

## **Role of Agriculture in Bangladesh Economy: Uncovering the Problems and Challenges**

**Md. Tahidur Rahman**

*(Associate Professor, Department of Business Administration, EXIM Bank Agricultural University  
Bangladesh, Chapainawabganj, Bangladesh)*

*Corresponding Author: Md. Tahidur Rahman*

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**Abstract:** *Although modern economy is largely dependent on industrialization, agriculture remains the lifeblood for the economy of Bangladesh. Agriculture has been functioning in Bangladesh since long as a catalyst for sustainable development and growth of the country. Over time, the share of agriculture in GDP has significantly declined in Bangladesh but the contribution of agriculture to non-agricultural growth has maintained an upward trend. Thus, agricultural sector remains an irreplaceable driving force for economic growth of the country. Based on secondary data, the study intends to describe the role of agriculture in the economy of Bangladesh with a focus on problems and challenges of the sector. The main reason behind the loss of agricultural land in Bangladesh is the growth of rural housing followed by urbanization and industrialization. Residences of increasing population of the country are expanding at the cost of agricultural land. Despite many prospects of agriculture sector, some challenges are still present there. In order to address the challenges, a number of collaborative and coordinated steps should be initiated. As the food security is a major concern for Bangladesh, necessary steps should be taken to conserve agricultural land from its shifting to non-agricultural utilization.*

**Keywords:** *Challenges, Contribution, Growth, Agriculture, Bangladesh*

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### **I. INTRODUCTION**

Bangladesh, a country that covers an area of 147,570 square kilometer, is one of the predominantly agro-based developing countries in the world. Since her independence in 1971, agriculture has been the core sector of Bangladesh economy, which is still contributing around 17 percent of the GDP and also providing employment to 45 percent labor force [1]. Around 84 percent of the rural people of the country depend on agriculture for their livelihood directly or indirectly [2]. Moreover, it is the primary source of employment, livelihood, and food security for the majority of rural people and also provides raw material to industry and contributes to country's exports. Although modern economy is largely dependent on industrialization, agriculture remains the lifeblood for many agrarian economies like Bangladesh [3]. It is proved that there is a positive relation between agriculture and economic growth [4]. Over time, the share of agriculture in GDP has significantly declined in Bangladesh. But the contribution of agriculture to non-agricultural growth has maintained an upward trend and it remains an irreplaceable driving force for economic growth of the country.

The paper has been prepared based on secondary sources of information. Various research articles both online and printed, reports of Bangladesh Bureau of Statistics (BBS), and Bangladesh Economic Review (BER) are the major sources of information for this paper. The general objective of the study is to sketch a brief scenario of agriculture sector in Bangladesh. The specific objectives of the study are:

- a. to describe the salient features of agriculture sector in Bangladesh;
- b. to depict the current status of agriculture sector in Bangladesh;
- c. to show the role of agriculture sector in the economy of Bangladesh; and
- d. to explore the current problems and future challenges of the sector in Bangladesh.

Rest of this paper has been designed as follows: Section two depicts the salient features of agriculture in Bangladesh; Section three shows the current status of agriculture in Bangladesh; Section four describes the role of agriculture in the economy of Bangladesh; Section five uncovers the existing problems and future challenges of agricultural sector in Bangladesh; and the final Section six consists of conclusion and recommendations.

## II. SALIENT FEATURES OF AGRICULTURE IN BANGLADESH

Agriculture sector in Bangladesh includes crops, forestry, livestock and fisheries [5]. Understanding the structure of agriculture and how it has evolved over time is necessary for understanding the role of agriculture sector in the economy of Bangladesh. This section presents the salient features of agriculture in Bangladesh.

**2.1 Gradual Decrease of Agricultural Land:** Agricultural land refers to the share of land area that is arable, under permanent crops, and under permanent pastures. Decrease of agricultural land is one of the alarming characteristic of agriculture in Bangladesh- a country that highly depends on agriculture. Agricultural land in Bangladesh was measured at 92 percent of land area in 1976, which reduced to 87.69 percent and 83.53 percent over the years of 2000 and 2010 respectively [6]. The main reason behind the loose of agricultural land in Bangladesh is the growth of rural housing followed by urbanization and industrialization. Residences of increasing population of the country are expanding at the cost of agricultural land.

