

The Bangladesh Model

In Agriculture Growth



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The Bangladesh

Model in Agriculture Growth

Introduction

Agriculture sector is the lifeline of Bangladesh economy. It plays an instrumental role in fast-tracking the economic growth of Bangladesh. The sector has remained priority to the Awami League led government to ensure a profitable, sustainable and environment-friendly agricultural system and also crucial for long-term food security for the people of Bangladesh. The agriculture sector expanded at a rate of 4.19 per cent confronting the odds like reduction of cultivable land due to population density. The sectoral share of the agriculture sector stood at 14.23 per cent.

For the sustained growth in agriculture, the government supports expanding technology, diversifying crops, extending production of non-seasonal crops along with the seasonal ones. Innovating new variety of salinity tolerant seed and high yielding variety of paddy and jute, providing subsidy and agricultural credit, ensuring uninterrupted power supply for irrigation played an instrumental role in extending developing the agro-based industries. Besides, the government formulated its agriculture and food security policies, actions plans aligning the Sustainable Development Goals (SDGs).

This publication is an effort to document the contribution and accomplishment of the government in achieving food self-sufficiency and making the agriculture sector a contributing factor for the constant economic growth.

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1

Successes of the Agriculture Sector



In the last decade the Bangladesh agriculture sector registered significant growth. The area of arable land is decreasing because of population density, expansion of economic activities and increased demands for improved standard of living although the average growth of agriculture sector over last 10 years stood at 3.8 per cent. Even with the reduction of cultivable land, agricultural production has increased.

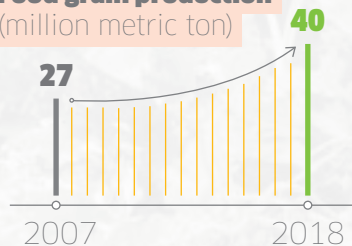
The government has prioritized the attainment of self-sufficiency in food grain production and the achievement of nutritional requirement by 2021. Vision 2021 is being implemented through medium term

plans of 5 years. The Sixth Five-Year Plan (2011-2015) aimed at raising agricultural productivity, fostering diversification and boosting rural infrastructure has been superseded by the Seventh Five-Year Plan (2016-20) to focus on developing the crop sub-sector to raise rural income and generate employment opportunities for poor rural people. The Seventh Five-Year Plan aims at ensuring food and nutritional security, sustainable intensification and diversification of climate resilient agricultural production with increased commercialization and livelihood improvement through technological innovations.

1.1 Agriculture and Food Security: A Decade's Journey

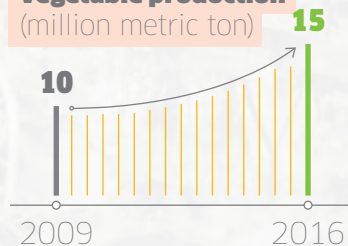
Food grain production

(million metric ton)



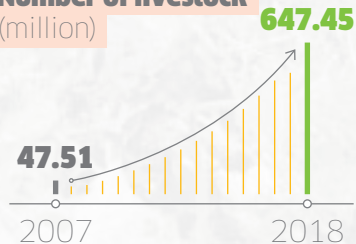
Vegetable production

(million metric ton)



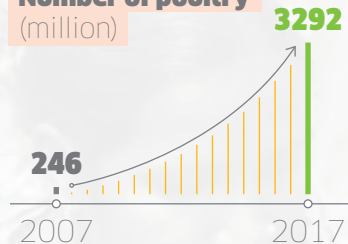
Number of livestock

(million)



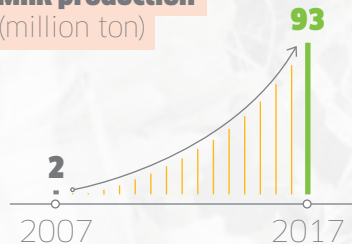
Number of poultry

(million)



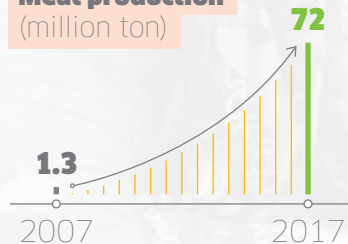
Milk production

(million ton)



