

Agricultural Contribution to the Economic Development of Bangladesh: Past and Present Trends

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Abstract: Agriculture still holds an important position in our national economy in creating employment and increasing national income. Agriculture is also playing a vital role in socio-economic progress and sustainable development of the agrarian economy ensuring food security and foreign exchange earning. In the country necessary land is less than what it is required for its vast population. Besides, agricultural land is gradually decreasing with the increase of population. But agricultural sectors contribute tremendous performances for developing of economy and Bangladesh has achieved a dramatic economic growth in agricultural sector. The production performance of the agricultural sectors have considerable bearing upon the trade balance, government fiscal position and consequently upon the rate of growth of Bangladesh economy as a whole. Presently, around 23% of GDP is generating through agricultural sector and more than 50% of the people are employed in agricultural sector. The GDP growth rate is directly related to the agricultural growth rate. It is found for the last few years that GDP growth rate is increased with the increase of agricultural growth rate. The crop sub-sectors alone is projected to contribute 12.19% to GDP. The contribution of fisheries and livestock sub-sector to GDP are 4.86% and 2.95% respectively. Major food grain and fisheries resources especially rice and shrimp plays the most significant role in this process. Rice production gradually increased from seventies to present due to introduced of HYV and applied modern technology. The frozen shrimp export is the second largest export sector of Bangladesh with annual turnover of 459 million UD\$. It alone contributes more than 70% to the total export earning from all the agro-based products and more than 11 % of annual export earnings and comprises around 7% of the total employment. The popularity of commercial dairy and poultry are increasing day by day. Favored by many scientific, social and political factors crops, livestock's and fisheries sectors have been growing at very impressive rate. As a result Bangladesh has moved out from chronic hanger to self-sufficiency in food and as well as earning foreign exchange from exported agricultural commodities. Many agro products like shrimp, prawn, agro-processes food, vegetables etc. are included with the export items. The article looks into the agricultural contribution to the economic development of Bangladesh and searches out the performance of agriculture regarding food security, export earning and GDP growth. The article also looks into the growth trends of Bangladesh agriculture from very beginning to present.

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1.0 Introduction

Bangladesh is predominantly an agricultural country. About 84% of the total population live in rural areas and are directly or indirectly engaged in a wide range of agricultural activities (MOA, 2006). Bangladesh has an agriculture-dependent economy with a growing population and one of the world's lowest land areas per capita. The country is particularly vulnerable to sudden floods, cyclones and even salinity and droughts. Vulnerability to natural disasters and a heavy reliance on annual rains for the main crop performance are the cause of severe fluctuations in food grain production and prices and also very erratic GDP growth. Losses of both food and cash crops are a common occurrence, seriously disrupting the entire economy by precipitating unanticipated food import requirements. This in turn reduces the foreign exchange availability necessary for imports of essential inputs for manufacturing and industry and, as a result, causes shortfalls in exports. It is felt that the agricultural sector has by no means exploited its full potential for crop production and that there are various opportunities for substantially increasing cropping intensities. Scientific cultivation, integrated farming, use of modern variety and crop diversification in addition with agro biotechnological development to make the country self-sufficiency in food production. At the same time livestock, poultry and fisheries sub-sectors could play a vital role for domestic necessity and foreign exchange earning. The frozen food export sector is the second largest export sector in Bangladesh's economy. This sector played a strong role for economic development of Bangladesh. Export earnings from fish and fish products, in particular shrimp, are also sizeable and followed by export earnings from the leather industry. Bangladesh is the world's leading exporter of raw jute and jute products, including carpet backing, twine and sacking. Within the agriculture sector, tea follows jute as an important cash crop and export product. However, agriculture is the driving force behind economic growth in Bangladesh and as a result, increasing food and agriculture production have always been major concerns of policymakers. The specific objective of the study is to search out the contribution of agriculture to the economy of Bangladesh. The study is based entirely on secondary data which encompass relevant research reports, journal articles and books, Agricultural

Census Reports, Bangladesh Economic Review and Statistical Year Book of the Bangladesh Bureau of Statistics.