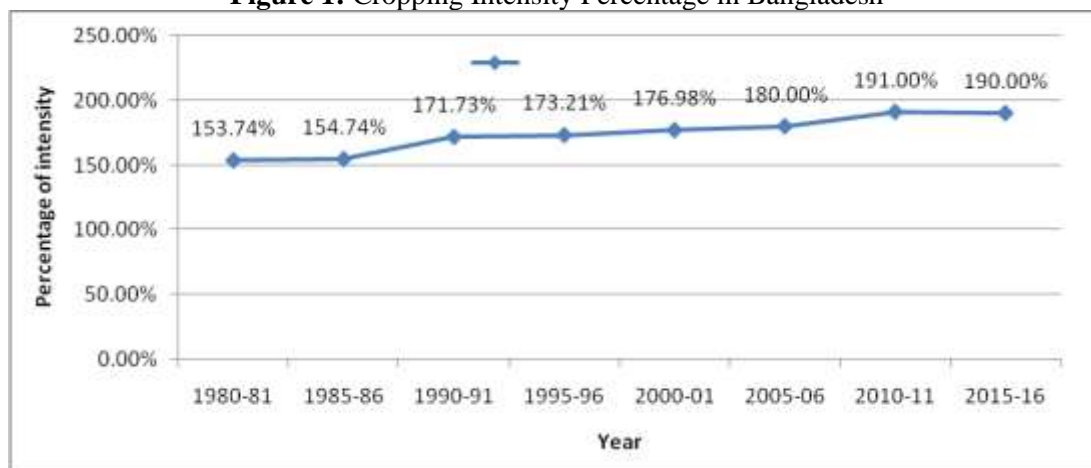
**2.2 Increase in Agricultural Output:** Since the early 1980s the agriculture sector has grown at an average rate of 3.08 percent at constant market price while GDP has increased at 4.78 percent. The growth rate of agriculture was lower than the growth rate of GDP because of phenomenal growth of manufacturing and service sector during the period. Rice production increased from 14 million metric ton in FY 1981 to 32 million metric ton in 2010. The constant growth of agricultural output has become possible due to introduction of High Yield Variety (HYV) seeds, chemical fertilizer, mechanized cultivation, and irrigation.

**2.3 Dependent on Few Crops:** In Bangladesh, the three main crops—rice, jute, and tea—have been dominating agricultural for decades. Rice is the staple food in the everyday diet of Bangladeshis. Although rice is grown almost entirely for domestic consumption, jute and tea are the main export earners. In addition to these products, Bangladeshi farmers produce sugarcane, tobacco, cotton, and various fruits and vegetables (such as sweet potatoes, bananas, pineapples, etc.) for the domestic market.

**2.4 Enhanced Use of Agricultural Inputs:** Though the agricultural land has been decreasing day by day, the growth performance of crop production has been very promising. This growth was possible due to increase in capital formation and adoption of new technology in agriculture. However, the higher level of capital formation is manifested by extensive use of mechanized cultivation by power tiller and tractors, modern irrigation facilities such as use of shallow tube wells, deep tube wells, lift pump, mechanical threshing, husking, sowing, and sprinkle machineries. Moreover, use of high yielding variety (HYV) and hybrid seeds, chemical fertilizers and pesticides have also increased the productivity of the agricultural sector substantially. Over the last three decades total sales of chemical fertilizers have increased by more than three folds and area under irrigation rose by more than two folds whereas net cultivable land decreased by about 10 percent.

**2.5 Low Growth of Cropping Intensity:** Cropping intensity remained stagnant until late 1980s. There was a sharp rise in the years between 1987 and 2015. Cropping intensity increased from 153 percent in 1980-81 to 173 percent in 1995-96 and finally rose to 190 percent in 2015-16 [7]. It has not increased much in the last 30 years. This overall increase in cropping intensity is due to increase in tripled cropped area and decline in single cropped area. The double cropped area has not changed much over the last two decades, though it increased in 1990s.

**Figure 1: Cropping Intensity Percentage in Bangladesh**



Source: BBS, 2016

**2.6 High Growth of Boro Rice:** Among the rice, Boro has seen substantial increase in production over the last three decades. In FY 1972 total production of Aus, Aman and Boro rice were 2341, 5695 and 1738 thousand metric tons respectively. But over time total production of Boro has increased faster than Aus and Aman. In FY

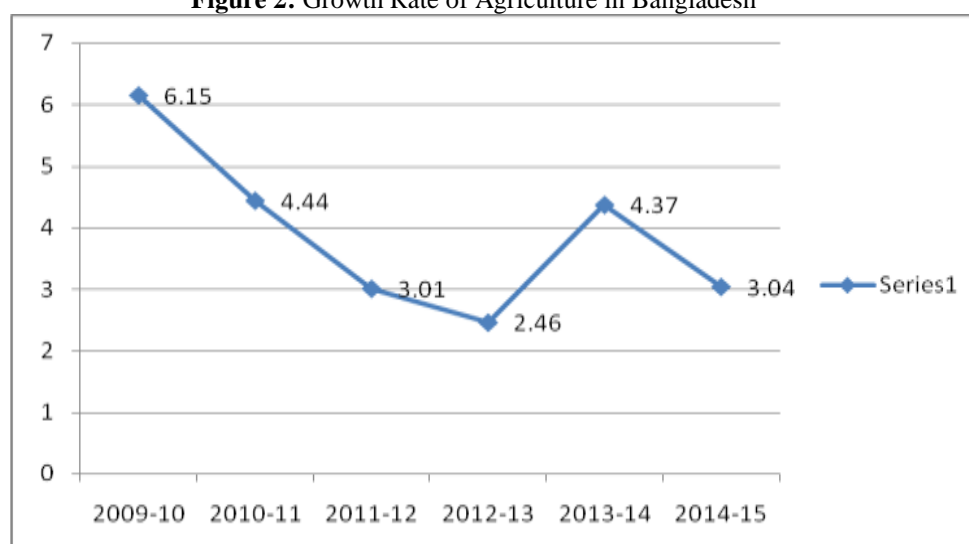
2010 total production of Aus, Aman and Boro rice were 1709, 12207 and 18059 thousand metric tons respectively. Production of Boro increased from 1738 thousand metric tons in 1972 to 18059 thousand metric tons in 2010. Boro makes up about 18 percent of total rice production in 1972 and in 2009 the share is about 60 percent. The major reason behind switching to Boro is the higher yield per acre, wide spread use of fertilizer-responsive high-yielding variety (HYV) technology leveraged by controlled water management (either through irrigation and/or flood control) [8].