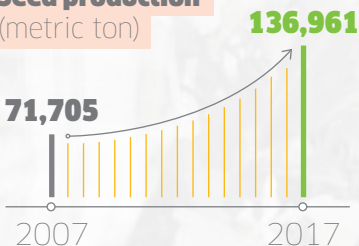
Meat production

(million ton)



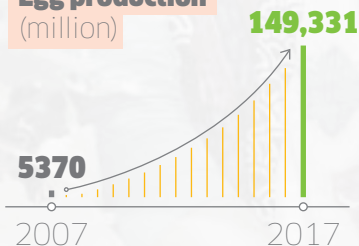
Seed production

(metric ton)



Egg production

(million)



Irrigation Area



1.2 Factors Behind the Success

There were multiple factors that catalyzed the radical growth in agriculture sector of Bangladesh. The factors other than political will and leadership are mentioned below:



The government initiated to install **1250 solar powered irrigation pump** by 2018



254 Agriculture Information Center established



Government has invested **US\$ 7220 million** in the last eight years



The government provided **US\$ 7055 million** under rehabilitation programs



21 million farmers received agriculture assistant cards



11 million farmers opened their bank accounts at a **cost of only Tk 10**



The government provided **US\$ 716 million as subsidies** in the last 9 years



In 2017 **US\$ 2515 million** disbursed as Agricultural Credit



The government **trained 41500** farmers, 2886 entrepreneurs and business-
es, 700 NGO workers, 380 bankers, 284 government officials



33432 entrepreneurs received **US\$ 32 million** agricultural entrepreneurship loan



Between 2009 and 2017, food storage capacity increased from **1.5 million metric ton to 2.1 million** metric ton

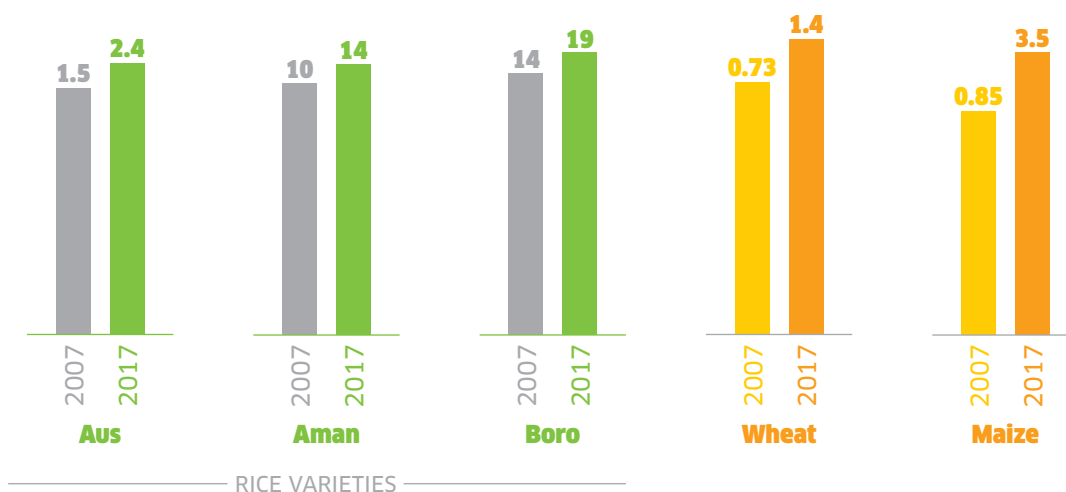
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Agricultural Goods Production at a Glance

Boro and Aman (rice varieties) yields reached 19.5 and 13.9 million ton respectively in 2018. The amount produced in the fiscal year surpassed all past records. Crop yield per hectare increased from 3,761 kg to

4,629 kg in the last nine years. The food grains production increased from 34 million metric ton in 2008 to 39 million metric ton in 2017 barring temporary setback arising from natural calamities.