2.0 Structure of Bangladesh Economy

The prime economic sectors of Bangladesh are agriculture, industry, foreign aid and trade. At the sectoral level, the economy is slowly but steadily shifting emphasis from agricultural to the manufacturing and the service sectors. The share of agriculture in GDP dropped from 36.0% in 1990-91 to 21.2% in 2003-04 but industries and service sector raised up to 11.9% and 4.1% respectively (table-1). Overall sector shares in GDP of agriculture, industry and service in 2004-05 are 21.77%, 26.70% and 51.53% (<http://www.eia.doc.gov/>). Although half of the GDP is generated through the service sector. It is observed that only one-fifth of the GDP is generating through agricultural sector. But more than 50% of the people are employed in agricultural sector (BBS labor force survey, 2003).

Table 1: Sector wise contribution to the economy of Bangladesh

Sectors	Contribution (% of GDP)				
	1972-73	1990-91	1994-95	1999-00	2003-04
Agriculture	52.5%	36.0 %	31.0 %	19.6%	21.2%
Industry	11.3%	15.2%	17.6%	24.3%	27.1%
Service	36%	47.6%	51.5%	56.2%	51.7%

Source: BBS, 1995, World Bank, 1996 and CIA-The World Fact book, BER, 2006

In 2004-05, the combined contribution of all sub-sectors of agriculture to GDP is about 21.77% and the crop sub-sectors alone is projected to contribute 12.19% to GDP. The contribution of fisheries sub-sector to GDP and the agricultural sectors are 4.86% and 10.33% respectively. The contribution of livestock sub-sector to GDP and the agricultural sectors are 2.95% and 10.11% respectively (BER, 2006 and www.discoverybangladesh.com). Bangladesh have made major strides to meet the food needs of its increasing population. Investment and foreign exchange reserve shows the best performance in the recent years but export-import balance gradually moves downward position (table-2).

Table 2: Some economic indicators of Bangladesh

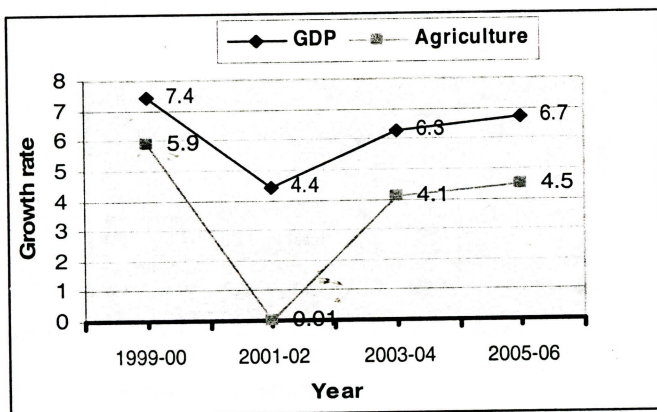
Indicators	1974-75	1980-81	1985-86	1991-92	1997-98	2003-04
Population(million)	70.8	89.9	99.6	111.4	126.0	135.0
GDP (million taka)	124369	231413	466227	906520	1540930	5699400
Growth (Agricul) %	-5.1	5.4	4.0	2.2	3.1	3.5
Growth (Indus) %	-10.9	-1.3	3.4	7.3	7.3	6.5
GDI as % of GDP	6.3	16.2	12.5	12.1	16.3	23.5
Export (million \$)	382	626	819	1994	5761	7478
Import (million \$)	1200	2593	2346	3463	7000	10003
Trade balance	-818	-1967	-1527	-1469	-1239	-2525
Year end reserve(m\$)	242	277	476	1608	1900	3000