**2.7 Dependence on Nature:** Although the uses of modern inputs are increasing day by day, the agriculture sector of Bangladesh is still heavily dependent on the weather, and the entire harvest can be wiped out in a matter of hours when cyclones hit the country. It is to be noted that dependency on rainfall has decreased many folds because of the expansion of irrigation facilities.

**2.8 Small Farm Size:** Agricultural holdings in Bangladesh are generally small. It is due to heavily increasing population, unwieldy land ownership, and inheritance regulations. Small firm size is one of the greatest impediments in the application of modern technologies in agriculture sector of Bangladesh.

**2.9 Increase in Share of Fishing:** Fishing is another important activity in the country that has contributed 3.69 percent to the GDP in 2014-15 and also provided 6 percent of the total export income in the same time period [9]. The overall fish production was around 1.6 million metric tons during 1999-2000. Bangladesh exports its shrimp mainly to the international market.

**Figure 2: Growth Rate of Agriculture in Bangladesh**



Source: Ministry of Finance, 2015

### III. PRESENT STATUS OF AGRICULTURE SECTOR IN BANGLADESH

**3.1 Food Grains Production:** As shown in Table 1, food grains especially rice covers a lion's share of the agricultural output in Bangladesh. According to the BBS, the volume of food grains production in FY 2014-15 stood at 381.73 lakh MT of which *Aus* accounted for 23.28 lakh MT, *Aman* 131.90 lakh MT, *Boro* 191.92 lakh MT, wheat 13.08 lakh MT and maize 23.61 lakh MT. The contribution of rice in total production of food grains was 90.34 percent.

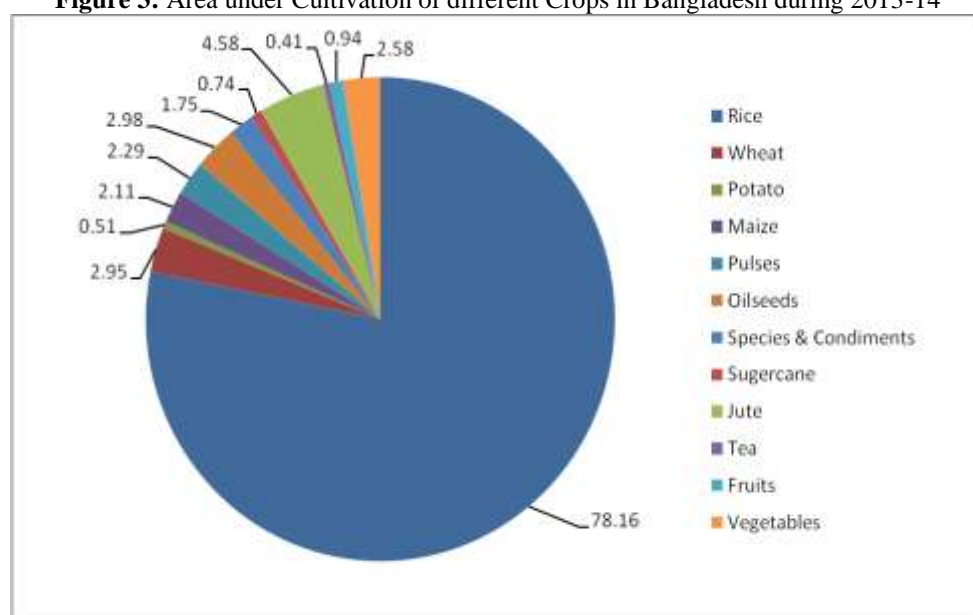
**Table 1: Food Grains Production (In Lakh MT)**

Food Grains	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15
<i>Aus</i>	22.93	21.00	22.18	21.33	23.32	21.58	23.26	23.28
<i>Aman</i>	110.06	122.25	126.60	127.91	127.98	128.97	130.23	131.90
<i>Boro</i>	186.77	182.87	185.25	186.17	187.59	187.78	190.07	191.92
<b>Total Rice</b>	<b>319.76</b>	<b>326.12</b>	<b>334.03</b>	<b>335.41</b>	<b>338.89</b>	<b>338.33</b>	<b>343.56</b>	<b>347.10</b>
<i>Wheat</i>	9.56	9.58	10.39	9.72	9.95	12.55	13.02	13.48
<i>Maize</i>	23.61	11.37	13.70	15.52	19.54	21.78	25.16	23.61
<b>Total</b>	<b>352.93</b>	<b>347.07</b>	<b>358.12</b>	<b>360.65</b>	<b>368.38</b>	<b>372.66</b>	<b>381.74</b>	<b>384.19</b>

Source: Bangladesh Economic Review, 2016

**3.2 Land Use Pattern:** From figure 3 it is clear that a large majority of the land used for cultivation of different crops is covered by rice cultivation which was 78.16 percent in FY 2013-14 followed by jute 4.58 percent, oilseed 2.98 percent and wheat 2.95 percent. Out of the total land used for rice cultivation *Boro* covered 42.12 percent whereas *Aman* covered 48.63 percent and *Aus* covered 9.25 percent.