Food grain production (million metric ton)



2.1 Vegetable Production

A significant growth was seen in the sector due to policy support, farmers' adoption of hybrid seeds, home gardening, and off-season and seasonal vegetable cultivation. In 2009, vegetable production was 10 million metric ton. And in 2016 vegetable production reached 15 million metric ton. Some of the most grown vegetables in Bangladesh include aubergines, tomatoes, cabbages,

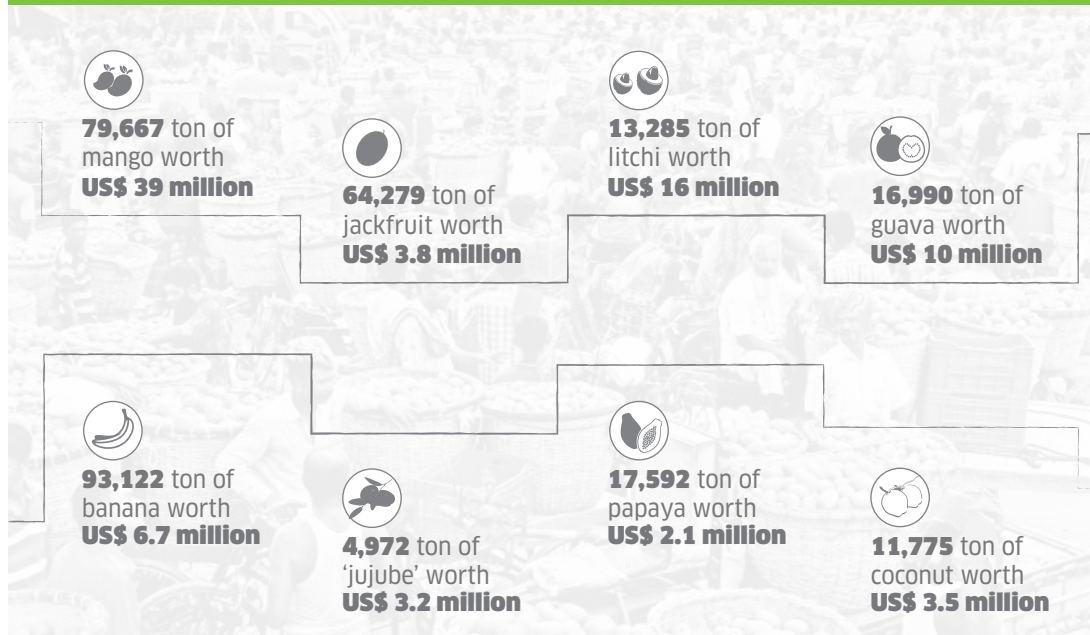
cauliflowers, water gourds, pointed gourds, ridge gourds, bitter gourds, ash gourds, snake gourds, teasel gourds, sponge gourds, pumpkins, lady's fingers, cucumbers, radishes, beans, carrots, spinach, red amaranth, stem amaranth, yard long beans, drumsticks, and arums. They see dramatic improvements in their crop output, land productivity, profitability, and net income.

2.2 Fruit Production

The farmers produced 0.33 million tons of fruits worth US\$ 112 million in 2017 in all five districts under Rangpur agriculture region and earned well after meeting nutrition of their family members. 40,000 farmers have achieved self-reliance through fruit

cultivation that has become a profitable venture in the agriculture sector in the region. The farmers produced 0.33 million ton of 41 varieties of high-priced, quick growing, high yielding, hybrid and indigenous varieties of fruits cultivated on 24,251 hectares of land.

Fruit Production Milestones





2.3 Fish Production

According to The State of Fish and Aquaculture 2018: FAO, Bangladesh ranked 3rd in inland fish production in the world. Previously in 2016, Bangladesh secured fourth position in fish production from inland open water. The government is continuing its activities to produce fish in open water, preserving endangered species of fishes, create sanctuaries for breeding and procreation of fishes, protect jatka and pursue environment friendly shrimp

culture. The government strengthened quality control activities to conserve and expand to the export market for fish and fish products. In 2018, Bangladesh earned US\$ 539 million by exporting around 69,000 metric ton of fish and fish products. About 17 million people of the country are directly or indirectly involved in the fisheries sector, which is 11 percent of the total population. In this, about 0.6 million new jobs are being created this year.

