

Draft for Comments Only

## **Agrarian Transition and Livelihoods of the Rural Poor: Agricultural Input Market**



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## **Acknowledgement**

The manuscript is an output of a research programme of Economic Policy Unit (EPU), undertaken by the Unnayan Onneshan- The Innovators, a center for research and action on development, based in Dhaka, Bangladesh. The report has immensely benefited from insights shared by people at grassroots from the villages of Comilla and Tangail during fieldwork. It has also gained from the contribution of officials from various government offices and NGOs. The report has benefited from funding of Oxfam International, managed by Oxfam GB Bangladesh Programme.

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## **Executive Summary**

It is impossible to ensure sustainable development of the national economy without resilient growth of the rural economy at the micro level. Crucial to the progress of the rural economy is the development of the agricultural sector. The agricultural sector development faces a massive obstacle due to the resource constraint of the poor rural farmers. The problems were compounded by the liberalization of the agricultural input market as prescribed by the IFIs. Allocation of resources to the agricultural sector has declined in the past few years. This double blow led to declining profit in the crop sector.

The agricultural sector of Bangladesh has seen a series of liberalization measures under the aegis of the World Bank and the IMF. Bangladesh had initially opened up her agricultural market in the 1980s through the liberalization of the input markets. Extensive reforms have been carried out in the areas of fertiliser marketing and distribution; minor irrigation; and seed development and marketing. The Bangladesh Agriculture Development Corporation handled the procurement and distribution of the inputs in the period following Independence. The activities of the organization in procuring and distributing inputs such as seed, fertiliser and irrigation equipment enabled farmers to produce their crops with appreciable success. The World Bank and the IMF prescribed the liberalization of inputs on grounds this would lower prices of the inputs for farmers, which would translate to a reduction in the cost of production. Within the scope of this liberalization were the withdrawal of subsidies to inputs, the privatization of procurement and distribution of inputs and the withdrawal of ban on food grain import by the private sector.

Liberalization affected the input market on a number of different levels. Inefficiencies in the input markets were also prevalent. In the seed market, there is a lack of adequate structure and institutional cooperation. Although the private sector operates in this market, it is unable to provide the farmers with the seeds they need. This is resultant from the difference in the facilities. Reforms at various levels in the fertiliser market have been taking place from the mid-1970s in regards to the privatization of sale, distribution and import of fertilisers. However, the impacts of these reforms have been unabated price hikes, unbalanced use of fertilisers leading to decreasing soil fertility and adulteration of fertilisers. The irrigation sector has been liberalized in stages. Despite the contribution of the liberalization of small irrigation equipment to irrigation facilities, the poor and marginal farmers have lost access to this service due to steep prices. The import and distribution of inputs is primarily managed by the local elites who rule the supply chain. Farmers linger at the bottom where they do not have sufficient access to the input markets.

The government has adopted quite a few policies for the agricultural sector over the years. Attaining food security, sustainable production, productivity and income gain are among the main objectives behind these policies. After the Awami League led coalition government assumed power in January of 2009, has prioritized access of farmers to these inputs and have acted on it. In the budget for the fiscal year 2009-10, a range of measures for increasing access of farmers to the inputs have been put forward. The implementation of these measures is a major challenge for the government.

The agricultural sector contributes 22 percent of GDP and employs 48 percent of our labour force. Without access to the agricultural inputs, farmers cannot increase productivity of the sector. The rural economy that constitutes 80 percent of our population cannot move ahead as such. It is therefore imperative that the government undertake and implement the devised policies to attain its targets. The import and distribution of inputs should be carried out to guarantee access to farmers. The liberalization and privatization measures should be managed so as not to victimize the poor and marginalized farmers. It therefore follows that the policies prescribed by the IFIs should be cautiously dealt with. Although subsidies as a major financial support should be provided to the poor and marginalized farmers, caution should be exercised, due to their inherently high opportunity cost. Subsidies can be regarded as part of a comprehensive strategy to improve productivity.

## Section 01

### 1.1 Introduction

For sustainable development of the agricultural sector, access to inputs such as seed, fertiliser and irrigation is necessary for the small and marginal farmers. Introduction of the High Yielding Variety (HYV) rice during green revolution of the 1960s had increased agricultural production two fold compared to previous years. However, farmers' dependence on the market for various types of agro inputs including irrigation and fertiliser has increased. During the initial stages of the green revolution, the state subsidized the agricultural inputs with the extension of agro-based services in order to aid the diffusion of HYV rice throughout the country. After 1971, the government had continued along these lines where the state agencies were in charge of supplying the major inputs like water, fertiliser and seeds. Bangladesh Agricultural Development Corporation (BADC) was responsible for the distribution of seeds and fertilisers, while Bangladesh Water Development Board (BWDB) was engaged in providing water for irrigation. Patronization by the state had been successful in multiplying rice production manifold to about 30 mounds per bigha (0.33 acre) after the green revolution from about 5 mounds per bigha<sup>1</sup>.

However, in the 1980s the Structural Adjustment Programs (SAP) were implemented according to the prescription of the World Bank (WB) and the International Monetary Fund (IMF). Input markets were gradually liberalized and the private sector took charge. Private companies were allowed to import and sell fertilisers, seeds, pesticides and irrigation equipment.