**Figure 3:** Area under Cultivation of different Crops in Bangladesh during 2013-14



Source: Yearbook of Agricultural Statistics, 2014

**3.3 Fish Production:** In fiscal year 2014-15 fisheries sector contributes 3.69 percent to the GDP and 22.60 percent to the country's total agricultural products. A considerable part of the country's export earning comes from this sector. Fish alone supplements about 60 percent of animal protein in our daily diet. The total fish production in FY 2013-14 stood at 35.48 lakh MT, which increased to 37.03 lakh MT in FY 2014-15. Table 2 shows the trend of fish production in Bangladesh during the period from FY 2007-08 to FY 2014-15:

**Table 2:** Fish Production Trends in Different Resources (In Lakh MT)

Sector	Area (Lakh ha)	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15
Open water	39.25	10.60	9.08	9.75	10.55	9.57	9.61	9.96	10.04
Culture	7.89	10.06	11.82	14.26	14.60	17.26	18.60	19.57	20.70
Marine	-	4.97	6.11	5.17	5.46	5.78	5.89	5.95	6.28
<b>Total</b>	-	<b>25.63</b>	<b>27.01</b>	<b>28.99</b>	<b>30.62</b>	<b>32.62</b>	<b>34.10</b>	<b>35.48</b>	<b>37.03</b>

Source: Bangladesh Economic Review, 2016

**3.4 Livestock:** The contribution of the animal farming sub-sector to GDP at constant price is 1.73 percent in FY 2014-15. Though the share of the animal farming sub-sector in GDP is small, it makes immense contribution towards meeting the requirements of daily essential animal protein. According to the estimate of the Department of Livestock Services (DLS), the population of livestock and poultry rose to 539.72 lakh and 3,122.93 lakh respectively in FY 2014-15. Table 3 shows the growth of the livestock and poultry population of the country over the past few years:

**Table 3:** Growth of Livestock and Poultry in Bangladesh (Number in Lakh)

Livestock/Poultry	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15
Cattle	229.76	230.51	231.21	231.95	233.41	234.88	236.36
Buffalo	13.04	13.49	13.94	14.43	14.50	14.57	14.64
Goat	224.01	232.75	241.49	251.16	252.76	254.39	256.02
Sheep	28.77	29.77	30.02	30.82	31.43	32.06	32.70
<b>Total livestock</b>	<b>495.58</b>	<b>506.52</b>	<b>516.66</b>	<b>528.36</b>	<b>532.1</b>	<b>535.9</b>	<b>539.72</b>
Chicken	2213.94	2280.35	2346.86	2428.66	2490.10	2553.11	2617.70
Duck	412.34	426.77	441.20	457.00	472.53	488.61	505.22
<b>Total Poultry</b>	<b>2626.28</b>	<b>2707.12</b>	<b>2788.06</b>	<b>2885.66</b>	<b>2962.63</b>	<b>3041.72</b>	<b>3122.92</b>

Source: Department of Livestock Services (DLS)

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 FY 2007-08 to FY 2014-15 are summarized in the Table-4:

**Table 4:** Production of Milk, Meat and Eggs

Product	Unit	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15
Milk	Lakh tones	26.50	22.86	23.65	29.47	34.63	50.67	60.90	69.69
Meat	Lakh tones	10.40	10.84	12.64	19.86	23.32	36.20	45.20	58.62
Eggs	Lakh	56,532	46,920	57,424	60,785	73,038	76,173	1,01,680	1,09,952

Source: Bangladesh Economic Review

**3.5 Forestry:** Although contribution of forest to GDP is significant in many countries, the contribution of the sector in Bangladesh is not so significant. The contribution of this sector to GDP was 1.75 in fiscal year 2007-08 which gradually declined to 1.63 percent in fiscal year 2012-13 as shown in figure 4.

**Figure 4:** Contribution of Forest Subsector to GDP



Source: Bangladesh Economic Update-2014

**3.6 Irrigation:** Irrigation is considered as an essential input for increasing crop production. A vast area of the country does not get irrigation in dry season because of climate change and unplanned lifting up of underground water. In the FY 2014-15, 14 irrigation projects and 28 irrigation programs were implemented by BADC. By those irrigation projects and programs re-excavation of 843.25 km canal, construction of 715 irrigation structures, 615 km irrigation channel, installation of 168 Deep Tube Wells, 314 power pumps, renovation of 235 Deep Tube Wells, electrification of 476 irrigation equipments and setting of 376 smart card prepaid meters were completed in June 2015. The irrigated land area during the period from FY 2007-08 to FY 2014-15 is shown in Table 5:

**Table 5:** Area under Irrigation (Area in Lakh Hectare)

Irrigation Method	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15
LLP & others	10.67	10.92	11.77	10.39	11.45	11.96	12.46	12.95
Deep tube well	7.86	7.90	7.73	7.19	7.59	9.34	8.77	9.15
Shallow tube well	31.97	32.45	33.37	35.05	34.18	32.42	32.79	33.40
<b>Total</b>	<b>50.5</b>	<b>51.27</b>	<b>52.87</b>	<b>52.63</b>	<b>53.22</b>	<b>53.72</b>	<b>54.02</b>	<b>55.5</b>

Source: Bangladesh Economic Review

**3.7 Agricultural Credit:** Agricultural and rural credits are important in the context of strengthening the efforts for ensuring food security as well as the overall socio-economic development in the country.

