmers community
- Establishment of Agriculture Information and Communication Centre (AICC) at union level
- Promotion of agriculture and agriculture based services through the development of several online based activities such as Online Fertiliser Recommendation Software, Bangladesh Rice Knowledge Bank etc.
- Establishment of a call center at the head office of Agriculture Information Service (AIS)
- Introduction of internet facilities to all marketing offices at district level and publication of market prices and other information at the website
- Promotion of agriculture and agriculture based services through mobile operators
- Ensuring proper use of surface water through modern irrigation technologies
- Implementing project for the establishment of Post-Entry Quarantine Centre
- Promotion of organic pest control method and organic agriculture activities
- Implementing a project on Genome Sequencing of Jute for selection of jute cultivation area and extension of Ribbon Rating Technology
- Extension and popularization of cultivation of vegetables and spices on floating bed in water logging area
- Promoting participation of women in agricultural sector to alleviate poverty and create employment opportunities

Fisheries Sector

Fish Production

Bangladesh is one of the world's leading fish producing countries with a total production of 41.34 lakh MT, where aquaculture contributes 56.4 percent for last 10 years. According to FAO statistics 2018, Bangladesh ranked 3rd in inland open water capture production and 5th in world aquaculture production. Currently Bangladesh ranked 4th in Tilapia production in the world and 3rd in Asia. National fish Hilsha as a single species has been making the highest contribution to the country's total fish production. 'Geographical Indication Registration Certificate' has been achieved for our national fish Hilsha. In FY2017-18 fishing sector contributes 3.57 percent to the GDP and 25.30 percent to the country's total

agricultural products. A considerable part of the country's export earning comes from this sector. The main target of fisheries sector is to increase supply of animal protein through boosting of fish production. To achieve this target the government has been initiating and implementing different programmes. Major activities are expansion and strengthening of community based fish culture programmes, ensure the entry of fishermen in the public water bodies, implementing *beel* nursery programmes and fry releasing programmes in the open water, establishment of fish sanctuary, expansion of *gher* and cage culture programmes, restoration of fish habitat by excavating filled rivers, innovation of new technology by research and expansion of these technology in the field etc. For the human resource development Department of Fisheries (DoF) arranges different training programmes for fish and shrimp farmers and also for the fishermen regularly. Besides, DoF has been implementing open water fisheries resources management programmes for the economic and social development of the poorest fish farmers and fishermen.

The total fish production in FY2016-17 stood at 41.34 lakh MT against the total demand 40.39 lakh MT. Table-7.6 shows the trend of fish production during the period from FY2010-11 to FY2017-18.

Table7.6: Fish Production Trends in Different Resources

(In lakh metric ton)

Sector	Area (Lakh ha)	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18 (Projected)
1.Inland									
(a) Capture									
(i) River & Estuaries	8.54	1.45	1.46	1.47	1.67	1.75	1.78	2.72	2.81
(ii) Sundarban	1.78	0.22	0.22	0.22	0.18	0.18	0.17	0.18	0.19
(iii) Beel	1.14	0.82	0.85	0.89	0.89	0.93	0.95	0.98	1.00
(iv) Kaptai lake	0.69	0.09	0.08	0.09	0.08	0.09	0.10	0.10	0.11
(v) Flood plain	26.93	7.97	6.96	6.86	7.13	7.30	7.48	7.66	7.84
Sub-Total (Open Water)	**39.08**	**10.55**	**9.57**	**9.61**	**9.96**	**10.25**	**10.48**	**11.64**	**11.95**
(b) Culture									
(i) Pond	3.77	12.20	13.92	14.79	15.26	16.13	17.20	18.33	19.19
(ii) Baors	0.055	0.512	0.052	0.06	0.07	0.07	0.08	0.08	0.08
(iii) Seasonal cultured water bodies	1.33	0.049	1.32	1.39	1.93	2.01	2.08	2.16	2.21
(iv)Shrimp /Prawn farms	2.76	1.85	1.96	2.04	2.16	2.23	2.40	2.47	2.53
(iv) Pen culture	0.833	-	-	-	0.13	0.13	0.13	0.13	0.14
(iv) Cage culture	0.001	-	-	-	0.01	0.02	0.02	0.02	0.03
Sub-Total (Culture)	**8.745**	**14.60**	**17.26**	**18.60**	**19.57**	**20.60**	**22.04**	**23.33**	**24.33**
Total (Inland)	**47.82**	**25.15**	**26.83**	**28.81**	**29.53**	**30.85**	**32.52**	**34.97**	**36.28**
2. Marine Fisheries	0.48 sq.								
(a) Industrial	nautic	0.41	0.73	0.73	0.77	0.85	1.05	1.08	1.12
(b) Artisanal	al	5.05	5.05	5.16	5.18	5.15	5.21	5.29	5.37
	mile								
Total (Marine)	**-**	**5.46**	**5.78**	**5.89**	**5.95**	**6.00**	**6.26**	**6.37**	**6.49**
Country Total	**47.82**	**30.62**	**32.62**	**34.10**	**35.48**	**36.85**	**38.78**	**41.34**	**42.77**

Source: Department of Fisheries, Ministry of Fisheries and Livestock.