Source: Muhith, 1999 and Virtual Bangladesh, FAOSTAT, 2006

3.0 Agricultural Growth and GDP

The Gross Domestic Product (GDP) is dominated by agriculture at the early stage of Bangladesh. In 1973, the agricultural sector represented 57.9% of total GDP. The percentage has continuously declined as the rest of the economy has grown more rapidly than agriculture, but still agriculture accounted for 48.8% of the GDP in 1982. Within the agricultural sectors, crops accounted for 75% of total agricultural production and 36.6% of the national GDP in 1981. The sectoral share of agriculture showed a significant decline between 1980 and 1992 despite a rise in agricultural output. The reduction was due to greater relative increases in output by the other sectors, primarily services. Crops grew at an annual rate of 3.8% during 1973-82 which closely approximated the likely demand. Aside from food crops, other agricultural production like livestock, fisheries and forestry grew at the annual rate of 2.5% for the period, and only at 1.2 % annually from 1978 to 1982 (Nicholls, 1984). Within the agriculture sector, there has been significant diversification. In 1990 the sub-sector shares stood at 67% from crops, 15% from animal farming and 11% from fishing. Whereas in 1998 the share from crops dropped to 53%, fishing raised nearly double to 21% and animal farming 18% (www.epb.gov.bd/bangladesh).

Fig 1: Relation between GDP growth rate and agricultural growth rate

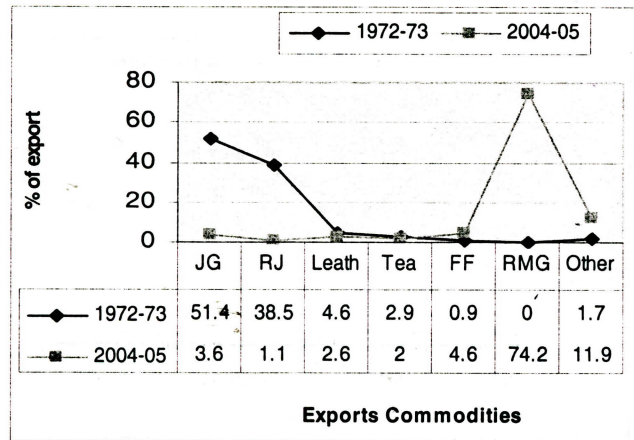


Source: BER, 2006 and Kibria, 2007

Agriculture still holds an important position in our national economy in creating employment and increasing national income. In FY 2005-06, the contribution of this sector in national income is about 21.77%. The GDP growth rate is directly related to the agricultural growth rate. In the year of 1999-2000 and 2001-2002 GDP growth rates were 5.90% and 4.40% and agricultural growth rate were 7.40% and 0.01 % respectively. It is observed that GDP growth rate is increased with the increase of agricultural growth rate (fig-1).

4.0 Dynamics of Agro-products as Exports Items

Bangladesh exports more than 160 items in the global market. The share of major export items in 2004-5 are: RMG 74.20%, frozen food (FF) 4.90%, jute goods (JG) 3.60%, leather 2.60%, raw Jute (RJ) 1.11% and tea 0.2% (<http://www.epb.gov.bd>). Share of exported items have been changed from the year of 1972-73 to 2004-05. Many agro products like shrimp, prawn, agro-processes food, vegetables etc. are included with export items and contributed a lot for earning foreign exchange. It is observed that in 1972-73 jute goods (51.40%) and raw jute (38.5) scored top position as export commodities where as in 2004-2005 RMG i.e. woven garments and knitwear scored top position (74.2%). Over the 30 years there are significantly changed (from 0.9% to 4.5%) of frozen food export (fig-2).

Fig 2: Export trends of agro-commodities in 1972-73 and 2004-05

Source: EPB, 2006

4.1 Shrimp and Frozen Foods

Shrimp farming in Bangladesh is a relatively new industry but an important one for the country's economy. The industry provides direct employment to over 6 lakh people who in turn support well over 35 lakh dependents. It alone contributes more than 70% to the total export earning from all the agro-based products (Fleeming, 2004). The frozen fish export is the second largest export sector of the country with annual turnover of US\$ 459 million in 2004-05 (Sangbad, 13 May 2007). The average annual growth rate is 28%. The contribution of this sector towards GDP is around 4.7% and of the total export 9.38% (Aftabuzzaman, 1996).

4.2 Jute and Jute Goods

Jute is the second most important traded natural fiber, after cotton. Of the global production of about 3 million tons of jute and allied fibers, the five major jute-producing countries, named, Bangladesh, China, India, Nepal and Thailand account for about 97 %. Bangladesh is the second largest producer of jute. A substantial amount of foreign exchange is earned by Bangladesh through export of jute and jute products. Jute is usually known for its use as packaging material, and remains as an important packing material in national and international trade. The traditional jute products are sacking, hessian and carpet backing cloth. A number of composite materials have been developed with jute and resins. Such materials

can replace wood for various applications. Jute can also replace environmentally hazardous synthetic products as well as glass fiber materials in many applications. Jute textile is an existing product used for soil erosion control and agro-plant mulching. This natural fiber based geo-textile can easily replace the synthetic geo-textile in many applications. As a new sector for investment, all there diversified products have potential for earning attractive returns.