**Table 6:** Year-wise Disbursement and Recovery of Agricultural Credit (In Crore BDT)

Fiscal Year	Target	Disbursement	Recovery	Balance
2005-06	5892.21	5496.21	4164.35	15376.79
2006-07	6351.30	5292.51	4676.00	14582.56
2007-08	8308.55	8580.66	6003.70	17822.50
2008-09	9379.23	9284.46	8377.62	19598.15
2009-10	11512.30	11116.88	10112.75	22588.58
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	16036.88	17046.02	34632.82
2014-15	15550.00	15978.46	15406.96	32936.80

Source: Bangladesh Bank

**3.8 Renovation in Agriculture Sector:** Ensuring the long term food security for population of the country the Ministry of Agriculture is implementing different development projects and programs covering agricultural research and education, agricultural extension and training, marketing of agricultural products, agricultural support and rehabilitation, agricultural input and equipment innovation, procurement and management of agricultural input



and equipment, seed production, storage and distribution, development of irrigation infrastructure, fertilizer management activities and crop storage etc. Some important activities are mentioned below:

- 1) Invention of flood, drought, salinity and high temperature tolerant crop varieties to cope with Climate Change effect;
- 2) Introduction of crop zoning technology;
- 3) Enhancement of extension activities to promote modern cultivation method at the farmer's level;
- 4) Modernization of seed production, processing and distribution system to ensure quality seed supply at the farmers level;
- 5) Implementing projects to transform the barren land into arable land through the expansion of irrigation facilities;
- 6) Establishment of Community Rural Radio to share information on modern agricultural practices among rural farmers;
- 7) Establishment of Agriculture Information and Communication Centre (AICC) at union level;
- 8) Establishment of a call center at the head office of Agriculture Information Service;
- 9) 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*;
- 10) Promotion of agriculture and agriculture based services through mobile operators;
- 11) Implementing project for the establishment of Post-Entry Quarantine Centre ;
- 12) Promotion of organic pest control method and organic agriculture activities;
- 13) Implementing a project on Genome Sequencing of Jute for selection of jute cultivation area and extension of Ribbon Rating Technology;
- 14) Promoting participation of women in agricultural sector to alleviate poverty and create employment opportunities;
- 15) Introduction of Buried Pipe technology to improve irrigation activities;
- 16) Establishment of Sub Station of Bangladesh Institute of Nuclear Agriculture (BINA);
- 17) Introduction of easy account opening facility for the farmers.

#### **IV. ROLE OF AGRICULTURE SECTOR IN BANGLADESH ECONOMY**

Agricultural sector has been playing a key role in the overall socio-economic development of Bangladesh since the independence of the country. The sector contributes a large in employment generation, GDP growth, and the growth of other industries. The current section of this paper discusses the role of agriculture sector in the economy in Bangladesh.

**4.1 Agriculture Sector and Employment:** In order to assess the overall situation of employment, Bangladesh Bureau of Statistics (BBS) conducts the Labor Force Survey (LFS). According to the latest survey of BBS titled 'Labor Force Survey 2010', the number of economically active population above 15 years is 5.67 crore. Out of this, as many as 5.41 crore people (male 3.79 crore and female 1.62 crore) are engaged in a number of professions, the highest 47.33 percent still being in agriculture.

**Table 7: Share of Employed Labor Force above 15 Years by Sectors**

Sector	1995-96	1999-00	2002-03	2005-06	2010
Agriculture, forestry and fishery	48.85	50.77	51.69	48.10	47.33
Mining and quarrying	-	0.51	0.23	0.21	0.18
Manufacturing	10.06	9.49	9.71	10.97	12.34
Power, Gas and water	0.29	0.26	0.23	0.21	0.18
Construction	2.87	2.82	3.39	3.16	4.79
Trade, hotel & restaurant	17.24	15.64	15.34	16.45	15.47
Transport, maintenance & communication	6.32	6.41	6.77	8.44	7.37
Finance, business and service	0.57	1.03	0.68	1.48	1.84
Commodities and personal services	13.79	13.08	5.64	5.49	6.26
Public administration and defense	-	-	6.32	5.49	4.24
<b>Total</b>	<b>100.00</b>	<b>100.00</b>	<b>100.00</b>	<b>100.00</b>	<b>100.00</b>

*Source: BBS Labor Force Survey (LFS)*

According to the Labor Force Survey–2005-06, the total labor force of over 15 years of age was 4.74 crore with agriculture being the highest 48.10 percent as the source of employment. Between the two survey periods, the number of agricultural workers decreased by nearly 1 percent. According to LFS-2010, it is observed that 40.7 percent (25.5 percent in agriculture and 15.2 percent in others of labor force) is engaged in self-employment while it was 41.98 percent in FY 2005-06. It may be noted that during the two survey periods, the number of self-employed labor force decreased by 1.32 percent. The survey indicated that 19.6 percent of labor force was daily laborers and 21.8 percent unpaid family workers, which was 18.14 percent and 21.73 percent respectively according to the previous survey. The share of employed labor force above 15

years by different sectors of the economy according to the Labor Force Surveys 1995-96, 1999-00, 2002-03, 2005-06 and 2010 is shown in Table 7.