The agricultural reforms were completed by the 1990s, leaving the public sector investment in the agricultural sector declining from 31% and 10% in 1972-73 to 3% and 1.2% in 2006 as a percentage of revenue and capital investment respectively.<sup>2</sup> This withdrawal of the state from the agricultural sector has had an adverse impact on the small and marginal farmers. Rapid increases in prices of fertilisers, seeds and pesticides from deregulation in price control, outweighed the benefits of increased yield by decreasing the earnings of these small farmers. In the absence of proper regulation, farmers have been exposed to market volatility and profiteering from hoarding, artificial price hikes, and oligarchies of the traders. This has pushed the marginal farmers to the weak end of a tapered supply chain.<sup>3</sup>

Traders and wholesalers of fertiliser often stockpile fertiliser in peak seasons. This creates an artificial scarcity, opening the door for artificially ballooned prices for the farmers, who do not have a choice but to buy. To make matters worse, the quality of the fertilisers on the

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<sup>1</sup> Khan, S Adnan, 1989, *The State and Village Society: the Political Economy of Agricultural Development in Bangladesh*, The University Press Ltd, Dhaka

<sup>2</sup> Titumir, R. and G. Sarwar (2006) 'Failing Farmers: Liberalization in Agriculture and Farmers' Profitability in Bangladesh' Unnayan Onneshan, August 2006.

<sup>3</sup> Hossain Mahbub and Rushidan Islam Rahman.2003. 'Agriculture and Rural Development of Bangladesh'. Dhaka. University Press Ltd.

market is often tampered with by the traders. Moreover, the farmers are held hostage by the local water lords, created through the privatization of irrigation.

The paper is structured as follows: first, it lays the groundwork for understanding the liberalization in agriculture sector in Bangladesh; the obvious importance of reliable and quality inputs for farmers' livelihoods and agricultural production on a larger scale. This will be followed by an examination of three specific sectors; seeds, fertilisers and irrigation, the troubling policy trends which threaten rural livelihoods by insuring under investment in long-term productivity solutions and instead rely on private enterprises for innovation and support. At the concluding it has identified the some policy issues and has come with viable alternatives to the current policy trends.

## **1.2 Objectives of the Study:**

- Assess the current set up and trends of the input markets since the early 1980s. Three inputs will be looked at in detail: fertiliser, irrigation and seeds
- Map the process of liberalization of agricultural input markets and measuring its effects on the livelihoods of small and marginalized farmers
- Assess the role of the private sector, domestic players, such as private traders and businesses, as well as international beneficiaries of the current system, MNCs.
- Explore the advocacy agendas related to the input sector and build a case for bringing this sector back under state control, at least partially, using theoretical, historical and current evidence, and crucially focus on the perspectives and needs of farmers themselves
- In the context of advocacy agendas related to the input markets, new areas for state investment will also be explored through research and development, particularly with reference to genetically modified crops, investment in climate change preparedness, rural, non-agricultural sectors and in traditional or alternative agriculture

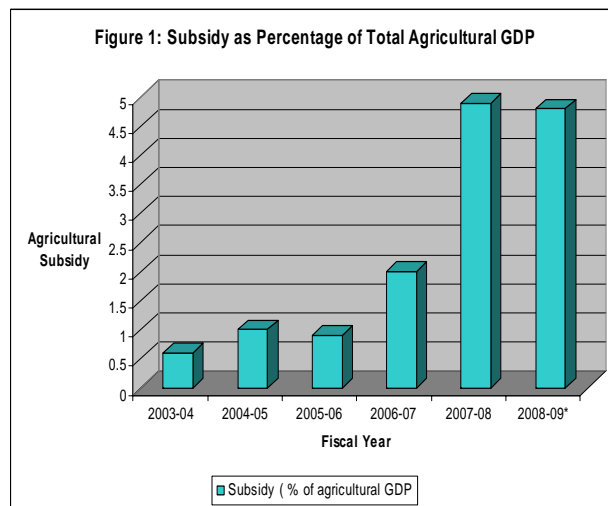
## **Section 2**

### **2.1 Liberalization of the Agricultural Sector in Bangladesh**

Prior to the green revolution, the nature of agriculture in Bangladesh was mostly subsistence with manual labor, local varieties of seeds, dependence on availability of natural water and manual irrigation with no industrial fertilisers. However, the green revolution brought with it High Yielding Varieties (HYV) seeds, ground water irrigation, industrial fertilisers and machines. After liberation from Pakistan in 1971, the Bangladesh government invested heavily in agriculture in order to attain self sufficiency in food production. The state-owned Bangladesh Agricultural Development Corporation (BADC) and Bangladesh Water Development Board (BWDB) took played a very dynamic and domineering role in supporting farmers. BADC assumed the monopoly over the distribution of seeds, fertilisers, irrigation equipment, and pesticides to the farmers. State-owned Bangladesh Rice Research Institute (BRRI) was responsible for innovating modern varieties of rice. Planning and implementing large scale surface irrigation, flood control and drainage were the responsibilities handled by the Bangladesh Water Development Board (BWDB). The cost of irrigation was kept artificially low so that the marginal farmers could afford to irrigate their

lands. The state regularly intervened in the market through the Trading Corporation of Bangladesh (TCB) and keep food prices low.