4.3 Leather and Leather Goods

There is already a substantial domestic leather industry, mostly export-oriented. The leather includes some ready-made garments, although that aspect is confined mainly to a small export-trade in "Italian-made" garments for the US market. Leather and leather goods are more important in terms of value added, accounting for just over 13435 million taka export in FY 2000-2001. This is the fast growing sector for leather products. Presently Bangladesh produces between 2 -3 % of the worlds leather market. Most of the livestock base for this production is domestic which is estimated as comprising 1.8 % of the world's cattle stock and 3.7 % of the goat stock. The hides and skins (average annual output is 150-million sq ft.) have a good international reputation.

5.0 Agriculture and Trade Balance

Bangladesh's dependence on food imports is due to shortage of food grain production. Food grain import is gradually increased with the increased of people (table-3). Food imports in Bangladesh currently represent approximately 18 % of total imports and absorb 34 % of total export earnings. It is found that total food grain import increased more than 50% from 1999-2000 to 2004-2005 FY. Bangladesh is not sound in trade balance due to the fulfillment of demand of food grain, edible oil, fuel and other necessity goods. Large amount of foreign currency spent every year for meet up the demand of necessary goods.

Table 3: Major food grains imported in the recent passed years

Items with amount	1999-2000	2004-2005	Increasing rate
Rice (million US \$)	115	262	127.83%
Wheat (million US \$)	266	312	17.29%
Total food grain import (million US\$)	381	574	50.66%

Source: EPB, 2006 and BER, 2006

It is found that agricultural commodities import trends is gradually increasing than export trend from 1979 to 2004. So, agricultural trade balance always showed negative performance (table-4).

Table 4: Foreign trade: export and import

Foreign Trade	1979-81	1989-91	1999-01	2004-05
Export (million US\$)				
• Total	683.7	1501.1	5636.0	6600.0
• Agricultural	184.0	156.7	106.7	113.9
Import (million US\$)				
• Total	1897.5	3140.7	8096.1	11300.0
• Agricultural	483.1	735.3	1726.3	1984.1
Agriculture trade balance (million US\$)	-299.1	-578.6	-1619.5	-1870.1

Source: FAOSTAT; World Bank-Website

6.0 Agriculture and Food Security

With the availability of high-yielding varieties (HYVs), rice has contributed significantly to the progress towards self-sufficiency in food. Despite the significant inroads wheat has made in the Bangladeshi diet, rice has been and continues to be the favored food grain in the country and constitutes 95% of the cereals consumed. Rice cultivation is the major source of livelihood for the large majority of farmers of Bangladesh and it accounts for more than 74% of cultivated area, 83% of the total irrigated area (SOFA, 1997). The major food grain rice area and production gradually increased from seventies to present due to introduced HYV and applied modern technology. But wheat is not performing as like as rice. Within the crop sector rice dominates, with an average 71% share of the gross output value of all crops. As a result, growth in the agricultural sector essentially mirrors to the performance of rice production.

Over the past two decades the principal sources of growth came predominantly from boro rice, followed by aman rice and to a small extent, wheat. The success in accelerating rice production in the 1980s can be attributed almost entirely to the conversion of local varieties to modern HYVs and as a result of changes in the policy environment, the adoption of irrigation and fertilizer

technologies, which has enabled intensive use of the boro season. There have been modest increases in the yields of local rice but the average local yields have been only half of those of the HYV rice (FAO, 1997). Potato production has shown a significant increase since 1977. Mustered production during the same period has shown significant growth (Nicholls, 1984). But due to heavy emphasis on rice production, yields of other non-cereal crops such as pulses, potatoes, oilseeds and vegetables have stagnated. Land used previously for pulses, oil seeds and vegetables have been converted for rice production. But fisheries, poultry and livestock farming practices turned into more popular and profitable activities in the eighties. But it is not enough to self-sufficiency of food at national, regional and local level. However, the share of livestock has increased steadily but the share of fisheries has increased rapidly of the value added in agriculture (table-5). Actually, in a social, political and economic context, agricultural products especially rice is a significant crop in Bangladesh; it dominates all other economic activities and consumes a considerable amount of foreign exchange.