2.4 Livestock and Poultry

The animal farming subsector makes immense contribution towards meeting the requirements of daily essential animal protein for human consumption, reduction of poverty, production and exports of leather and leather goods. The most important initiatives have been taken for livestock development include, breed up-gradation through artificial insemination using superior quality frozen and liquid semen. Other initiatives include production and distribution of vaccine for poultry and livestock,

supply of duckling and chicks at a cheaper price, increased production of semen, artificial fetus transfer technology, prevention and control of anthrax, foot and mouth diseases and avian influenza. In livestock the population of livestock and poultry rose to 55 million and 329 million respectively in 2017. 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.

2.5 Seed Production

Seed production and distribution quality seed has been recognized as 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 seed producing organizations 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, jute seeds, vegetable seeds on 2 farms, potato seeds and pulse and oil seeds. In 2007, seed production was 71 thousand metric ton and in 2017, seed production reached 137 thousand metric ton.

2.6 Fertilizer

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 fertilizers. Therefore, it is necessary to ensure timely supply of both organic and chemical fertilizers to meet the

nutritional demand of these varieties. The use of chemical fertilizer is on the increase with the increasing demand for food production in the country. The use of urea fertilizer alone was the highest. In 2007 the use of fertilizer was 3.8 million metric ton and in 2017 the use of fertilizer reached 4.9 million metric ton.





2.7 Irrigation

A vast area of the country does not get irrigation in dry season because of climate change and unplanned extraction of underground water. A well-planned irrigation system is necessary for increasing cropping intensity, yield as well as production. The 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. 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.

