

CHAPTER SEVEN

AGRICULTURE

As a result of the government's adoption of agriculture-friendly policies and strategies, it has been possible to continue agricultural production and ensure food and nutrition security despite the impact of reduction in arable land, food and nutrition needs of increasing population, climate change, Russia-Ukraine crisis and corona epidemic. The government is working tirelessly to build sustainable, safe and profitable agricultural systems to ensure food security. The government has been making all out efforts for the overall development of the agriculture sector in the light of Vision 2041, 8th Five Year Plan, National Agricultural Policy 2018, Sustainable Development Goals, Deltaplan-2100 and other planning documents. At present, the government has adopted short, medium and long term action plans to meet the future needs of the growing population, based on the agriculture sector's achievements in various emergencies, including the impact of COVID-19. The total production target of food grains in FY 2022-23 is 484.98 lakh metrictonnes (MT), which was 465.83 lakh MT in FY 2021-22. In the revised budget of FY 2022-23, the target for domestic food grain procurement is 17.35 lakh MT. As of February 2023, the country has imported 11.56 lakh MT of food grains under government management. However, a total of 17.53 lakh MT (4.14 lakh MT of rice and 13.39 lakh MT of wheat) was imported in the private sector. In FY 2022-23, a total of Tk. 21,066.51 crore was disbursed as against the target of Tk. 30,911.00 crore till February 2023, which is about 68.15 percent of the target. In order to increase the productivity in response to the effects of corona, subsidies on agricultural inputs have been increased, agricultural inputs have been made available and the scope of agricultural credit has been facilitated. With a view to increasing agricultural production, Tk. 16,000.00 crore has been allocated for subsidising fertilisers and other agricultural activities and Tk. 150.00 crore has been allocated for seed production activities to support the farmers in the budget of FY 2022-23. A total of 47.59 lakh MT of fish was produced from inland water bodies and marine sources in FY 2021-22 which is targeted 47.81 lakh MT in FY 2022-23. In order to prevent various diseases and reduce the financial risk of diseases, 32.04 crore dose vaccines for 17 diseases of cattle and poultry have been produced and applied in FY 2021-22.

Management of Agriculture

In addition to achieving self-sufficiency in food, the main goals of the government are ensuring safe and nutritious food, increasing productivity, developing marketing systems and establishing profitable agricultural system. To attain these goals, the government has taken timely policies, action plans and steps. With the highest consideration for the development of agriculture and the welfare of the farmers, the government is continuing its all-out efforts for the overall development of the agricultural sector in light of the Vision 2041, 8th Five Year Plan, National Agriculture Policy 2018, National Agricultural Extension Policy 2020, National Agricultural Mechanisation Policy 2020, Master Plan for

Agricultural Development in the South, Sustainable Development Goals, Deltaplan-2100 and other planning documents. At this time, Bangladesh has advanced one notch from fourth to third place in rice production in the world. Moreover, Bangladesh is now self-sufficient in grain crops, third in vegetable production and seventh in mango and potato production.

To ensure the food security of the country, increasing the production of all types of crops including rice and corn, developing the quality of their seeds using biotechnology, ensuring optimum use of surface water and solar-powered irrigation, promoting application of organic fertilisers to safeguard soil health, providing smart cards to all farmers and weather forecasting

through climate smart agriculture system and have been strengthened. In addition, continuing development assistance (subsidies) to agricultural input like fertiliser and seeds, making available agricultural machinery to the farmers, expanding ‘synchronised cultivation’ and collaborating in the production, storage and marketing of a variety of vegetables and fruits are being provided. Initiatives have been taken to increase the cultivation and production of crops through utilisation of fallow land.

In addition, launching ‘*Krishi Batayon*’ to deliver agricultural services to the doorsteps of farmers as many as 499 Agriculture Information and Communication Centres (AICCs) have been set up in the country. Farmers can call hotline number 16123, from any mobile phone to get agriculture information service. Moreover, several mobile and web applications including Krishi Community Radio, Krishok Bondhu Phone Seba-3331, e-Book, Online Fertiliser Recommendation, e-Irrigation Service, Rice Knowledge Bank, Krishi Technology Repository, e-Pesticide Prescription, *Krishoker Janala* (Farmer’s Window), Farmer’s Digital Address, and Community Rural Radio are now being used to offer agricultural information services to the farmers. In addition, two online agricultural market platform ‘Hortex Bazar’ and ‘Food for Nation’, have been launched. Action plan of the Ministry of Agriculture, 2020 has been formulated to deal with various emergency

situations including the impact of COVID-19, to continue to increase agricultural production, develop agricultural marketing system and ensure fair price of agricultural products.

This action plan has a total of 97 short (1 year), medium (2-3 years) and long term (4-5 years) plans. Increased agricultural subsidies, incentive and support cards for other agricultural inputs such as fertilisers and seeds, lower irrigation prices, agricultural commodity transportation at reduced rates, agricultural rehabilitation assistance and special agricultural loan facilities with low interest and easy terms have been provided for rehabilitation assistance including regular agricultural rehabilitation assistance in FY 2020-21, FY 2021-22 and FY 2022-23.