**4.2 Agriculture Sector and GDP:** It is evident from Table 8 that combined contribution of all sub-sectors (crops, livestock, fisheries, and forestry) of agriculture was around 16 percent of GDP in 2014-15 of which fisheries sector accounts for 3.69 percent. The crop sub sector alone contributes for 12.27 percent of GDP. Also the impact of agricultural growth on rural wages is an important element in the process because for the poor households, a major share of income originates from wage labor in agricultural activities. Rice, Jute, Sugarcane, Potato, Pulses, Wheat, Tea and Tobacco are the principal crops. The crop sub-sector dominates the agriculture sector contributing about 72 percent of total production. Fisheries, livestock and forestry sub-sectors are 10.33 percent, 10.11 percent and 7.33 percent respectively. Crop diversification program, credit, extension and research, and input distribution policies pursued by the government are yielding positive results. The country is now on the threshold of attaining self-sufficiency in food grain production.

**Table 8:** Share of different Sector to GDP (%) at Constant Prices (Base Year: 2005-06)

Sector	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15
Agriculture & Forestry	15.17	14.89	14.58	14.65	14.27	13.70	13.09	12.81	12.27
Fishing	3.75	3.79	3.78	3.73	3.73	3.68	3.68	3.69	3.69
Mining & Quarrying	1.52	1.54	1.62	1.65	1.60	1.61	1.65	1.63	1.65
Manufacturing	16.64	16.87	17.10	17.20	17.75	18.28	19.00	19.47	20.17
Electricity, Gas and Water Supply	1.19	1.21	1.23	1.28	1.36	1.41	1.45	1.42	1.43
Construction	6.49	6.50	6.58	6.65	6.67	6.78	6.90	7.03	7.17
Wholesale and Retail Trade	13.78	13.96	14.04	14.02	14.02	14.02	14.03	14.10	14.14
Hotel and Restaurants	0.75	0.74	0.75	0.75	0.75	0.74	0.75	0.75	0.75
Transport, Storage and Communication	10.37	10.61	10.89	11.05	11.23	11.49	11.50	11.49	11.44
Financial Intermediaries	3.09	3.03	2.88	2.88	2.99	3.21	3.30	3.34	3.41
Real Estate Renting and Business Activities	8.03	7.87	7.77	7.61	7.41	7.22	7.07	6.95	6.83
Public Administration and Defense	3.12	3.14	3.19	3.26	3.33	3.35	3.36	3.39	3.42
Education	2.21	2.24	2.25	2.23	2.21	2.23	2.24	2.26	2.28
Health & Social Work	1.99	1.99	1.95	1.96	1.95	1.90	1.88	1.86	1.84
Community, Social and Personal Service	11.91	11.61	11.38	11.08	10.72	10.38	10.09	9.82	9.53
GDP	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

*Source: Bangladesh Bureau of Statistics (BBS)*

**4.3 Agriculture Sector and Industrial Development:** Agriculture sector is the Source of raw materials as backward and forward linkage for agro based industries. Except readymade garments, a large part of the manufacturing sector also relies on the processing of agricultural commodities (e.g. jute, tea, sugarcane, hides and leather, shrimps, rice and wheat). Some agro based industries (as for example jute industry) in Bangladesh fully depend on agricultural output for their necessary inputs.

**Table 9:** Raw Jute Production, Consumption and Export

Fiscal Year	Production (In Lakh Bale)	Export (In Lakh Bale)	Export value (In Million BDT)
2005-06	50.00	24.47	9972.70
2006-07	65.91	24.43	10162.00
2007-08	68.71	28.71	10334.00
2008-09	51.72	17.50	9210.00
2009-10	59.45	15.99	11308.40
2010-11	78.02	21.12	19067.60
2011-12	78.05	22.85	15406.60
2012-13	75.72	20.55	14364.60
2013-14	67.85	9.84	7060.40
2014-15	75.01	9.24	7537.00

*Source: Department of Jute*

**4.4 Agriculture and Foreign Exchange Earning:** In FY 2014-15, Bangladesh earned USD 1,154.80 million by exporting agricultural products which was 3.70 percent of total export earnings [9]. The main agricultural export items of the country are raw jute, jute goods, tea, and frozen foods. But the exports of non-traditional agricultural commodities are increasing day by day.

**4.5 Agriculture and Service Sector:** Historically, agriculture has had the major share in the economy in Bangladesh. Over time, however, the importance of agriculture has fallen that of the services sector has raised. Yet, still much of the services are related to transportation and trading of agricultural commodities.