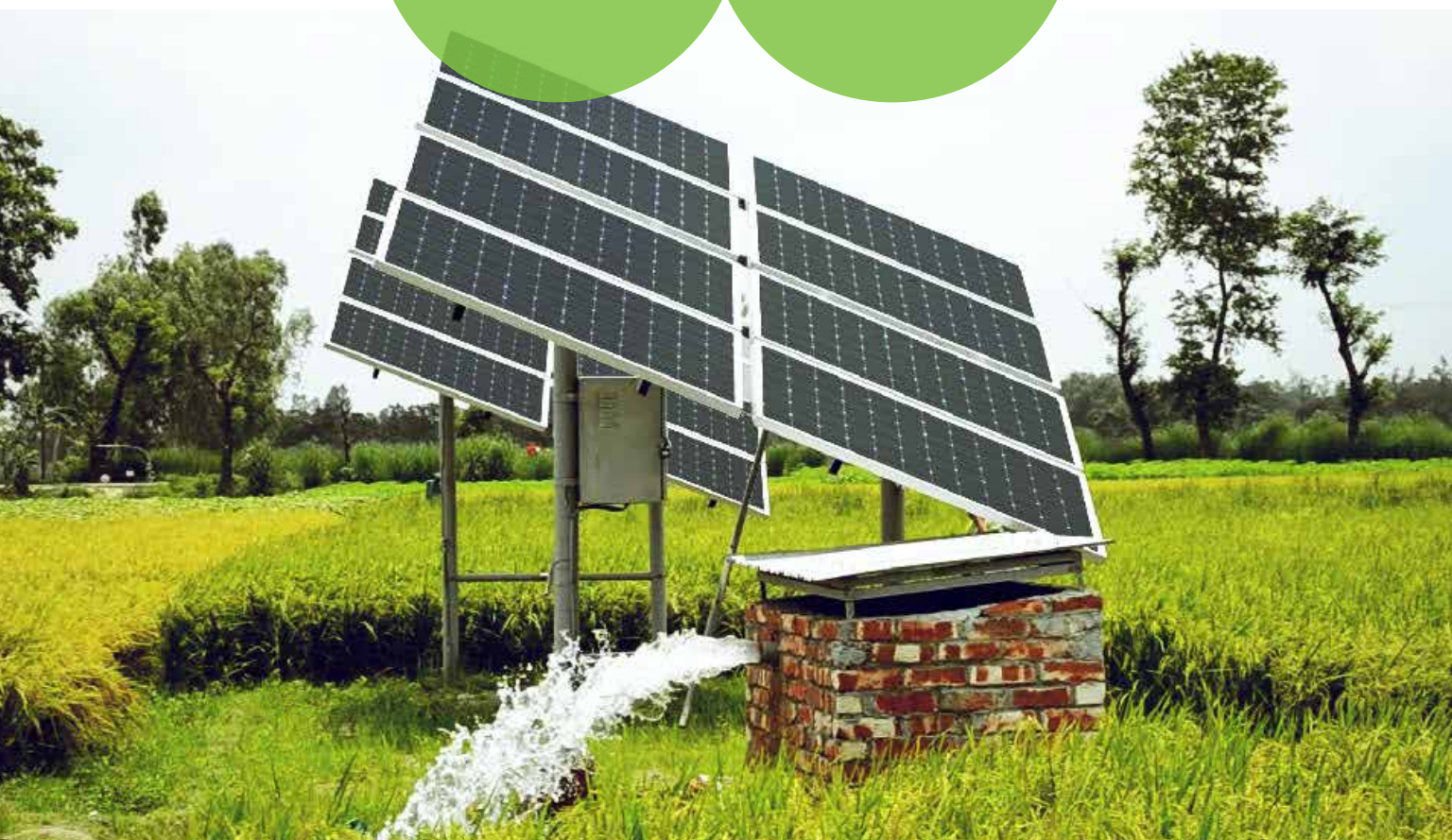
2.8 Mechanization

The country's agriculture sector has seen rapid development in the last decade. While a good deal of activities were done manually earlier has now been replaced by mechanized methods. Farm literacy has also seen considerable improvement due to the exten-

sion of agricultural workforce. However, the situation still demands massive improvements to properly utilize mechanization. A recent study on agricultural sector shows that mechanization has made quick strides in the country's agriculture sector.

300 pumps
are in
operation

benefitting
more than
8,000 farmers



2.9 Solar Irrigation

For rice cultivation, timely irrigation is vital and irregularities can severely affect crop quality and yield. Farmers are depended on expensive diesel generators for irrigation. Installation of solar irrigations pumps are improving quality of life for the farmers in Bangladesh. The solar pump covers around 12 hectares of land and

provides 500 thousand liters of water daily. Following Bangladesh's success in expanding solar home systems to provide electricity in rural areas, the government's initiated to install 1,250 solar-powered irrigation pumps by 2018 which are more affordable and easier to install than traditional systems.

3

Agricultural Investment

With a view to increasing production of crops and bringing agriculture inputs to the purchasing capacity of farmers, the government has invested US\$ 7,220 million in eight years. The Awami League led government provided US\$ 7,055 million under rehabilitation and stimulation programs for farmers across the country between 2008 and 2017. The government has brought fertilizer, electricity, diesel, sugarcane and other agricultural activities under subsidy program for increasing production and crop diversification. Besides, the government is transferring cash and other incentives directly to the farmers through mobile banking. With the directives of Prime Minister Sheikh Hasina, various initiatives have been taken to strengthen agriculture investment, provide low interest credit and high quality seeds, ensure availability of fertilizer, distribute agricultural input assistance cards, establish agricultural processing and marketing centers and diversify crops. 21 million farmers received agriculture assistant cards of which 20 million are male and 1.3 million are female farmers. 11 million

farmers opened their bank accounts at a cost of only BDT 10 and they deposited US\$ 28 million in their accounts. The government has cut nearly 50 per cent of non- urea fertilizer prices to make farmers enable to grow more rice for achieving food security and fulfill its electoral pledges.



Government investment
US\$ 7220
million in
eight years.



Government provided
US\$ 7055
million under
rehabilitation
and stimulation
programs