Food Grains Production

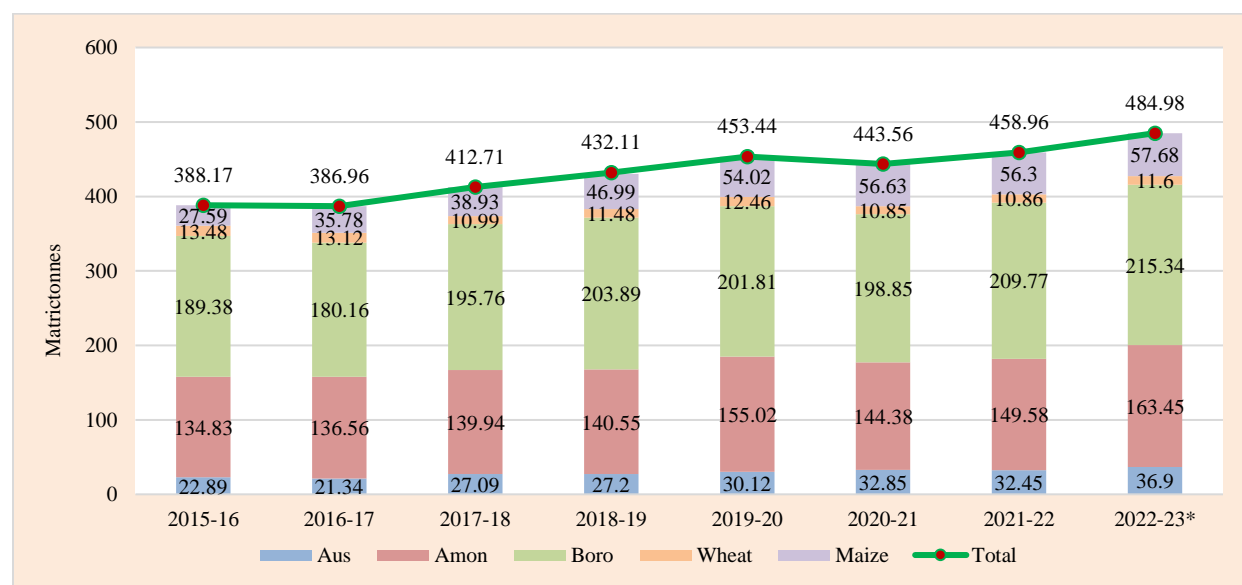
According to the combine estimate of BBS, Ministry of Agriculture and Department of Agriculture Extension (DAE), the volume of food grains production in FY 2021-22 stood at 458.96 lakh MT, of which *Aus* accounted for 32.45 lakh MT, *Aman* 149.58 lakh MT, *Boro* 209.77 lakh MT and wheat 10.86 lakh MT. In FY 2022-23 total food grains production target is 484.98 lakh MT, of which *Aus* 36.90 lakh MT, *Aman* 163.45 lakh MT, *Boro* 215.34 lakh MT and wheat 11.60 lakh MT approximately. Table 7.1 and Figure 7.1 shows the food grains production status.

Table 7.1: Food Grains Production

(In lakh MT.)								
Food Grains	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23*
<i>Aus</i>	22.89	21.34	27.09	27.20	30.12	32.85	32.45	36.90
<i>Amon</i>	134.83	136.56	139.94	140.55	155.02	144.38	149.58	163.45
<i>Boro</i>	189.38	180.16	195.76	203.89	201.81	198.85	209.77	215.34
Total Rice	347.10	338.06	362.79	373.63	386.95	376.08	391.80	415.69
Wheat	13.48	13.12	10.99	11.48	12.46	10.85	10.86	11.60
Maize	27.59	35.78	38.93	46.99	54.02	56.63	56.30	57.68
Total	388.17	386.96	412.71	432.11	453.44	443.56	458.96	484.98

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

Figure 7.1: Food Grains Production



* target

Food Budget

Internal Procurement of Food Grains

In FY 2021-22 the revised budget of public food grain procurement was 19.23 lakh MT (18.23 lakh MT rice and 1.00 lakh MT wheat). Out of this targeted amount, 20.20 lakh MT rice was domestically procured from *Boro* and *Amon* seasons. In FY 2022-23, the revised budget for

public food grains procurement has been set at 17.35 lakh MT (17.35 lakh MT). Against this target, 11.25 lakh MT rice has been procured from *Boro* and *Amon* up to 28 February 2023.

Food Grains Import

In FY 2022-23, the revised budget for government food grain import was 16.00 lakh MT (9.00 lakh MT rice and 7.00 lakh MT wheat).

Out of the budget, a total of 11.56 lakh MT food grains (5.83 lakh MT rice and 5.73 lakh MT wheat) was imported up to February 2023. On the other hand, in private sector a total of 17.53 lakh MT food grains (4.14 lakh MT rice and 13.39 lakh MT wheat) was imported during the same period. As a result, a total amount of imported food grain is 29.09 lakh MT (9.97 lakh MT rice and 19.12 lakh MT wheat).