Production of Fish Spawn and Fish Fry

The main pre-requisite to increase fish production is the availability of quality fish seed. The production and collection of spawn from natural sources is decreasing due to environmental changes and man-made obstacles such as construction of unplanned flood dams, irresponsible use of insecticides in the crop fields, pollution of water etc. Several steps were taken by the government for the restoration of the natural breeding habitats. Inbreeding is the major problem for fish seed production in the hatchery. To overcome this problem, DoF developed infrastructure facilities in 32 government farms and raised brood stock thereby collecting fries from the natural sources and rearing these fries properly to make as a quality broods. These brood fishes are distributed to private hatchery owners in a concession price. To ensure the supply of quality fish seed, at present there are 140 governments Fish Seed Multiplication Farm (FSMF), 872 private fish hatcheries throughout the country. The production statistics of carp spawn and fingerlings both from public and private sectors are shown in Table 7.7.

Table 7.7: Production Statistics of Carp Spawn/Fingerlings from Hatcheries

Year	No. of Hatcheries		Spawn (MT.)			No. of Fry/Fingerlings (Crore)		
	Public	Private	Public	Private	Total	Public	Private	Total
2010	120	862	5.59	460.20	465.79	2.11	983.87	985.98
2011	125	845	6.84	617.64	624.48	2.12	818.21	820.33
2012	125	902	9.07	626.52	635.59	2.14	822.62	824.76
2013	134	887	9.04	450.07	459.11	1.45	900.15	901.50
2014	136	893	9.87	492.47	502.34	4.28	1028.33	1032.61
2015*	136	857	10.46	705.19	715.65	2.59	828.02	830.61
2016*	137	899	11.18	668.20	679.38	2.78	828.47	831.25
2017*	138	872	12.49	670.09	682.58	2.52	879.12	881.64
2018*	140	872	8.46	469.06	477.52	0.31	483.52	483.83

Source: Department of Fisheries, Ministry of Fisheries and Livestock* 2015-2018 revised

Protection and Conservation Programme for *Jatka*

The government is taking several timely and realistic programmes to ensure the sustainable increasing trend of *Hilsa* production. As a result of combined implementation of these programmes *Hilsa* production is in increasing trend for the last seven years, which is recognised at national and international level. Following programmes have been implemented by the Government to conserve and to develop the *Hilsa* resources:

a. Implementation of Vulnerable Group Feeding (VGF) programme to prevent fishermen from starvation during *jatka* conservation period of November to June.

b. Distribution of alternative income generating resources to the extreme poor fishermen who are abstained from *jatka* fishing.

c. Arranging awareness raising programmes to prevent indiscriminate *jatka* fishing as well as implementation of fish conservation act.

d. Arranging awareness building and fish act implementation programme to stop *Hilsa* fishing, marketing and carrying for 22 days during the peak spawning season to protect *Hilsa* brood.

e. Observing *Jatka* Conservation Week every year to create social movement for protection *jatka* fish.

Along with these activities to prevent poor fishermen from *jatka* fishing a seven year project named *Jatka* Conservation, Alternative Income Generation for the *Jatka* Fishers and Research' has been implemented by the government. For the alternative income generation, the fishermen abstained from *jatka* fishing, a total of 32,509 *Jatka* fishermen family were provided materials like rickshaw, van, cow, goat, poultry, sewing machine, cage culture equipment, fishing net and small business support etc. amounting to Tk.27.00 crore. Moreover, 32,509 *jatka* fishermen were trained to improve their skill and to make them aware. Besides these activities, VGF programme has been implemented to prevent fishermen from starvation during *jatka* conservation period. In FY2017-18, 39,787.84 MT rice grain were distributed for four months, 40 kg. per months for each families among 2,48,674 fishermen families of 85 *upazilas* of 17 districts.

In addition to awareness building programmers, implementation of fish conservation act has been strengthened to conserve brood *Hilsa* during the peak spawning period and to ensure smooth spawning and to prevent *jatka* fishing at growing stage. With the participation of district administration, Police, Navy, Coast Guard, Rapid Action Battalion and Border Guard Bangladesh combined joint operation and mobile court has been implemented to conserve this national resource. Due to implementation of *jatka* conservation programme, management of fish sanctuary and implementation of *Hilsa* spawning protection activities. It is expected that *Hilsa* production will be increased up to 5.00 lakh MT in FY2018-19.