## **V. PROBLEMS AND CHALLENGES OF AGRICULTURE SECTOR IN BANGLADESH**

### **5.1 Problems of Agriculture Sector in Bangladesh**

Although agriculture sector is the largest and dominating sector in the overall economic activities of the country, it has been facing many problems. A few of the current problems are stated below:

- (1) Gradual decrease of agricultural land is one of the major problems of agricultural sector of Bangladesh. Population of the country is rapidly growing and to cater their housing and other needs a large share of agricultural land is being captured every year.
- (2) Long-term planned investment is urgently needed for the balanced development of any economic sector. However, lack of long-term investment in agriculture sector from private and public sector is considered a key problem of agriculture sector in Bangladesh.
- (3) Although some modern technologies have been adopted in the agriculture sector of Bangladesh, still they are very insufficient as well as unfamiliar to the farmers.
- (4) Agriculture of Bangladesh is still highly dependent on the nature; and due to harsh behavior of nature crops are sometimes damaged or they do not grow according to the expectations.
- (5) Sub-division and fragmentation of agricultural land is another problem of the agriculture in Bangladesh. The borders of small pieces of land keep a portion of cultivable land unused. It grows weeds and obstacles application of scientific cultivation tools.
- (6) Deficiency in soil nutrition is considered another problem of Bangladesh's agriculture. It has been identified the result of heavy pressure and use of chemical fertilizers in the agricultural land.
- (7) Widespread poverty among the population engaged in agriculture is a problem of agriculture in Bangladesh. Due to lack of required capital for agricultural activity expected output are not achieved.
- (8) Considering farmers socio-economic conditions, appropriate technologies are inadequate in the country.
- (9) Due to underdeveloped marketing system farmers of Bangladesh do not get fair prices of their agricultural commodities, which has been identified one of the major problem of Bangladesh's agriculture.
- (10) A large majority of the agricultural commodities are perishable which requires safe and modern storing service. Shortage of these types of services is a problem of the country.
- (11) Low productivity is another problem of agriculture sector in Bangladesh. Because of inadequate modern technologies and high yield varieties, and insufficient agricultural knowledge, the productivity of agricultural output is very low as compare to many other countries of the region.
- (12) Insufficient irrigation is one of the major problems of Bangladesh's agricultural sector. Although Bangladesh has achieved tremendous growth in irrigation, still a lion's portion of land remains uncultivable or fallow due to lack of irrigation facilities.
- (13) In recent years, initiatives have been taken for agricultural credit, but still it is very insufficient. Moreover, agricultural insurance is not available and popular in the country.
- (14) Because of being heavily labor intensive, shortage of agro-labor at peak seasons sometimes creates a problem in the sector. Although there are a lot of laborers engaged in agriculture sector in Bangladesh, labor crisis at peak season cause heavy loss for the farmers.
- (15) Subsistence of extensive nature of arsenic poisoning of groundwater and irrigation soil in rural Bangladesh has been identified as one of the major problems of agricultural sector of the country. People are likely to be affected through consumption of agricultural produce (rice, vegetable, fish etc) grown in fields irrigated with arsenic contaminated water for a long time [10].

### **5.2 Challenges of Agriculture Sector in Bangladesh**

The population of the Bangladesh, most of which are highly dependent on agriculture for their livelihood, is still growing very fast. The agriculture sector of the country will have to face a lot of challenges in the near future. The most significant of those challenges are noted below:

- (1) **Increasing agricultural production through sustainable use of resources:** In order for mitigating the demands of growing population, agricultural output has to be increased by making judicious use of scarce resources. As the availability of agricultural land, water and overall climatic endowments are decreasing; the strategy should be to increase production by making lesser use of critical inputs like land and water, and greater use of technologies. In some cases, increased production occurs at the expense of degradation of soil and water quality, which is a threat to the sustainability of agricultural production. Thus, increasing production by maintaining the quality of land, water and the overall environment will be a major challenge for Bangladesh in near future.
- (2) **Promoting agricultural research for enhancing productivity:** It is evident that the agriculture of Bangladesh has been suffering from low productivity both in crop and non-crop sectors. Increase in farm level productivity can be achieved through technical change and minimization of yield gap through effective extension services. Promotion of agricultural research is being hampered due to low budgetary allocations for research facilities and inadequate financial and other incentives for the scientists. This trend



requires a change by increasing budgetary allocations for research and extension, and providing adequate incentives for the agricultural scientists.