Public Food Distribution

Under the Public Food Distribution System (PFDS) government distributes food grains to prioritised groups of employees and the low-income people through different channels. Under this programme, food grains are distributed through monetised channel that includes subsidised distribution programme such as - Open Market Sale (OMS), Essential Priority (EP), Others Priority (OP), Food friendly programme (*Khaddya bandhob Kormosuchi*), LE programme and so on. On the other hand, non-monetised channels are all the social safety net programmes like Food for Work (FFW), Test Relief (TR), Vulnerable Group Feeding (VGF), Vulnerable Group Development (VGD), Gratuitous Relief (GR) and others.

In FY 2021-22, the government had a revised budget of 32.75 lakh MT food grains for distribution and the actual distribution was 30.77 lakh MT (monetised 20.47 lakh MT and non-monetised lakh 10.23 MT). In FY 2022-23, the government food grains distribution budget has been revised and set at 32.81 lakh MT. Against this budget, up to February 2023, total actual distribution was 19.36 lakh MT, where 13.90 lakh MT was in monetised channels and 5.46 lakh MT in non-monetised channel.

Food Grain Storage Capacity

The total capacity of food godowns and silos in the country till February 2023 in FY 2022-23 stands at 21.59 lakh MT; which was 21.86 lakh MT in the same period of FY 2021-22.

Food Safety

Following the 'Food Safety Act-2013', the Government of Bangladesh has established Bangladesh Food Safety Authority (BFSA) which is in effect since February 2015 with a view to ensuring safe food for the people of the country. 2nd February in each year is being observed as National Food Safety Day since 2018. Bangladesh Food Safety Authority, as a central coordinating body, conducts mobile courts with awareness campaigns against food adulteration through coordination among all concerned government and non-government stakeholders. It also conducts food safety and quality testing, restaurant grading and monitoring activities.

In FY 2021-22 February 2022, 1,447 food samples were collected. Of the tested samples, 1,298 were standardised and 149 were sub-standardised by the government-recognised accredited labs. Up to February in FY 2022-23, 7,905 food establishments (hotels/restaurants, sweets and confectioneries, bakeries and others) were visited and given directions. Among these, 68 hotels-restaurants/food establishments were given grading (A+, A, B and C) stickers. By conducting 119 mobile courts from July to February 2023 through BFSA's own magistrate filed 104 cases against 104 persons and imposed a fine Tk. 1.14 crore. Also 8,590 food workers have been trained to improve service quality of hotel/restaurant related businessmen and employees till February 2023. Up to February 2023, raising public awareness on food safety has been provided through seminars/workshops in 196 educational institutions and 307 seminars/workshops were attended by public representatives at divisional/district/*upazila* level.

Seed Production and Distribution

One of the most important inputs for enhancing crop yield and ensuring food security is high-quality seed. 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 sector as per demand. A number of private seed producing organisations are also supplying hybrid rice, maize and vegetable seeds. Bangladesh Agricultural Development Corporation (BADC) is performing seed production activities through 24 cereal seed production farms, 2 jute seed production farms, 2 potato seed production farms, 4 pulse and oil seed production farms, 2 vegetable seed production farms and 88 contract growers' zones.

Likewise, BADC produces and supplies different crop sapling, graft and *gooties* through 9 Horticulture Development Centres and 14 Agro Service Centres. At present, the number of farmers are 1,01,134 under 88 contract-growers zones throughout the country, the area of land is 2,59,825 acres. In FY 2022-23 seed production target of BADC is 1.47 lakh MT as per demand of the country. Seed production and distribution by BADC in the FY 2020-21 to FY 2021-22 are shown in the table 7.2

Table 7.2: Seed Production and Distribution

(in MT)

Name of seed	2020-21		2021-22		2022-23	
	Production	Distribution	Production	Distribution	Production (target)	Distribution*
Rice	93364	86266	94979	93210	92400	97980
Wheat	16228	14762	15801	16303	13300	15800
Maize	52	566	56	39	60	100
Potato	35148	32476	33352	33851	36500	31697
Jute	736	592	1301	911	1000	854
Pulse	1807	2029	1920	1856	1800	1911
Oil	1427	1621	1499	1479	1600	1690
Vegetable	88	102	120	112	115	89
Spices	154	158	285	355	225	140
Total	149004	138572	149313	148116	147000	150261

Source: Ministry of Agriculture. * Up to February 2023.

Fertiliser

To meet the increasing population's food needs, intensive farming with high yielding varieties and advanced technology should continue to increase food production. Organic fertilisers as well as chemical fertilisers have to be used in the soil to meet the nutrient deficiencies required for these high yielding crops. The use of chemical

fertilisers for crop production is increasing day by day to ensure increase in agricultural production as the demand for food rises. The use of urea fertiliser alone is the highest in the agriculture of the country. In FY 2022-23, a total of 68.25 lakh MT of fertiliser was used, of which urea was 26.61 lakh MT. The year wise use of fertilisers during the period from FY 2015-16 to FY 2022-23 is shown in Table 7.3.