From the early 1980s, the state policy was reformed to reduce government intervention and increase private participation in the distribution of inputs, mainly fertilisers and seeds. By 1992, the private sector participation in procurement, import and distribution of fertilisers had increased in the domestic market.<sup>4</sup> From the 1980s the state has gradually withdrawn subsidies and support from the agricultural sector. Figure 1 shows the low volume of subsidies provided to the sector over the last few years. In 2007, there was a drastic increment in the volume of subsidy, which was due to the increased support to those affected by cyclone Sidr.



Source: Author's calculation from data in Bangladesh Economic Review and Yearly Budget

In the subsequent year 2008-09, there was an increased volume of subsidies given to the sector, which has been curtailed again in the budget for 2009-10. While in 2008-09, Tk. 42.85 billion was allocated for providing subsidies to the agricultural sector, it has been reduced to Tk. 36 billion this year. According to the government's stimulus package, the subsidy for the agricultural sector has been increased from Tk.42.9 billion to Tk. 57.9 billion, amounting to a meagre 0.9 percent of GDP.

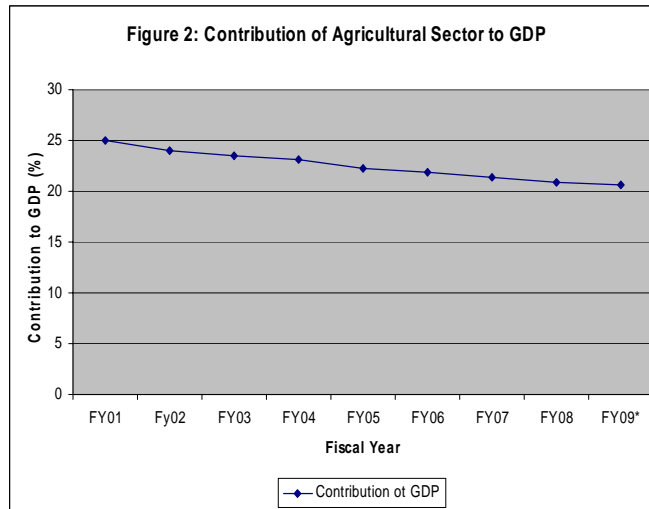
The rationale for liberalizing the input markets was the competition among the producers and suppliers and thus lower prices for the farmers, in turn making the production costs lower. The reality pointed in the reverse. Input prices increased due to supply shortage and inaccessibility of the same to the small farmers. Only the wealthy farmers would stand to benefit from this change.<sup>5</sup>

Declining agricultural support for the past few years has resulted in a decrease in the contribution of the sector to the total GDP, as illustrated in figure 2.

<sup>4</sup> Razzaque M. A, Laurent E,2008. 'Global Rice and Agricultural Trade Liberalization: Poverty and Welfare Implications for South Asia'.

<sup>5</sup> ibid





Source: Bangladesh Bank, Quarterly Update, May, 2009

The reform programs were initiated after the World Bank had published two reports—one in 1979, on food security and a second in 1982 on “Food Grain Self Sufficiency and Crop Diversification”. These reports advocated a “free market” stance for the government in order to boost Bangladesh Agriculture Production and for attaining food self-sufficiency.

As a part of the reform, BADC’s distribution monopoly of the fertilisers and other inputs was withheld. Subsidies were also withdrawn from fertilisers and seeds. Instead, the private sector was allowed to operate in this market. They were allowed to import fertilisers and sell it to the local markets. The previous ban on the private sector’s ability to import irrigation equipment was also lifted. Meanwhile, tariff on imported food was removed. Since 1993, the seed policy, later amended in 1998, has allowed the private sector and NGOs to enter into the seed market. The private sector and NGOs were given permission to import and produce a variety of hybrid and HYV seed. The restrictions on the import of irrigation equipment by the private sector were withdrawn as well. (Annex I: Summary of the main reforms)

The chief beneficiaries of the liberalization in the agricultural sector were the local elites, rich landlords and the multinational companies. The inputs of fertilisers, irrigation equipment and seeds are imported from the foreign companies and the multinational corporations. The import and distribution of these goods is, for the most part, managed and accrued by the local elites who operate in both urban and rural settings. At the national and local levels, privatization and deregulation of the inputs market has been to the interest of the traders, who have direct access to the market.

The victim of this reform is the small and marginal farmer who finds himself at the bottom of the supply chain. His access to irrigation, fertilisers and seeds is destroyed after this transformation. His supply of fertiliser is at the mercy of the dealers. His irrigation depends on the owner of the local water pump. The lack of quality agriculture inputs has also crippled this marginal farmer. The disproportionate use of fertiliser has resulted in productivity loss and a tinier profit margin. The present agricultural system is increasingly becoming technology intensive. Inappropriate use of technology will lead to reduced productivity. The farmer is also quite uninterested in using an alien technology due to a lack of information and knowledge. Land structure is another pitfall to the use of modern technology. With the decreasing size of farm holdings, it is becoming tougher to optimally use modern technology which utilizes economies of scale.

### **2.1.1 Declining Crop Sector Profitability:**

Agriculture sector liberalization is assumed to enhance access and affordability of the inputs to the producers through an efficient market mechanism by encouraging competition. Efficient use of inputs with affordable price will increase productivity and contribute to higher aggregate profitability. But in reality, over the years there has been a declining trend in the crop sector profitability.