Table 5: Gross value added and growth rate of agriculture sectors at current price

Sectors	1996-1997		2002-2003	
	million tk.	growth rate	million tk.	growth rate
Crops	259975	8.32	360238	6.28
Livestock	56969	6.24	74736	4.99
Fisheries	96415	12.77	142588	12.60

Source: National accounting wing: BBS, 2004 Statistical year book. P.119

7.0 Land and Agriculture: Coping with Pressure of Population

Cultivable land in Bangladesh is gradually decreased but cropping intensity is gradually increased due to cultivation of double and triple crops in the same land. The net cropped area and cropping intensity are changed from 8648000 ha to 8034000 and 145.41% to 199.93% respectively from 1970-71 to 2002-03 (table-6). Since 1970-71, there has been a gradual increase in the cropping intensity (BBS, 2004). Due to the population explosion, per capita land

holding has been steadily declining as plots fragment in a continuing process that has cut average farm size from 1.4 ha in the 1970s to 0.9 ha in the 1980s and which means that every person working in agriculture has only, on average, 0.12 ha of crop land. The amount of land per person is declining gradually. This dwindling per capita land resource, already one of the causes of persisting poverty in the country, will diminish further as population increases and agricultural land is converted to other activities.

Table 6: Net cropped area and cropping intensity

Area and intensity	1970-71	1979-80	1990-91	2002-03
Net Cropped area (000 ha)	8648	8450	8177	8034
Cropping Intensity (%)	145.41	150.73	171.70	199.93

Source: BBS, 1979, SYB.p.160, BBS 1993, p.155. BBS 2004.p.135

Bangladesh is densely populated country with limited natural resources. Bangladesh has a population of 144 million and about 1,007 persons/sq km is the most densely populated country in the world (<http://www.eia.doc.gov>). Population growth is identified as perhaps the most serious problem inhibiting the sustainable use of resources. In the country necessary land is less than what it is required for its vast population. Besides, agricultural land is gradually decreasing with the increase of population. Conversion of the vast population to a productive human resource remains the greatest development challenge. The most important issue in Bangladesh agriculture is to enhance and sustain growth in crop production. It is observed that food requirement is higher than that of its production (table-7). There should be needed proper utilization of each inches of land under cultivation for minimizing food gap.

Table 7: Projected food requirement (MMT/year)

Food Items	Production	Food Requirement			
	2000	2000	2010	2020	2030
Rice and Wheat	22.16	23.78	27.21	31.33	36.77
Vegetables	4.4	8.01	9.33	10.55	12.55
Meat	0.5	0.70	1.30	2.10	3.15
Fish	1.67	2.73	3.18	3.59	4.55
Fruits	1.45	4.05	4.72	5.35	6.44

Source: BDNARS: 2020, p.12-14, BARC, 2000, BBS, 2004

8.0 Fisheries Resources and Bangladesh Economy

Aquaculture forms an important sector of the Bangladesh economy and plays a vital role in offering better nutrition, higher income, employment opportunities and sizeable foreign exchange earnings. An estimated 73% of rural households are engaged in some sort of fishing activity and fisheries comprise around 7% of the total employment, more than 11 % of annual export earnings. Around 60% of the national protein is supplied from fish (FAO, on-line). Fishing pressure from a growing population has increased dramatically and has seriously affected the abundance of some species like migratory carps and may even be putting the availability of more resilient floodplain fish at risk. Siltation, often a result of up-stream changes in catchments, has reduced water flows and cut off vital access routes for fish from one habitat to another. Increased use of pesticides and fertilizers in agriculture and growing industrial pollution are also contributing to the deterioration of the environment for fish. It is currently estimated that there are about 147 000 hectares of ponds in Bangladesh, out of which only 60 % are cultured and 40 % are under-utilized. Many people do not have access to appropriate technology or skills, because of weak extension. Lack of access to capital for improving ponds, and multiple or unclear ownership of ponds themselves, are limiting factors. The majority of people living in coastal communities make their living from fishing, and unlike inland fishing communities they almost totally depend on fishing. Inshore marine and estuarine fisheries are particularly under stress due to over-fishing, environmental and habitat degradation, and multiple uses of water systems. It is observed production trends of different categories of fisheries increased but this trend may not be continued due to man made and environmental factors (table-8).