Table 7.3: Use of Chemical Fertiliser

(In '000' metrictonn)

FY	Name of Fertiliser										Total
	Urea	TSP	DAP	SSP	NPKS	MOP	AS	Gypsum	Zinc	Others	
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	40.00	781.00	10.00	323.30	57.47	0.00	4926.77
2017-18	2427.46	706.62	689.90	0	50.00	789.47	10.00	250.00	80.00	90.00	5093.45
2018-19	2594.00	781.00	763.00	0	50.00	724.00	10.00	285.00	95.00	120.00	5422.00
2019-20	2505.00	660.00	953.00	0	42.00	715.00	6.00	360.00	115.00	101.00	5457.00
2020-21	2463.00	523.00	1424.00	0	40.00	798.00	4.00	550.00	141.00	130.00	6073.00
2021-22	2661.00	736.00	1685.0	0	30.44	890.00	3.049	539.64	138.27	142.152	6825.55
2022-23*	2286.00	674.00	1427.0	0	21.77	826.00	2.56	455.90	99.64	120.44	5913.31

Source: FFM, Ministry of Agriculture. * Up to February 2023.

Irrigation

Through environmental conservation, agricultural intensification, diversity and yield increase, efforts are being undertaken to ensure a harmonious and well-planned use of the country's groundwater and surface water. The government has placed special emphasis on maintaining ecological balance and reducing irrigation costs by reducing the use of groundwater and increasing the use of surface water. The government is implementing various activities for efficient micro-irrigation management. Rubber dam and Hydraulic Elevator Dam projects have been taken in small and medium rivers of prospective areas for using surface water. Removal of water logging, 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.

A total of 201 Auto Water Level recorders have been installed by BADC through survey and monitoring project of minor irrigation development. Data of every moment is being collected by Auto Water Level recorders

automatically. 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 on a regular basis. Where and which type of irrigation equipment is required throughout the country can easily be determined by this Ground Water Zoning Map. Furthermore, irrigation charge can easily be collected by setting and using smart card/prepaid meter. This has enabled the farmers to irrigate in optimum and timely manner. Renewable energy such as solar operated pump has been installed by BADC. So far, 450 solar powered irrigation pumps and 191 solar powered dug wells have been installed in different districts of the country. In addition, there are plans to install solar powered irrigation pumps in area-based and centrally implemented projects. In FY 2022-23, 11 irrigation projects and 01 irrigation programmes are being implemented through BADC. Through all these irrigation projects and programmes re-excavation of 850 k.m. khal/canal/drain, construction of 600 irrigation infrastructures and 1,000 km irrigation channel, installation of 117 power pumps, electrification in 433 irrigation schemes, installation of 102 solar powered irrigation pumps and 203 numbers nos solar powered dugwell, construction of 38

km embankment, installation of 16 nos sprinkler irrigation systems and 20 nos drip irrigation system exhibition plots and supplying of 1,00,105 meter ribbon pipe will be completed by June 2023.

Barind Multipurpose Development Authority (BMDA) has expanded irrigation in all the districts of *Rajshahi* and *Rangpur* divisions. In FY 2022-23 (up to February, 2023) about 4.70 lakh hectares of land has brought under controlled irrigation in *Aus*, *Aman* and *Robi* seasons by using 15,496 nos. of Deep tubewells (DTW) and 673 nos. of Low lift pumps (LLP). To use surface water for irrigation BMDA has re-excavated 3,751 nos. *khas* ponds, 6 nos. water bodies, 2,215.07 km. *khas* canal and to preserve the water in the canal 750 nos. cross dam has been constructed across the canals. As a result, about 1.10 lakh hectares of land has been 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* rivers and supplied to the canal through buried pipe line. About 22,500 hectares of land has brought under irrigation by using 673 nos Low Lift Pumps (LLP) beside the canal, river and other water bodies. Alternate Wetting and Drying (AWD) irrigation system is introduced for saving irrigation water. To motivate and encourage the farmers for cultivating profitable and less water consuming crop like, wheat, potato, bean and other pulse type crops, the authority undertook some training and motivational programme for the farmers.

Area under irrigation continues to grow. The total area under irrigation in FY 2016-17 was 55.27 lakh hectares, which increased to 56.88 lakh hectares in FY 2021-22. The target area for irrigation in FY 2022-23 has been set at 57.20 lakh hectares. The irrigated land area during the period from FY 2016-17 to FY 2022-23 is shown in Table 7.4.

Table 7.4: Area under Irrigation

(Area in lakh hectare)

Irrigation method	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23*
LLP & others	13.88	12.21	12.48	12.70	12.87	13.10	13.33
Deep tube well	10.63	10.72	10.76	10.84	10.85	10.38	10.39
Shallow tube well (surface/deep/very deep)	30.79	29.82	29.94	30.01	30.06	30.70	30.75
Others	1.97	2.82	2.69	2.72	2.76	2.70	2.73
Total	55.27	55.57	55.87	56.27	56.54	56.88	57.20

Source: DAE, BADC, BMDA, Ministry of Agriculture. * Target.

Jute Crop Production

About 3 percent of the country's total export income comes from jute and jute products. Therefore, the contribution of jute sector in the development of agriculture and socio-economic condition of this country is very important.