- (3) **Commercialization of agriculture:** Agriculture has been transformed from subsistence mode in the past to semi commercial level at the current stage. In the wave of globalization, small holders need to be enabled to integrate in the markets to effectively contribute to the production of high value crops such as meat, fish, vegetables and fruits. To this effect, they need better access to credit, insurance schemes and other agricultural services - such as extension, information and local market infrastructures and services. Ensuring these facilities might be a challenge of agriculture in Bangladesh.
- (4) **Sustaining self-sufficiency in rice production:** As the result of stimulating production growth over the last few years, Bangladesh has attained self-sufficiency in rice production. It is expected that rice production in future will have to be increased with decreasing availability of the critical inputs such as land and water, and under conditions of overarching negative impacts of climate change. Thus, in the absence of major technological breakthrough with development and diffusion of extra high yield new varieties, sustaining rice self-sufficiency will be under challenge.
- (5) **Diversification toward high value crops:** High-value crops, including traditional fruits and vegetables have a potential comparative advantage. The future of non-rice crops will depend on the removal of a number of constraints that currently restrain their expansion, including lack of appropriate technology and inadequacies of market infrastructure and services.
- (6) **Farm mechanization:** Rapid expansion of mechanization is needed to compensate the shortage of power, farm labor and the declining interest of young people to stay in agriculture. Farm mechanization can help in improving productivity, reducing cost of production, increasing efficiency in use of inputs and achieving timeliness of crop production activities. It would be a challenge to develop more efficient and less costly agricultural technologies which are versatile and useful to the farmers.
- (7) **Overcoming the socioeconomic constraints:** The difference between farm level yield and yield at research stations of crops has remained an issue of concern for many years. Farmers' acceptance of a technology does not depend on the attributes of a technology, but on many socioeconomic factors associated with adoption of a technology. Overcoming the socioeconomic constraints to the dissemination of new technologies is a major challenge.
- (8) **Managing open water fisheries:** In the fisheries sub-sector, the key challenge for sustainable development is better management of open water fisheries. The key elements of strategies are to enhance the practices of open water fisheries management such as replenishing stock, preserving fish sanctuaries, banning fish catch during certain periods and ensuring community based fisheries management. Implementation of these measures is also a big challenge.
- (9) **Sustainable development of shrimp farming:** Expansion of shrimp farming in the coastal regions of Bangladesh is alleged to be at the cost of encroaching lands for rice cultivation and areas under mangrove forests. Intrusions of saline water in the areas where shrimps are cultured seriously affect the neighboring crop lands and other homestead cultures, causing serious conflict of land use. Expansion of shrimp culture along with resolving the aforesaid conflicts will be a formidable but pressing need, especially in South West Bangladesh.
- (10) **Conserving marine fishery resources and expanding marine fishing zone:** It is frequently asserted that the marine fishery resources are being over exploited. Indiscriminate fishing due to inappropriate net gears is a matter of major concern. Bangladesh has recently gained rights to a greatly increased sea area in the Bay of Bengal. Ensuring the rights in the sea area and developing technologies for harnessing fishery resources will be a major challenge for the country.
- (11) **Developing and preserving improved breeds of livestock:** The genetic potentials of local breeds are generally poor and cross breeding with exotic breeds has long been pursued. Sustainability of performance from cross bred animals and birds are often considered a challenge of the sector.
- (12) **Conservation of forest resources:** Forest cover is already at less than desired level in the country. Indiscriminate harvesting from the forest has been posing threat to our environment. Plantation in the hill areas is seriously constrained. The traditional forest management has failed to protect forest from deforestation. Social forestry is considered as a viable alternative. Social forestry activity with participation of local people is a great challenge.
- (13) **Meeting the challenge of climate change impacts:** There is a growing recognition among national and international experts that Bangladesh is at the brink of adverse climate change impacts. As a result of sea level rise, a significant part of the coastal area may be permanently inundated causing displace of a large number of people and spread of salinity. Low rainfall will cause drought, desertification and inadequate ground water replenishment in the northern part of the country. Although Bangladesh contributes little to the global green house gas emission, the country is the worst victim of climate change impacts. Since

mitigation of the climate change phenomena is beyond the control of Bangladesh, developing adaptation and resilience measures will be the real challenge for the country.

## **VI. CONCLUSION AND RECOMMENDATIONS**

Agriculture plays a key role in the overall economic performance of Bangladesh not only in terms of its contribution to GDP but also as a major source of foreign exchange earnings and in providing employment to a large segment of the population, particularly the poor. It provides a large share of GDP close to one-third, which is not likely to decline to a significant extent in the short or medium term. Although nature is bountiful in Bangladesh for agricultural production, its poor exploitation compounded by various political and socio-economic factors are preventing the country to be food secured. As population in Bangladesh continues to grow and to urbanize at unprecedented rates, food insecurity in the country will be worsen unless swift action is taken. Bangladeshi farmers need to grow more food using less land, water, and other inputs while overcoming new challenges from climate change. In an attempt to avoid the threats of food insecurity in imminent future, policy makers and agriculturalists need to act in collaboration with local farmers, staffs from private sectors and other departments. The fact is that for a country like Bangladesh with remarkably high socio-economic disparities, household food security should be prioritized over the food security at national level. Those working on agriculture sector in Bangladesh will need to talk not only to policy makers in the agricultural sector, but also engage in a dialogue with farmers at the local levels and the think-tanks as well. Finally, a peaceful and stable political and socio-economic environment is vital to attach adequate priority to agriculture sector in Bangladesh. As agriculture is the key contributor in the economy of Bangladesh, problems of the sector should be addressed immediately. However, all the problems cannot be solved overnight. In order to capture the opportunities and solve the problems of agriculture in Bangladesh following solutions are suggested:

- (1) Long term investment from private and public sector should be increased for construction of irrigation projects by using surface water, for improving soil nutrition and for increasing productivity of agricultural output.
- (2) Government subsidies in the form of cash or in fertilizers, seeds, diesel, or electricity should be enhanced and continued. It should be ensured that the subsidies are reaching on the hands of real farmers.
- (3) Institutions engaged in Agricultural research should work together for innovation of appropriate and high yielding seeds according to the needs of hilly, coastal, and other regions of the country.
- (4) In order to avoid sub-division and fragmentation of land, farmers should be organized under different cooperatives. Government and NGOs should come forward in this regard.
- (5) To resolve the problems of storing and marketing of agricultural products, agricultural marketing societies should be more active.
- (6) Agricultural credit with low interest rate should be available for the farmers. In addition, crop insurance policies should be introduced and popularized to mitigate different risks of agricultural sector.
- (7) Fruitful training programs for farmers by the respective authorities should be arranged more frequently. Participation of farmers the programs and application of the gained knowledge should be ensured.

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