Table 8: Production trend of fisheries

Categories	1996-1997	2000-2001	2004-2005
Open water fisheries (Lakh MT)	6.00	6.89	8.59
Close water fisheries (Lakh MT)	4.86	7.13	8.82
Marin fisheries (Lakh MT)	2.75	3.79	4.75

Source: BER, 2006 P.72

Shrimp farming is now an important element in both local and national economy. Around 75% of shrimp farms are located in the southwestern districts of Khulna, Bagherhat, Satkhira and the remaining 25% is in the southeastern district of Noakhali and Cox's Bazar. Rapid development of shrimp farming in the coastal areas of Bangladesh has made a very significant contribution to the growth of national export earnings (table-9). Bangladesh has extremely favorable conditions for shrimp culture with low production costs. However, the expansion of shrimp farming has raised important issues regarding land and water use in coastal areas. Shrimp industry is gradually developed from eighties to present due to high market price and high demand of international market. This sector played a strong role for economic development of Bangladesh.

Table 9: Export trend of shrimps and frozen food

Year	1999-2000	2001-2002	2003-2004	2005-2006
Income (million taka)	14,756	15,908	21,632	32137

Source: Fish fair souvenir, 2003, Foreign trade section, BBS, 2003 and EPB, 2006

9.0 Livestock Resources and Bangladesh Economy

Livestock is one of the most important sub-sectors of agriculture, which plays an important role in our national economy. In the year of 2004-05 the contribution of livestock and poultry sectors to the GDP is 2.95 and growth rate is 7.23 % (BER, 2006). Poultry are one of the most important components of integrated farming system and are playing an important role for human nutrition through meat and egg. Poultry production in Bangladesh is not yet been recognized as an industry and still now more than 80 % of the poultry products come from village-farmers that keep their poultry in scavenging system. The productivity of local poultry is very low. But now a days, the popularity of commercial dairy, layers and broilers are increasing day by day (table-10). Many rich people are starting poultry business with commercial poultry and most of their business is running well. But most of the farmers have no adequate knowledge about modern poultry management and sometimes they are facing great loss. For sustainable poultry production within shortest possible time to meet the increasing

demand of protein nutrients, need more technical personnel with enriched knowledge in modern poultry husbandry (Mandal, 2004).

Table 10: Performance of livestock and poultry sectors

Production	1991-1992	2005-2006
Livestock (corer)	4.19	4.64
Poultry (corer)	11.05	23.30
Poultry egg (corer)	379	607
Milk (lakh MT)	13.52	22.4
Beef and mutton (lakh MT)	4.60	11.60

Source: BER, 2006. P.73

10. Conclusion

The economy of Bangladesh is primarily dependent on agriculture. After independence the country severely faced food crisis. To meet up the demand of food the government of Bangladesh always put special attention to the agriculture. At the sometime different research organizations in Bangladesh introduced and improved many crops variety. Among all of the research institutes Bangladesh Rice Research Institute (BRRI) released 47 High Yielding Varieties (HYV) of rice from early to present and to make the country near to self- sufficiency in food. In the early eighties some people have started to poultry and dairy farming commercially. These farming practices become more popular and spread out all over the country. During the eighties the coastal people of Bangladesh search out new sources of fisheries resources like shrimp, prawn and marine fisheries due to high demand of global market. This sub-sector contributed a lot for earning foreign exchange. Large numbers of people are presently involved in this sub-sector. The agricultural sectors perform very well specially in food security, employment, export earning and raw material supply to many industries. But actual increase in per capita production of agricultural sectors is not that visible due to increase in population in the country. However, experts opine that there is no other shortcut way of achieving economic development in the country without achieving success in agricultural sector.

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