The difficulty in estimating crop sector profitability arises from the fact that the national statistical agency does not maintain a detailed crop-specific fertiliser use, crop wise irrigation expenses of farm households and the regional distribution of expenditure pattern data on inputs. Other agencies do not happen to maintain the longitudinal (refers to study on something for a specified time period) survey data required to measure the crop sector profitability. Available data sets thus do not permit a time series analysis of more than 25 years of the liberalization period, as some costing variables like land rent, interest on capital are missing. There are also no consistent data sets, coming from a single source.

Titumir (2005) has estimated crop sector profitability by adopting an alternative estimation method, using proxy data where the official data is absent. For example, the actual use of fertilisers by the farmers for different crops is not available except for 1996, the year of the agricultural census. Therefore, the recommended dose of fertiliser for different crops is used as the proxy of the actual use.<sup>6</sup> The given crop's profitability is estimated in the study within the framework of a simple cost-benefit analysis of the crop. The findings show that a vast majority of products show a sharp decreasing trend in profitability. Though there are some ups and downs in the trend of profitability over the years (from 1980-81 to 2005-05),

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<sup>6</sup> Titumir, R., M.I. Ahmed and G. Salwar (2005) "Undercutting Small Farmers: Rice Trade in Bangladesh and WTO Negotiations" report published by *Unnayan Onneshan- The Innovators*, Dhaka, Bangladesh

liberalization did not increase the profitability of major crops, rather the estimation suggests that return to cost ratio has declined over the years (table 1)

The decline in crop sector profitability can be attributed to four reasons:

1. The rate of increase in yield has outstripped the rate of mounting input costs;
2. The rate of increase in farm gate prices of agriculture produce is lower compared to rate of increase the price of inputs;

Table 1: Return - Cost Ratio of Different Crops

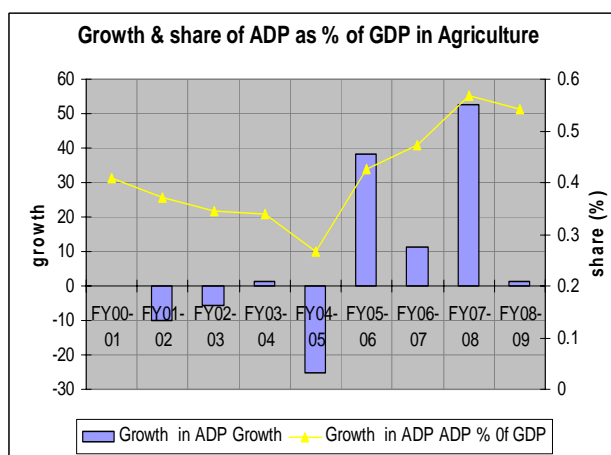
Crop \ Year	1981-82	1986-87	1991-92	1996-97	2001-2002	2005-2006
Aus Local	0.96	1.04	1.09	0.66	0.76	0.62
HYV Aus	1.28	1.33	1.36	0.82	0.76	0.81
LT Aman	1.49	1.85	1.48	1.06	1.06	0.96
M. Aman	1.46	1.79	1.65	1.09	1.27	0.99
L. Boro	1.22	1.13	0.98	0.65	0.83	0.70
M. Boro	1.44	1.69	1.32	0.98	1.02	0.89
M. Wheat	1.33	1.14	1.16	1.09	1.04	1.07

Source: Titumir (2005)

3. Liberalization in the agriculture sector created an unregulated market where producers get less and traders more due to market syndication. Producers have a limited access to the market and sell at a lower price in the harvest season. The traders have their own network to appropriate extraordinarily higher price from the consumer's end.

### 2.1.2 Decline in the Allocation for Agriculture

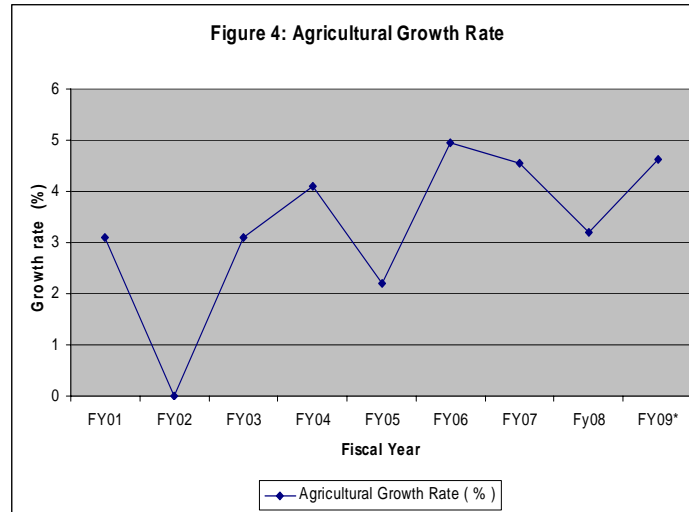
Investment in agriculture did not grow during the period from 2001 to 2005, which however had increased in 2005-06. In 2006-07, growth in ADP was 2.33% as shown in the figure. In agriculture, government spending in proportion to agriculture had increased from 0.27% in FY 2005 to 0.57% in FY2007. This rate declined again to 0.21% in FY 2008.<sup>7</sup>



Source: Unnayan Onneshan. 2009. Three Questions: A Rapid Assessment of National Budget

<sup>7</sup> Unnayan Onneshan. 2009. Three Questions: A Rapid Assessment of National Budget 2009-10

The poor performance of the agricultural sector, shown in figure 4, is the outcome of the inadequate investment in the sector. As is seen from the figure, during the fiscal year 2002, the sector plunged to a zero growth rate. There growth rate, although fluctuating, in general has been low during this period of time.