3.1 Subsidy

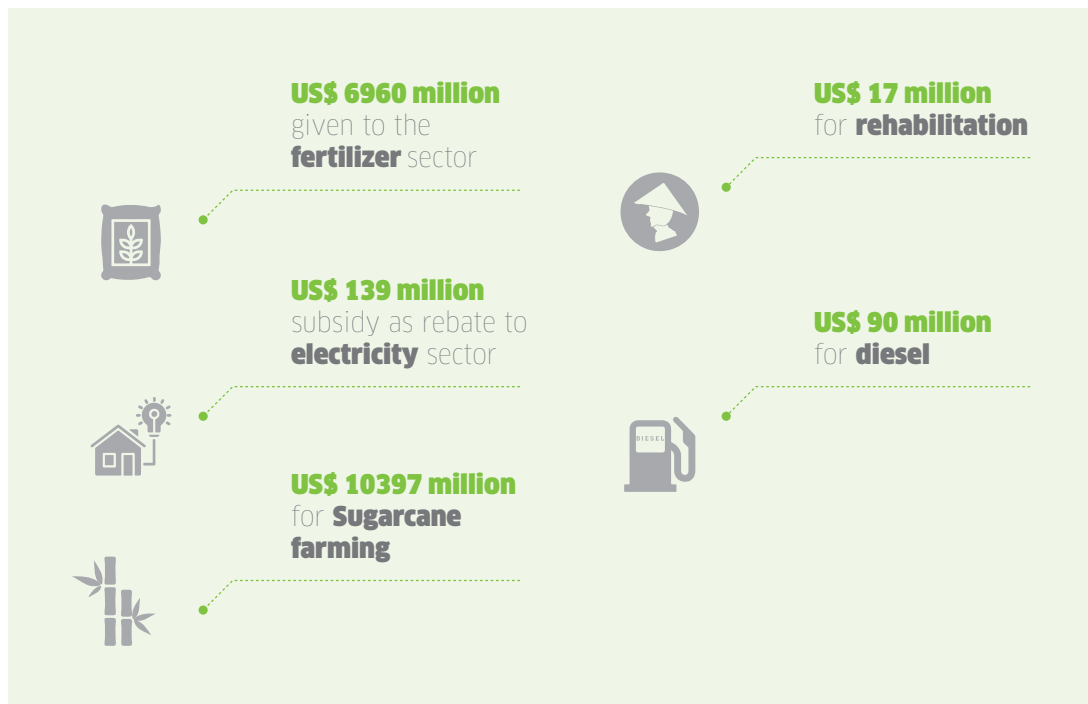
The government has provided US\$ 716 million as subsidies for the agriculture sector in the last nine years. After coming to power, the present government has increased the subsidy for fertilizer by reducing its price. Even the farmers are able to produce crop at minimum cost due to

providing subsidies to the electricity sector. In 2010, the government introduced the Agriculture Input Assistance Card Program. Through this program, farmers are being given a smart card that allows them to open a bank account through which they directly receive cash to buy inputs.

3.2 Agricultural Credit Disbursement

In 2007, Agricultural Credit disbursement was US\$ 1027 million and in 2017 Agricultural Credit disbursement reached US\$ 2514 million. Besides, US\$ 2514 million disbursed as agriculture and rural credit which was about 120 per cent of the target. The central bank has set an agriculture credit disbursement target of US\$ 2610

million for commercial banks for 2019. The total loan has been estimated at nearly 7.0 per cent higher than the target set in 2018. Integrated as well as floating farming system, rearing turkey and producing fish through pen system have also been added to the new policy of loan disbursement.



3.3 Agro-product Exports

The exports of agricultural products rose sharply in fiscal year 2017-18. Traders exported products worth US\$ 674 million in 2018. The sector grew by 22 per cent since 2017. Processed foods comprised more than 72 per cent or US\$ 490 million of the total

farm produce exports, making it an all-time high. Exporters earned US\$ 60 million only in fiscal year 2018. It was US\$ 33 million in the same period last year. Raw agro-products worth US\$ 181 million were exported in 2018.



E-agriculture Services



Digitalized e-agriculture service has been launched during Awami League government aiming to providing necessary

agriculture information and technology support to 30 million farmers across the country.

4.1 Krishi Batayan & Krishak Bandhu Phone Seba

Department of Agriculture and Extension (DAE) and Access to Information (a2i) of the Prime Minister's Office (PMO) jointly developed the 'Krishi Batayan, a digitalized agriculture portal, and 'Krishak Bandhu Phone Seba (Farmers-friendly phone service). All the farmers across the country are to avail information and technology support from the Krishi Batayan and the Krishak Bandhu phone seba services. Krishi Batayan or agriculture portal, developed with an extension dashboard along with sixteen different

modules and linked up with researchers, extension workers and academicians, will play a vital role in strengthening the relation among research-extension and field level as per the seventh-five-year plan. All the stakeholders, including farmers, dealers and the input suppliers, will receive their necessary information on supply, price and place of its availability from the module. The portal has also a virtual platform which contains overall information on 768 varieties of 120 crops and 1,000 crop diseases.