Increasing environmental awareness around the world has increased the demand and market value of jute as a natural fiber to protect the environment from the harmful effects of synthetic fibers, both nationally and internationally. Moreover, the government has enacted 'Mandatory Packaging Act-2010' and

‘Rules for Mandatory Packaging with jute bag-2013’. According to this rule, jute fiber packaging is compulsory for 17 items. As a result, demand of jute fiber is increasing at home and abroad. Production and demand of jute is also increasing. Increasing awareness on national and international concern of environment and interest on diversified jute products such as jute sacks, floats, ropes, CBC etc. as well as modern products such as jute fabric, jute wool, blanket, prayer mat, carpet, paper, sanitary napkin, fireproof jute fiber, rot proof nursery pot, bio pulp, bio-composite, jute-geo textile etc. are being produced. The world's renowned car manufacturing company uses jute to manufacture the interior of the car. So, in this regard industrial research on jute is also important as agricultural research for developing new diversified jute products. As a result, demand for jute fiber is increasing at home and abroad. The market price of raw jute in the recent years might play key role in growing interest of farmers to increase area and production. In FY 2022-23, jute has been cultivated in 7.54 lakh hectares of land.

Agricultural Credit

In order to strengthen the food security of the country and to uplift the role of the agricultural

sector and rural areas, the distribution of agricultural and rural loans through banks and financial institutions is continuing. 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. Like previous years, the agricultural and rural credit policy and programme in FY 2022-23 is formulated with a view to speed up the agricultural credit at the marginal level.

In FY 2021-22 Tk. 28,834.21 crore has been disbursed as agricultural and rural credit against the target of Tk. 28,391.00 crore through all the scheduled commercial and specialised banks, which is 101.56 percent of the target. Beside this, in FY 2022-23 Tk. 21,066.51 crore has been disbursed up to February 2023 as agricultural and rural credit against the target of Tk. 30,911.00 crore, which is 68.15 percent of the target. Like the previous fiscal years agricultural credit is increasing every year. The below table shows a summary of agricultural and rural credit disbursement and recovery position during the period from FY 2015-16 to February 2023 of FY 2022-23.

Table 7.5: Year-wise Disbursement and Recovery of Agricultural Credit

(In crore Tk.)

Fiscal Year	Target	Disbursement	Recovery	Balance
2015-16	16400.00	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
2018-19	21800.00	23616.25	23734.32	42974.29
2019-20	24124.00	22749.03	21245.24	45592.86
2020-21	26292.00	25511.35	27123.90	45939.80
2021-22	28391.00	28834.21	27463.41	49802.28
2022-23	30911.00	21066.51	20985.53	51234.84

Source: Bangladesh Bank * up to February 2023.

Development projects/programme

In the context of present global economic crisis, the Ministry of Agriculture is taking and implementing integrated activities in the irrigation and crop sub-sector under several development projects to keep mobility in crop production as per the instructions of the Honorable Prime Minister, with the aim of not leaving an inch of land uncultivated. 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. for ensuring long term food security. Some important reform activities are mentioned below:

- Implementing projects in *haor* areas to increase cropping intensity.
- Ensuring nutrition security through year-round fruits production.
- Implementing projects to reduce pressure on ground water and enhancing ground water level through recharge wells.
- Expansion of irrigation facilities and increase of crop production through installation of rubber dams on small and medium rivers.
- 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.
- Raising awareness among farmers and personnel involved with agricultural activities on the proper utilisation of arable land, fertiliser and other agricultural inputs.
- Establishment of Bangladesh Institute of Research and Training on Applied Nutrition (BIRTAN) to reduce of nutritional problems, to develop skilled Human Resources and to create employment opportunities.
- Agriculture research organisations have invented flood, drought, salinity and high temperature tolerant crop varieties to cope with climate change effect.
- Introduction of crop zoning technology.
- Implementing projects on the marketing of agricultural products to ensure fair price for the farmers.
- Implementing projects on Farm Mechanisation Technology to increase crop production and minimize the seasonal labor crisis.
- Ensuring supply of quality seed to farmers through establishment of seed cold storage.
- Modernisation of seed production, processing and distribution system to ensure quality seed supply to farmers.
- Developing sustainable agricultural business and enhancing nutrition through Programme on Agricultural and Rural Transformation for Nutrition, Entrepreneurship, and Resilience (PARTNER).
- Flood Reconstruction Emergence Assistance for Agriculture (FREAR) project is in the process of being implemented for the expansion of crop production and technology in areas prone to flash floods in Sylhet region.
- The *Kandal* Crop Development Project has been undertaken to increase the production and marketing of exportable potatoes to a sustainable 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 (www.dam.gov.bd).
- 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.
- Using solar energy for irrigation to save oil and electricity.
- Promoting participation of women in agricultural sector to alleviate poverty and create employment opportunities.
- Identification of pests and diseases of vegetables, fruits and betel leaves.
- Adoption of synchronised cultivation.
- Establishment of family nutrition garden in homestead and uncultivable fallow land.

Fisheries Sector

Fish Production

The contribution of the fisheries sector to food security, employment creation, expansion of export, trade and above all the socio-economic

development of Bangladesh is undeniable. Bangladesh has achieved fish production self-sufficiency through the adoption and implementation of timely plans for the production and management of inland open water bodies, inland closed water bodies and marine water bodies. The government is implementing various programmes to ensure the supply of animal protein through increasing fish production. Fish farming in open water, conservation of endangered fish species, establishment of fish breeding and breeding sanctuaries, conservation of *Jatka*, eco-friendly shrimp farming and other activities are currently underway. The *Halda* river, a natural fish breeding centre, has been declared a '*Bangabandhu* Fisheries Heritage'. In addition, quality control activities have been intensified to preserve and expand the market for export of fish and fish products.