Source: Bangladesh Bank, Quarterly Update, May, 2009

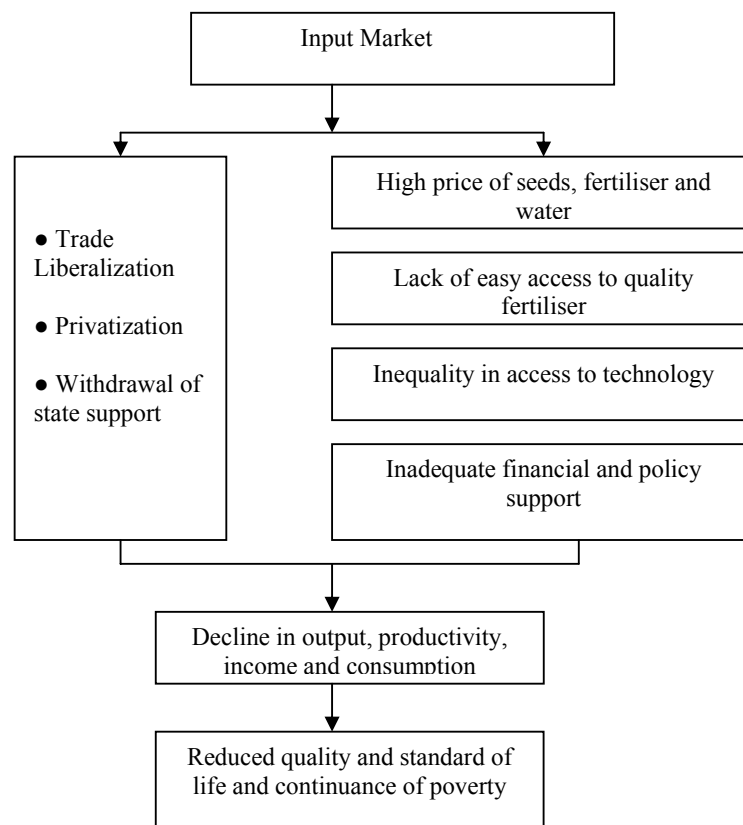
The allocation of resources to the agricultural sector has declined over the years (Annex III). During the first two years after the independence, the state had provided subsidies in the food sector to overcome the food crisis in a war-torn country. In the first five-year plan the state heavily invested in irrigation facility in order to increase the production of Modern variety of rice. In the FY 1973-74 a total allocation to irrigation of about Tk. 366.00 million was made and allocation for the crop sub-sector was Tk. 321.90 million and ADP for the agriculture sector was Tk. 687.90 million (13.14 % of the total ADP allocation). Since FY 1979-80, ADP allocation for agriculture sector gradually increased. However, it declined steeply and reached to 10.71 % of ADP in FY 1984-85. In FY 1985-86 the public investment to agriculture has drastically slashed down in half to Tk. 1154.70 million (5.74% of ADP) from previous year's Taka 2096.10 million. This trend continued and in FY 2006-07 it was 2.12 percent of the total ADP expenditure. In the budget of FY 2008-09 the government has allocated Tk. 136,480 million (2.2 of the GDP) for agriculture, fertiliser and fuel oil, which is actually a decline over previous year's (FY 2007-08) total sum spent in these sectors.<sup>8</sup>

<sup>8</sup> Tk. 1.0 trillion national budget announced. *The Financial Express*, June 10, 2008

## 2.2 Inputs Market Dynamics and Farmer's Position

Landless and marginal farmers are compelled to purchase agricultural inputs at higher prices which decreased their profit margin and made their lives difficult. Failure to ensure adequate agricultural input during the cultivation season has also resulted in lower yield and productivity of crops. On the one hand, the cultivation system has adopted HYV seeds and become fertiliser, water and pesticide-based and on the other hand unavailability of inputs, high prices and structural constraints has put the sector in jeopardy. These opposing factors have a retarding impact on the agricultural productivity gains and threaten the livelihood of the small and marginal farmers by reducing their profitability. Figure 5 depicts the impact of various trade liberalization measures and inefficiencies of the input market on the livelihood of the poor farmers.

Figure 5: Impact on Livelihood of Farmers



Governments at various times have tried to adopt policies to ensure easy access to inputs for the farmers. However, due to a lack of proper implementation, these policies have not always been fruitful. Trade liberalization, resulting in the fluctuation of input price at times, increases the livelihood expenditure of poor farmers, which leads to low level of productivity, income and consumption.

Against the backdrop of above-mentioned situation, the pressing issues of affordability, accessibility, quality, adequacy and timeliness of input provision to the poor farmers have been thrust forth. Therefore, it has become necessary to establish an alternative market mechanism in order to ensure reasonable prices of inputs and flow of available information.