Management of Marine Fisheries Resources

Bangladesh has its vast marine water resources. Bangladesh won the maritime boundary of 1,18,813 square km by the International Tribunal for the Law of the Seas (ITLOS) that provides an equitable manner and rights in fishing over the area. It opened a new horizon of finding new fishing grounds in our sea area.

Bangladesh has been considered as a pilot country to implement blue economy concept. A National Action Plan has been developed in 2014 including short term, midterm and long term plans to address sustainable catch and conservation of marine resources. According to Action Plan DoF and MOFL have already implemented following development activities**:**

- Bangladesh has got a high-tech multipurpose survey and research vessel '*R.V. Meen Shandhani*' to make assessment of marine fisheries resources.

- *R, V. Meen Shandhani'* has conducted 16 surveys including shrimp surveys, demersal surveys, pelagic surveys and one biodiversity survey in the Bay of Bengal with the Technical and financial Support of FAO.
- Under The Marine Fisheries Ordinance-1983, 40 meter water depth is reserved for small-scale fisheries to minimise the conflict between industrial vessels and artisanal fishers.
- One marine surveillance check post at Potenga, Chattogram is in operation. A proposal for establishing 14 Surveillance Check Points in coastal districts are in a process.
- Declaration of an MPA (Marine Protected Area) of 976sq. km area at *Nijhum Dwip* by government is under process.
- Bangladesh achieved a status of Contracting Party of Indian Ocean Tuna Commission (IOTC) in May 2018.

Export of Fish and Fisheries Products

Bangladesh exports quality frozen shrimp and other fishes and fish products. Major destinations of Bangladeshi fishery products are EU countries along with USA, UK, Japan, France, Hong Kong, Singapore, Saudi Arabia and other countries. Remarkable success has been achieved in exporting quality shrimp through proper implementation of National Residue Monitoring Programme (NRCP), credible laboratory testing services and Hazard Analysis and Critical Control Point (HACCP) in processing establishments. Implementation of Good Aquaculture Practice (GAP) at the farm level is the prime effort triggering the production of high quality primary products compliant to the requirements of EU countries as well as international communities. In FY2017-18, Bangladesh earned Tk.4,309.9 crore by exporting 0.69 lakh MT of fish and fish products.

Livestock

A number of initiatives have been taken by the government for livestock development. The most important ones include: breed up gradation through artificial insemination using superior quality frozen and liquid semen, production and distribution of vaccine for poultry and livestock, supply of duckling and chicks at a cheaper price, increased production of semen, artificial of transfer technology, prevention and control of anthrax, foot and mouth diseases and avian influenza.

According to the estimate of the Department of Livestock Services (DLS), the population of livestock and poultry rose to 551.39 lakh and 3,379.98 lakh respectively in FY2017-18. Table 7.8 shows the livestock and poultry population of the country over the past few years.

Table 7.8: Number of Livestock and Poultry Population in Bangladesh.

(Number in Lakh)

Livestock/ Poultry	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18
Cattle	231.21	231.95	233.41	234.88	236.36	237.85	239.35	240.86
Buffalo	13.94	14.43	14.50	14.57	14.64	14.71	14.78	14.85
Goat	241.49	251.16	252.76	254.39	256.02	257.66	259.31	261.00
Sheep	30.02	30.82	31.43	32.06	32.70	33.35	34.01	34.68
Total livestock	**516.66**	**528.36**	**532.11**	**535.90**	**539.72**	**543.57**	**647.45**	**551.39**
Chicken	2346.86	2428.66	2490.10	2553.11	2617.70	2683.93	2751.83	2821.45
Duck	441.20	457.00	472.53	488.61	505.22	522.40	540.16	558.53
Total Poultry	**2788.06**	**2885.66**	**2962.64**	**3041.72**	**3122.93**	**3206.33**	**3292.00**	**3379.98**

Source: DLS, MoFL

The production of animal protein like milk, meat (beef, mutton, chicken) and eggs have been increasing over the past several years. As a result, per capita availability of animal protein is rising. The production statistics of milk, meat and eggs during the period from FY2010-11 to FY2017-18 are summarised in the Table 7.9.