As a result of successful implementation of far-reaching planning and development projects undertaken by the government in the fisheries sector, the fish production in FY 2021-22 stood at 47.59 lakh metric tonnes, which is 1.56 times more than the total production (30.62 lakh MT) in FY 2010-11. According to FAO report 'The State of World Fisheries and Aquaculture 2022', Bangladesh ranked 3rd in inland open water capture production and 5th in world aquaculture production. Moreover, Bangladesh ranked 1st among 11 Hilsa producing countries in the world and ranked 4th in Tilapia production in the world and 3rd in Asia. Table 7.6 shows the trend of fish production during the period from FY 2015-16 to FY 2022-23.

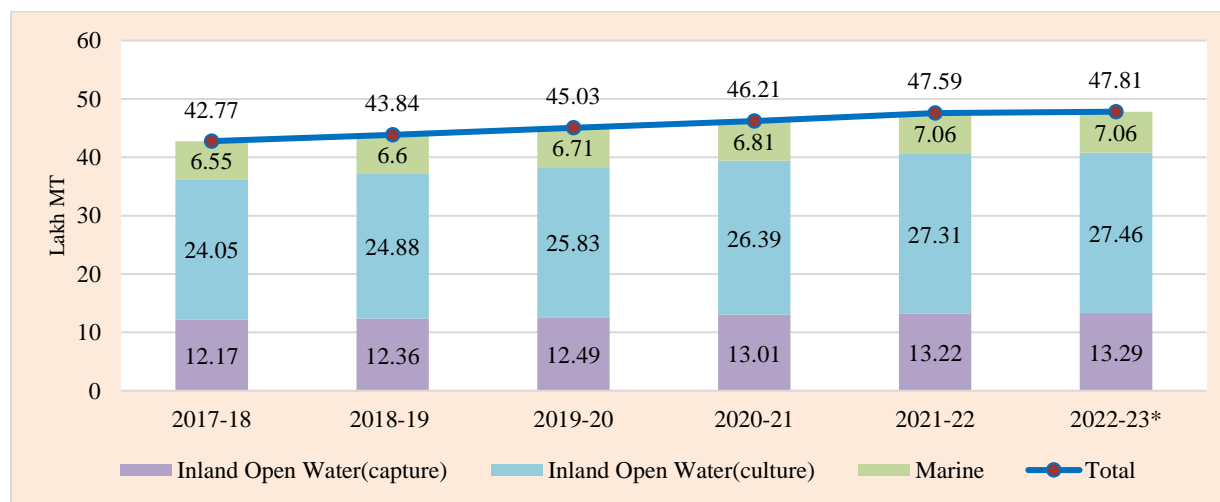
Table 7.6: Fish Production Trends in Different Resources

(In lakh metrictonnes)

Sector	Area (Lakh ha)	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23*
1. Inland									
(a) Capture									
(i) River & Estuaries	8.54	1.78	2.72	3.21	3.25	3.29	3.37	3.43	3.68
(ii) Sundarban	1.78	0.17	0.18	0.18	0.18	0.21	0.22	0.24	0.20
(iii) Beel	1.14	0.95	0.98	0.99	2.00	1.00	1.05	1.06	1.09
(iv) Kaptai lake	0.69	0.10	0.10	0.10	0.11	0.13	0.12	0.18	0.11
(v) Flood plain	26.93	7.48	7.66	7.69	7.82	7.73	8.25	8.31	8.21
Sub-Total (Open Water)	39.08	10.5	11.64	12.17	12.36	12.49	13.01	13.22	13.29
(b) Culture									
(i) Pond	3.77	17.20	18.33	19.00	19.75	20.46	20.91	21.67	21.82
(ii) Baors	0.055	2.08	0.08	0.08	0.1	0.11	2.27	2.32	2.43
(iii) Seasonal cultured water bodies	1.33	0.08	2.16	2.16	2.17	2.26	0.11	0.12	0.09
(iv) Shrimp /Prawn farms	2.756	2.40	2.47	2.54	2.58	2.7	2.79	2.87	2.84
(v) Pen culture	0.833	0.13	0.13	0.11	0.12	0.13	0.14	0.15	0.11
(vi) Cage culture	0.001	0.02	0.02	0.04	0.04	0.04	0.05	0.05	0.04
(vii) Crab		0.13	0.14	0.12	0.12	0.13	0.12	0.13	0.13
Sub-Total (Culture)	8.75	22.04	23.33	24.05	24.88	25.83	26.39	27.31	27.46
Total (Inland)	47.83	32.52	34.97	36.22	37.24	38.32	39.40	40.53	40.75
2. Marine Fisheries									
(a) Industrial		1.05	1.08	1.2	1.07	1.15	1.19	1.37	1.30
(b) Artisanal		5.21	5.29	5.35	5.53	5.56	5.62	5.69	5.76
Total (Marine)	-	6.26	6.37	6.55	6.60	6.71	6.81	7.06	7.06
Country Total	47.83	38.78	41.34	42.77	43.84	45.03	46.21	47.59	47.81

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

Figure 7.2: Fish Production Trends in Different Resources



*Projected

Production of Fish Spawn and Fish Fry

At the moment, hatchery-produced seed/fry are meeting nearly hundred percent of total demand for fish farming. However, it is often difficult to obtain quality fry from hatcheries due to inbreeding issues. To overcome this problem, Department of Fisheries has continued its efforts to ensure the quality of fry by producing quality brood in hatchery through collecting fry from natural sources. At present there are 143 government fish farm and 1,190 private farms and 17,478 nurseries are operating throughout the country.