4.2 Online Fertilizer Recommendation System

Online Fertilizer Recommendation System adopted during the Awami League government is a revolutionary innovation added in the agriculture sector. Previously, people had to go to Dhaka city to test soil for further cultivation. Now the automation

process and online fertilizer recommendation made the process much easier. SRDI officials test soil sample and enter the fertilizer recommendation in the database. It turned the expenditure of time, cost and visit of beneficiaries into the least.

4.3 Krishoker Digital Thikana

Krishoker Digital Thikana (Farmers Digital Home) in another innovative brainchild launched by the government is a mobile phone applications aimed at bringing crop production technologies to the doorsteps of around 15 million farm households to boost yields. The apps titled Krishoker

Digital Thikana, Krishoker Janala and Pesticide Prescriber are expected to help thousands of agricultural extension workers who often find it difficult to provide solutions to problems facing farmers due to a lack of agriculture-related information in one place.

4.4 Agriculture Call Center (16123)

Agriculture Call Center (16123), a modern agriculture helpline, has gained popularity among farmers of the country by providing a wide range of agricultural solutions. Since its

inception in June 2014, the call center has been providing solutions to different agricultural problems of farmers. On average, around 500 calls come from farmers every day.



4.5 Bangabandhu National Agriculture Award

26 individuals and 6 organizations were honored with Bangabandhu Jatiya Krishi Puroshkar-1423, (Bangabandhu National Agriculture Award-1423), the highest state recognition in the agriculture sector. Prime Minister Sheikh Hasina formally handed over the awards to them. These awards were given for their special contribution to agriculture research and expansion, cooperatives motivation, technology innovation, commercial farming, aforestation, rearing livestock and poultry and fish farming. In 1973, Father of the Nation Bangabandhu Sheikh Mujibur

Rahman introduced the award in order to take forward the agri-based economy of the newly independent country. After the assassination of Bangabandhu in 1975, the subsequent government stopped the award. But after assuming office in 2009, the present Awami League government framed “The Bangabandhu Jatiya Krishi Purashkar Tahabil Ain-2009” for giving institutional shape to the award introduced by Bangabandhu. The Bangabandhu Jatiya Krishi Purashkar Trust Law, 2016 was enacted to make the activities more dynamic.

Food Security and Food Safety



5.1 Food Security

The government's goal is to ensure adequate supply of safe and nutritious food and maintain adequate stock of food grain during emergency. At present the food grains storage capacity is 2.12 million metric ton at government level. In order to raise this capacity to 27 million metric ton, construction of additional modern food silos with the capacity of 0.64 million metric tons is underway by 2020. Moreover, steps have been taken to build 8 modern steel silos with the capacity of 0.55 million metric tons at 8 strategic locations of the country. Additionally, steps have been taken to ensure food security by undertaking capacity development projects and establishing testing laboratories for 'Bangladesh Safe Food Authority'. Digital technology based programs have also been

conducted to improve the monitoring and data management capacity. Regular programs for providing food assistance to the lower income families are continuing through the sale of food grains at a fair price in open markets for the poor together with the food-friendly program. In addition, distributing rice with required nutrients will be expanded to all Upazillas in phases through VGD program. 'Food and Nutrition Security Policy 2018-19' is being formulated as a priority of the Honorable Prime Minister as well as for the implementation of SDGs. The government is implementing nutrition development program for mothers, children and adolescents in Sylhet and Moulvibazar region on a pilot basis. Once it is successful it will be rolled out across the country.

5.2 Food Safety

In order to ensure contaminant free and food safety for the people, the Government has started implementing the 'Food Safety Act, 2013'. 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 made efforts to increase the capabilities of the key organizations and concerned people so that the law is implemented properly. 'Bangladesh Food Safety Authority' will ensure a smooth collaboration

among all the organizations 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. Government food grains storage stock reached 1.5 million metric ton till September 2018. Rice stock is 1.3 million metric tons and wheat 0.23 million MT.