Farmers should also be made free from the oligopolistic market system to ensure their well being and sustainable agricultural production. The prevailing situation in the seed, fertiliser and irrigation markets is discussed below.

### 2.2.1 Seed sector of Bangladesh

Seeds are the most important inputs for cultivation. Historically, Bangladesh was rich in rice varieties. About five thousands rice varieties used to exist here. These varieties were diverse in characteristics. Some varieties were adapted to the flood water level and microclimatic conditions. There were also different varieties for high and low lands. For example, one distinctive type of paddy used to get taller with the rise of flood water. The seeds were preserved by the farmers after each harvest for planting next year. In the case of loss of seeds they used to collect it from their fellow farmers or had to buy from local market. After 1960, the HYV rice was introduced and by the early 1970s its cultivation had expanded throughout the country under the patronization of the Ministry of Agriculture. The HYV paddy was a cross breed of the African Dwarf Variety rice and local rice strains developed by the BRRI. So far, the BRRI has developed more than 40 varieties, of which eight varieties have become popular.<sup>9</sup> These popular HYV varieties have replaced the existing local varieties and the farmers have become increasingly dependent on the HYVs. At present, barely 200-300 varieties of local rice exists in Bangladesh, besides the widespread modern varieties introduced by the BRRI. The BR 28 and BR 29 are most popular varieties presently used by the farmers. The basic characteristic of HYV is that it is short and thus susceptible to flood, needs more fertilisers and water as inputs, and productivity per acre is high. The farmers can preserve this paddy for the planting the next season. Although introduction of HYV has increased rice production, increased input demand has increased the investment cost. So the farmers are vulnerable to production losses due to the natural disaster and volatility of the market. The marginal farmers are more vulnerable because they have a limited resource base and most of the time they borrow money to meet the investment costs of cultivation.

Table 2: Yearly Distribution of Improved Rice Seeds by BADC ( metric ton)

Year	Aus	Aman	Boro	Total Rice
1975-76	659	1263	396	2318
1980-81	503	629	453	1585
1985-86	537	1892	696	3125
1990-91	899	3026	1437	5362
1995-96	421	4173	4185	8779
2000-01	222	4508	7618	12348
2001-02	207	4625	10136	14968
2002-03	303	5885	8187	14375
2003-04	346	5051	12397	17794
2004-05	458	7232	15054	22744
2005-06	472	7131	25602	33205
2006-07	508	9126	29000	38634

Source: BADC, Ministry of Agriculture

<sup>9</sup> Hossain, Mahbub et al, 2002, *Rice Seed Delivery System and Seed Policy in Bangladesh*, CPD-IRRI Policy Brief 1, Centre for Policy Dialogue, Dhaka

At present BADC bears the main responsibility for producing and supplying HYV seed. However, the BADC's capacity is insufficient to meet the local demand for high quality seeds. In 2006-07 BADC supplied 57,046 tons of seeds for cereal crops, only 15% of total demand of the country.<sup>10</sup> This shortage became pronounced in 2007 when the country was attacked by one cyclone and two floods. Shortage of BADC supplied HYV seeds has made the entry of Hybrid under the auspices of local corporate NGOs in the Sidr affected area. Entry of the private sector was allowed through National Seed Policy (1993). The seed policy of 1998 had made the provision for active participation of the private sector and NGOs. Private sectors are allowed to import and sell seeds to the farmers. The BRRI has also supplied Breeder Seeds to some NGOs, namely BRAC and ASA for further multiplication and improvement of seeds. However, the private sector is interested in supply and production of Hybrid seeds as that ensures a higher return on investment.

**Box 1**

**Inadequate and poor quality of seed**

Jasim Mia is a small farmer of Srimantopur of Chandina upazila in Comilla district. During November 2008 due to unavailability of seed in the regional seed sale center, he went to a local shop to buy tomato seed. He took enough care of his plants and provided necessary pesticide and water. But after some day when the plants were getting bigger, he found that the plants were becoming black and eventually he got very low amount of tomato, he incurred huge loss. According to Jasim Mia, the quality of the seeds was very poor and was the reason behind this. Many farmers like Jasim Mia complained about the inadequate supply of seed available in the market and the poor quality.

Source: Case study in Comilla and Tangail

According to the statistics of the seed and agriculture division of Ispahani Seeds, during 2007-08, total hybrid seed requirement was 308,680 tons, in contrast to the total seeds sales of 109,500 tons. In 2008-09, the requirement was 374,000 tons and the supply was 117,985 tons. This amount was sold by BADC, DAE and the private sector, including NGOs. For the FY 2009-10, the total seed requirement is projected to be 338,775 tons.