Conservation Programme for *Jatka*

Hilsa is one of the bearers and carriers of the tradition and culture of Bangladesh. Bangladesh is a role model in Hilsa production in the world. Hilsa alone accounts for 12.22 percent of the total fish production in Bangladesh. Hilsa contributes more than one percent to the country's GDP. The contribution of Hilsa as a single species is the highest. Hilsa of Bangladesh is appreciated in the world market with its own identity after obtaining the Geographical Registration Certificate (GI Certificate) titled Bangladesh Hilsa. Bangladesh is known as the country of Hilsa producing more than two-thirds of the world. The government has taken the following initiatives to increase the production of Hilsa and ensure sustainable production:

- Formulating and implementing Hilsa Fisheries Management Action Plan.
- Identifying 7,000 sq. km. major Hilsa breeding area in Bay of Bengal.
- Establishment of a total of 6 Hilsa sanctuaries in the upper and lower basins of *Padma, Meghna, Kalabadar, Andharamanik* and other coastal rivers including *Tentulia* and strengthening of partnership management.
- Declaring 3,188 sq. km. Marine Reserve Area adjacent to *Nijhum dweep*.

- 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.
- Imposing 8 months (November-June) ban on *Jatka* fishing.
- Imposing 65 days ban on all kind of fishing in Bay of Bengal
- Developing the livelihood of Hilsa fishermen by giving VGF (vulnerable group feeding) and AIG (alternative income generation).

As a result of the above-mentioned initiatives and joint operations/mobile courts, conservation of *Jatka* and implementation of Hilsa breeding protection activities, production and size of Hilsa have increased unexpectedly. In FY 2021-22, the production of Hilsa was 5.67 lakh MT, which is 66.76 percent more than the total production of Hilsa (3.40 lakh MT) in FY 2010-11. Under the social security programme, In FY 2021-22, a total of 59,141.04 MT food assistance was provided to 3.91 lakh *Jatka* families at the rate of 40 kg/month. In 2022, special combing operations were conducted in 17 districts (*Barishal, Bhola, Patuakhali, Barguna, Pirojpur, Jhalokhathi, Chandpur, Noakhali, Cox's Bazar, Chattagram, Laxmipur, Khulna, Bagerhat, Satkhira, Shariatpur, Madaripur and Munhsiganj*) to eradicate the misuse of illegal nets for fishing.

Management of Marine Fisheries Resources

The historic sea conquest under the leadership of our government has paved the way for developing the country's blue economy. In 2014, a short, medium and long-term plan of action was formulated in order to achieve the desired growth in sustainably conserving, managing and extracting fish resources from the vast waters obtained through sea conquest. For proper management of fisheries resources and development of green economy in the marine waters of Bangladesh, 'Marine Fisheries Act-

2020' and 'Marine Fisheries Policy 2022' have been formulated.

The Research and Survey vessel 'RV Mean Sandhani' have conducted 44 survey cruises till February 2023 in the Bay of Bengal and data has been stored for biological analysis. A request letter has been sent to FAO to conduct a full survey of the Exclusive Economic Zone (EEZ) of Bangladesh for 30 days by the *R.V. Dr. Fridtjof Nansen*. Activities for socio-economic development of fishermen are underway by establishing 450 fishing villages to ensure co-management of marine fisheries resources. The project is providing grants for mariculture and marine fisheries value chain development through applied research to enrich the blue economy through sustainable use of marine water resources.

National Plan of Action (NPOA) is being implementing to prevent Illegal, Unwanted and Unreported (IUU) Fishing. All kinds of fishing have been banned through all types of fishing vessels in the sea for 65 days since 2019. Allocation of 26,083.42 MT of VGF among 2,99,135 fishers families in 68 *upazilas* of 14 coastal districts for 65 days (20 May-23 July) under the humanitarian assistance programme in FY 2021-22. Coastal fishing by seine nets including other harmful nets is prohibited and joint operations are being conducted in coastal districts to reduce fishing pressure and sustainable fisheries management. The government has also taken up a project called 'Pilot Project on Tuna and Similar Pelagic Fishing in the Deep Sea' which will open a new horizon in the ocean economy. In FY 2021-22, marine fish production was 7.06 lakh MT which is 1.3 times higher than the total production in FY 2010-11 (5.46 lakh MT).