Table 7.9: Production of Milk, Meat and Eggs

Product	Production								
	Unit	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18
Milk	Lakh tones	29.47	34.63	50.67	60.90	69.69	**72.75**	92.83	94.06
Meat	Lakh tones	19.86	23.32	36.20	45.20	58.62	61.52	71.54	72.60
Eggs	Lakh	60785	73039	76173	101680	109952	**119124**	149331	155200

Source: DLS, MoFL

Artificial Insemination of Cattle

Artificial Insemination is an important tool to increase production and productivity of animal. Semen is collected from the bulls reared in the Central Cattle Breeding Station at *Savar, Dhaka,* Regional Cattle Breeding Station, *Rajshahi* and other 13 District Artificial Insemination (AI) Centres and processed as liquid and frozen semen to run the Artificial Insemination Extension Programme. A total of 3,880 AI sub-centres and points are in operation to run the programme. In FY2017-18, the number of semen production and inseminated cows are 42.83 lakh doses and 38.45 lakh respectively.

Vaccination and Treatment

The government has been producing 17 different types of livestock and poultry vaccines to immune livestock and poultry population to prevent diseases. In FY2017-18, 2,462.62 lakh doses of vaccines were produced (159.43lakh doses for livestock and 2303.19 lakh doses for poultry). The number of doses of vaccine administered for livestock and poultry was 158.98 lakh and 2,381.83 lakh respectively. About 111.75 lakh livestock and 1,142.60 lakh poultry were provided treatment in FY2017-18 through veterinary services.

Table 7.10 shows the year wise major activities of the DLS.

Table 7.10: Major Activities of DLS

(Number in lakh)

Activities	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18
Semen production	24.42	34.29	34.52	38.23	37.19	41.50	41.84	42.83
Treatment	496.60	457.16	564.44	626.87	775.00	909.20	1397.37	1254.35
Vaccine production	2410	1400.0	1774	2055	1914	2363.89	2537.33	2462.62
Training	9.81	9.52	10.34	10.15	11.04	12.65	14.37	1.89

Source: DLS, MoFL

Legal Reforms and Infrastructural Development

To assure quality feed supply to livestock and poultry and to make relentless efforts towards food safety, the government has approved the 'Fisheries and Livestock Feed Act, 2010'. Similarly, to assure *halal* method and to prevent unscientific slaughter of animal, the government has approved the 'Animal Slaughter Act, 2011 and Animal Feed Rules, 2013'.

For providing one stop service to the farmers, 84 new upazila Livestock Development Center building was established through ULDC Establishment project. On the other hand, 14 new duck hatchery was established through Regional Duck Breeding Farms Establishment project. With a view of creating more veterinary graduates, a veterinary college was established at Sirajgong through Sirajgong Govt. Veterinary College Establishment project. For creating diploma graduate in livestock sector, Gaibandha livestock diploma institute was established through 'Establishment of Institute of Livestock Science & Technology' project. Through this project another 4 diploma institute establishment at Gopalgonj, Khulna, Brahmanbaria and Netrokona district is going on. Besides, a national livestock and poultry training institute was established at 'Gopalgonj district through Establishment of National Institute of Livestock and Poultry Management and Disease Diagnostic Laboratory' project. Moreover, 3 demonstration sheep farm was established at Rajshahi, Bagerhat and Bogura district through Conservation & Improvement of Native Sheep through 'Community Farming & Commercial Farming' project. Establishment of 2 bull station cum A.I lab at Chattogram and Faridpur district and 5 bull calf rearing unit cum mini A.I lab at Bogra, Sylhet Khulna, Rangpur and Barisal district is going on through 'Artificial Insemination Activities Extension and Embryo Transfer Technology Implementation' project. Besides, establishment of a national livestock quality control laboratory at Savar, Dhaka is going on through 'Establishment of Quality Control Laboratory for Livestock Inputs and its Food Products' project.

Export of Meat and Livestock Products

Livestock sector has been earning foreign currency by exporting meat and livestock products to USA, UAE, China, Kuwait, Canada, Japan and Maldives. In FY2017-18, 81.67 MT meat, 29.30 MT bull stick, 1,176 MT bone chips, 58.52 MT tail hair of cattle, 24.65 MT sweet, curd and *roshmalai* and

12,076 pieces duck dawn jacket were exported from Bangladesh which earned about Tk.16 crore.

Budget Allocation for Agriculture Sector

In FY2017-18, the total revised budget allocation for agricultural sector (Ministry of Agricultural, Ministry of Livestock and Fisheries and Ministry of Food) stood at Tk.13,992 crore (Tk.11,264 crore for non-development and Tk.2728.00 crore for development).

Considering the increase of agriculture production and to provide subsidy to the farmers for fertiliser and other agriculture inputs an amount of Tk.6,000 crore was allocated in revised budget. Furthermore, an amount of Tk.100 crore was allocated for agricultural rehabilitation programmmes and Tk.100 crore was allocated for seeds sub activities. The government has also been allowing 20 percent rebate on electricity bills for agro-based industries.