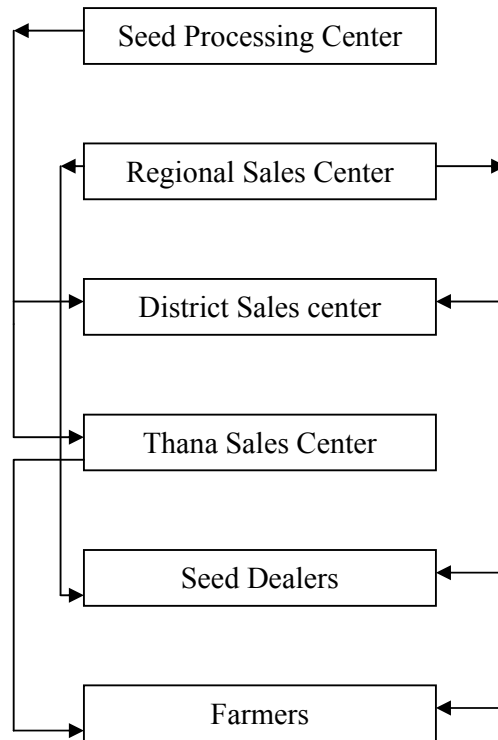
### *Seed marketing*

Under the seed marketing division of BADC, there are 22 regional, 42 district and 36 thana sales centers all over the country. The seeds are packed in the seeds processing center during the crop production season and dispatched to the regional, district and thana sales centers according to the seed distribution programme. Seeds are then supplied from these sales centers to the seed dealers for sales to farmers. Figure 6 shows the flow chart of seed marketing by BADC.

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<sup>10</sup> BADC, 2008, Booklet on National Seed conference and Fair, From 30<sup>th</sup> June to 2<sup>nd</sup> July 2008

Figure 6: Flow Chart of Seed Marketing



Source: National Workshop and Agricultural Fair, February 2009. ‘Symbol of Quality Seeds’, Bangladesh Agricultural Development Corporation.

In case of the private sector, the flow of seeds to farmers is carried out in a similar way. For the private sector firms, there are marketing centers in different regions that supply to the seed dealers. 95 percent of the rice hybrid seeds provided by private sector are imported. Import cost of hybrid rice seed is Tk. 140-150 per kg, whereas they are sold at Tk. 200-210. Vegetable seeds are locally produced by the company ‘Lal Teer’, but the quantity is insignificant. The shortfall must be imported. Ispahani Seeds has recently started the production of vegetable seeds. Maize seeds are totally imported. According to the Agriculture Ministry officials, in the outgoing Boro season of 2009 of the 11,000 tons of hybrid seeds used, around 2,500 tons were produced locally and the rest were imported from China and India.

*Government and the private sector in seed marketing*

The farmers of Bangladesh are the main producers and preservers of the rice seed. According to Ispahani Seeds, a conglomerate in seed marketing, about 90% of the rice seeds every year required is either saved by the farmers themselves or the traded with their fellow farmers. Thus they produce seed varieties adaptive to the local climate and soil condition. From field level observation, it has been seen that farmers usually buy seeds from the local markets. And in some cases, they buy from NGOs, such as BRAC.



Besides the farmers the state owned research agencies also produce rice seeds. The BIRRI and the Bangladesh Institute of Nuclear Agriculture (BINA) are responsible for innovating new varieties which are called “breeder’s seed” (BS). After successful innovation the BS are distributed to the BADC, NGOs and other private companies for the production of “certified seeds”. In 2005-06 BIRRI had supplied 15.45 metric tons of BS to different government agencies and to different NGOs. These certified seeds are then sold to the farmers.<sup>11</sup> BADC is the primary agency in charge of production of foundation seed (FS). It has 21 seed multiplication farms and 15 contract grower zones for this purpose. There are also 12 seeds processing centers. BADC multiplies FS from BS on its own seed farms. In order to produce Certified Seed (CS) from FS, the BADC undertakes contractual arrangements with the farmers using its network of farmers. For producing CS on the farmers’ fields, the BADC nominates one experienced seed grower as “group seed managers” for every 25-30 seed growers. The GSM coordinates and supervises CS production activities. BADC has about 1300 licensed seed dealers through whom it sells its CS to the farmers. In addition, NGOs can collect CS from the BADC outlets and sell it the farmers using the BADC brand name. Before being put up for sale, the certified seeds have to be cleared by the Seed Certification Agency (SCA). It also carries out market inspection in order to control the quality of the marketed seeds.

In the private sector, some NGOs such as BRAC are producing seeds. In recent years, conglomerates such as Ispahani, Energypac, Square, Getco and Northern are engaged in the seed business. The stalwarts are local seed companies like Lal Teer, ACI and Syngenta who are engaged in producing and supplying certified seeds. The companies are developing forward and backward linkages, such as investing in research and development of hybrid seeds and the development of storage and processing centers. Table 3 shows the production of seed in the private sector along with BADC and DAE, NGOs and multinational companies engaged in promoting hybrid seeds. The cost of hybrid seeds is higher compared to the HYV variety. The cost of HYV seed is about Tk. 24-25 per kg whereas in the cost of Hybrid seed is about Tk. 200 per kg. This increases input costs for seeds to the farmers by 8 times. Moreover, farmers cannot save hybrid seed in their farm for cultivating paddy in the next season as the paddy from seed do not have a regeneration capacity.