Export of Fish and Fisheries Products

Fisheries and fish products are one of the main export sectors of Bangladesh. The Government has taken the following initiatives to ensure

healthy and safe supply of fish and fish products to the domestic market as well as the international market:

- To ensure production of safe and quality fish and fish products three international quality fisheries quality control laboratories are being run under the Department of Fisheries.
- Implementation of Good Aquaculture Practice (GAP) and Hazard Analysis and Critical Control Point (HACCP) management systems has been ensured at every step of production of fish and shrimp.
- Standard Operating Procedure Manual has been formulated to ensure safe and quality shrimp production in line with the demand of the international market.
- The Aquaculture Medicinal Products Control Guideline has been authorised to control the use of medications in aquaculture practices

As a result, the implementation of the above mentioned activities, despite the financial recession in the world market, in the FY 2021-22, Bangladesh earned Tk. 5,191.75 crore by exporting 74,042.67 MT of fish and fish products which is 26.96 percent more than last year. In FY 2022-23 (till January), Bangladesh earned Tk. 3,226.03 crore by exporting 43,117.49 metrictonnes of fish and fish products.

Livestock

The livestock sector makes an undeniable contribution to Bangladesh's economic growth, food and nutrition security, creation of self-employment creation, and, most importantly, poverty alleviation. With the continuous efforts of the government, Bangladesh has achieved self-sufficiency in meat and egg production and has made promising progress in milk production. In attaining sustainable milk production, comprehensive initiatives have been taken to develop cattle breeds, milk marketing system, quality control and easy access of dairy products as well as to improve milk consumption trend.

Milk production in FY 2021-22 was 130.74 lakh MT, which increases 4.4 times as compared to FY 2010-11; hence, per capita availability reached to 208.61 ml/day. Exponential investment and commercialisation in the poultry sector has taken place in the context of government's policy support. Over the past few years, commercial cattle fattening has greatly expanded due to restriction of illegal cattle trade. As a result, Bangladesh has become self-sufficient in meat production. It is increased by 4.65 times in the last one decade and reached to 92.65 lakh MT in FY 2021-22 as well as per

capita availability reached at 147.84 g/day. Higher growth rate in egg production has been achieved due to development of climate adaptive layer breed, expansion of Grandparent stock, Parent stock and commercial farms including huge investment in quality poultry feed production. Egg production in FY 2021-22 was 2,335.35 crores, which was 3.8 times higher than FY 2010-11 (607.85 crores) and now per capita availability of egg rose to 136.01 number/year. The production statistics of milk, meat and eggs during the period from FY 2015-16 to FY 2022-23 are summarised in Table 7.7

Table 7.7: Production of Milk, Meat and Eggs

Product	Unit	Production							
		2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23*
Milk	Lakh MT	72.75	92.83	94.06	99.23	106.80	119.85	130.74	95.68
Meat	Lakh MT	61.52	71.54	72.60	75.14	76.74	84.40	92.65	66.70
Eggs	crore	1191.24	1493.31	1552.00	1711.00	1736.00	2057.64	2335.35	1627.89

Source: Department of Livestock Services, ministry of Livestock and Fisheries, *Up to February 2023.

Artificial Insemination of Cattle

In order to increase the production and productivity of cattle, artificial insemination services are being provided across the country through 15,389 artificial insemination sub-centres/points. Over the past decade, artificial insemination coverage has increased from 28 percent to 56 percent. During the period under review, semen production, artificial insemination and crossbred calf production increased by 4.1, 4.3 and 5 times respectively. In FY 2021-22, 120.29 lakh doses of quality semen were produced and 105.38 lakh breed able cows/heifers are inseminated of which about 48.07 lakh crossbreed calves were born.

Vaccination and Treatment

In order to prevent diseases and reduce the financial risk of diseases, 32.04 crore doses of vaccines for 17 diseases of cattle and poultry have been produced and implemented at the

government level in FY 2021-22. To prevent trans-boundary diseases 24 animal quarantine stations are working at different river ports, land ports and airports. In addition, initiatives have been taken to establish Veterinary Public Health Labs including modernisation of Central and Field Disease Investigation Labs for control of Zoonotic Diseases to protect public health. In FY 2021-22, 11.44 crore livestock and 54,129 pet services and 9,147 disease surveillance activities have been conducted.

Budget Allocation for Agriculture Sector

With the aim of building a self-sufficient and sustainable modern agricultural system, the government is undertaking various activities for the development of the agricultural sector. In order to ensure the food security and to maintain normal agricultural production, a total of Tk. 33,698 crore has been allocated for the agriculture, food security and fisheries and

livestock sectors in FY 2022-23, which is 4.97 percent of the total budget allocation. With a view to increasing agricultural production, Tk. 16,000 crore has been allocated in the budget of FY 2022-23 for subsidising fertilisers and other agricultural activities to support the farmers. Up to February 2023 Tk. 12,660.77 crore has released to provide subsidy on fertilisers and other Agriculture Inputs. Besides, an amount of Tk. 500 crore has allocated for agriculture rehabilitation assistance, out of which Tk. 366.24 crore has been released. In FY 2022-23, Tk. 150 crores has allocated for seed production activities and a 20 percent rebate on electricity

bills for the use of electricity-driven irrigation equipment.

An incentive package of Tk. 3,220 crore has been allocated for distribution of agricultural machinery to modernise agriculture, increase production, resolve labor crisis in major seasons and ensure overall food security. An agricultural refinance scheme of Tk. 5,000 crore was set up to facilitate access to credit by farmers for increasing agricultural production and food security. An additional allocation of Tk. 3,000 crore was made under this package in the 2nd phase from July, 2021 onwards. As a result, the size of this package stood at Tk. 8,000 crore.