Policy Measures: A Promising Reflection of Commitments

The government enacted a good number of policies, acts and laws to promote producer-oriented policy decisions, implementing trade measures on rice and wheat to ensure price stability, diversifying exports and

increasing incentives, sustained price stabilization and domestic procurement, public food grain distribution system, consumer-oriented policy decisions.

6.1 Agriculture Acts and Policies Enacted Between 2009 and 2018

Policies

- › National Agriculture Policy (Draft) 2018
- › Underground water management rules 2018 (Draft)
- › Draft National Seed Policy 2018
- › National Crop and Forest Biodiversity Policy-2012
- › Integrated Minor Irrigation Policy-2017
- › Agricultural Firm Labor Recruitment and Governance Policy 2017
- › National Organic Agriculture Policy 2016
- › Regulation for Declaring Out of Order of Vehicle and others equipment's
- › National Agricultural Extension Policy-2015 (Draft)
- › National Agriculture Policy (NAP) 2013
- › Amendment of Fertilizer Dealer Appointment & Distribution Policy-2009
- › National Seed Policy (NSP)
- › Crop Variety and Technology Development Policy
- › Fertilizer Dealer Appointment & Distribution System
- › National Integrated Pest Management (IPM) Policy

Acts

- › Pesticide Act 2018
- › Plant Quarantine Act 2011
- › Bangladesh Institute of Research and Training on Applied Nutrition Act 2012
- › Bangabandhu National Agricultural Award Trust Act 2016
- › Bangladesh wheat and maize research institute act 2017
- › Bangladesh Jute Research Institute Act 2017
- › Bangladesh Agricultural Research Institute (BARI) Act 2017
- › Bangladesh Rice Research Institute Act 2017
- › Seed Act-2018
- › Underground water management law- 2018
- › Bangladesh Institute of Nuclear Agriculture (BINA) Act-2017

6.2 Food Security and Safety Acts and Policies Enacted Between 2009 and 2018

Policies

- › Internal Procurement Policy 2010
- › Revised Food License & Fee Order 2011
- › Govt. modern flour mill management policy 2015
- › Food Grain Distribution Policy at the union level 2016
- › OMS Policy 2015
- › Food-friendly program policy 2017

Laws, Acts, Rules & Regulations

- › Food Safety Act, 2013
- › Food Safety Regulations 2017
- › Food Sample collection, testing and analysis Regulations 2017
- › Food Safety (Use of Food Products) Regulations 2017
- › Food Safety (Wrapped Food Labeling) Rules 2017
- › Food Safety (Food Forfeiting and Administrative Procedure) Rules 2017
- › Food Safety Authority (Technical committee) Rules 2017
- › Fish Feed and Animal Feed Act 2010
- › Fisheries Hatchery Act, 2010
- › Fish Feed Rules 2011
- › Fisheries Hatchery Rules 2011
- › Animal Feed Rules 2013

Conclusion

It transpires that farmers have now acquired the knowledge to utilize every available inch of land to produce agricultural products. Bangladesh's agricultural sector has highly benefited from a sound and consistent policy framework backed up by substantial public investments in technology, rural infrastructure and human capital. Bangladesh's rural economy and specifically agriculture, has been a powerful driver of poverty reduction since the Awami League government took office. Nearly half of all Bangladeshi workers and two-thirds in rural areas are directly employed in agriculture, and about 87 per cent of rural households rely on agriculture for a major portion of their income. Growth of agriculture has the potential to cut rural poverty further. A shift in production from rice to high-value and higher-nutrition crops significantly reduced malnutrition, triggered more rapid growth in incomes, and created more and better jobs in the production and distribution sector. Investment in expanding the rural non-farm enterprises is a parallel priority for Bangladesh. In addition, they can be a potentially powerful source of employment generation, especially for youth and women through more efficient and competitive value chains. Bangladesh is on a path to pursue its agriculture sector in a bid to overcome mounting challenges in an increasingly globalized world; insuring food security and at the same time continuing with the country's rapid development strategy.

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