Table 3: Year wise seed supply for 2007-08 and 2008-09

Name of Seed	2007-08			2008-09		
	Total seed sold	BADC+DAE	Private sector	Total seed sold	BADC+DAE	Private sector
Rice	109500	90700	18800	117985	97985	20000
Wheat	39200	39200	0	41050	40550	500
Potato	39700	37000	2700	40500	37500	3000
Maize	4970	470	4500	3000	500	2500
Jute	2915	1565	1350	2965	1580	1385
Vegetables	930	73	857	1093	75	1018
Pulses	2808	2808	0	3103	3103	0
Oil seeds	1477	1477	0	1748	1748	0
Spices	384	283	101	454	304	150

Source: Seeds and Agriculture Division, Ispahani Foods Ltd. 2009

<sup>11</sup> CPD, 2002, *Rice Seed Delivery System and Seed Policy*, Centre for Policy Dialogue, Report 52

Private sector actors in the seed business face some problems that obstruct the sector's flourish. There are various problems in the seed supplied to the farmers through dealers and the firms sometimes face problems in employing dealers. According to an official of Ispahani Seeds, there is a lack of stock seeds. Good quality breeder seeds are needed for making the stock of seeds, which the private companies cannot avail. They usually collect the rice seeds from the BRRI, but often end up with less than the amount of seeds required. There is also a lack of technical personnel. Another problem faced by the private companies is the lack of support from the government. Whereas BADC gets subsidy from the government, the private companies do not get any such kind of support, which, if provided would have enabled them to provide more quality seed to the sector. Another major setback for the private sector is that they are not considered under the seed production industry, which hinders their access to various benefits received by BADC. Most of the companies do not have their own research and development unit, which is necessary to boost up the companies for increasing their ability to provide increasing seeds to the farmers.

#### *Lack of adequate structure and institutional cooperation and quality control*

At present there are three prominent state agencies involved with the production of modern varieties of rice. These are the BRRI, the BINA and the Agricultural Universities. There remains a lack of coordination among these organisations. There is also a dearth of research for producing new varieties adaptive to the changing climate and soil quality. Besides, seed production and storage capacity is insufficient. Currently, they are able to supply a tiny 10-15 percent seed of total country requirements.

There is hardly any institutional cooperation among the public and private agencies. According to Ispahani Seeds, one of the prominent company in seed marketing, the BADC acts as a competitor to the private companies. The BADC also gets subsidies and facilities from the government. This is how they are able to provide seed at low cost to the farmers. There are processing centers, godowns of BADC, which most of the private companies do not have.

Certification and quality control is very important for supplying healthy seeds to farmers. According to Himadri Kumar Saha, the man in-charge of seed and agriculture division of Ispahani Foods, a concern of Ispahani Group, rice yield can be increased by 12 to 15 percent if improved quality of seeds is used by the farmers in our country. The amended 1998 seed act provides BSA the mandate of certifying foundation and certified seeds. However, their capacity is inadequate with regards to manpower and technology for proper certification of seed quality.

#### *Unavailability of Seed bank at village and union level*

The impact of the unavailability of seeds is worsened by the absence of any seed bank in the rural areas for the farmers. As has been observed in the fields, there are no seed banks and farmers in most cases have to buy seeds from local markets, which are of poor quality. They have to buy the seeds at higher prices as well. In the agriculture production system farmers' power is ensured when they have command over input. Traditionally farmers save their seeds at their farm. However, when a disaster like a flood or a cyclone occurs, farmers lose their seed or become unable to save seed due to loss of harvest. As they lose their seeds, they

become susceptible to the market forces. It has been seen from field level observation that this is the worst situation for the poor farmers as they are at the bottom of the power structure. They have to buy seed at a higher price. This further increases their production cost. It is important to have seed banks at the local level where farmers can save their seeds and the government agencies can also supply seeds in order to meet farmers' need.

**Box 2**

Farmers fooled by hybrid seed traders

Most of the imported high yielding varieties of rice and vegetable seeds are substandard with authorities having no measure for ensuring quality, farmers complained. Most of the seed traders in the country import seeds of rice, vegetables, maize and millet labeled as hybrid and HYV although the seeds are not certified as claimed. An official of Bangladesh Rice Research Institute told New Age that for hybrid rice seed qualification, the government emphasised on yield rather than quality. He also alleged that some unscrupulous seed traders sold the inbred varieties like BR-28, BR-29, released by BRRI, as hybrid.

Although there is contact between the hybrid rice seed importers and the government for eight years regarding the technology transfer of particular imported seeds, it does not help the agriculture. Over the contact period, the traders import the same variety using different names, which goes without action by the government. For vegetable seeds, there are provisions of quarantine test at the port and reporting of germination purity at the national seed board, but these are rarely followed.

The farmers are also cheated as many companies and their agent's market date-expired seeds whose germination rate is low. Some private seed traders have no trial field and contact growers to assess the germination rate of the seeds before marketing. Besides, the absence of grow-out test at the government level makes it difficult to find out what is real hybrid seed. MA Qashem, marketing manager of Alauddin Seed Company said they import seeds from different countries and have two contact growers in Thakurgaon and Meherpur for conducting field trial of the seeds.

The price of hybrid seed is also exorbitant, farmers allege. Per kilogram hybrid tomato seed is sold at Tk. 75,000-80,000 while the same hybrid seeds developed by BARI as BARI Tomato-3 and BARI Tomato-4 cost Tk. 20,000. An HYV variety radish seed like BARI radish-1 or Thasakisun developed by BARI is sold at Tk. 200-250 per kg while the private seed companies sell the same at Tk. 1,200-2,200 in the name of hybrid. Even, per kilogram cauliflower seed is sold at Tk. 1.5 lakh and papaya seed at Tk. 2.50 lakh.

The private seed companies are earning huge profits in absence of government supervision, said Mukleshur Rahman, chairman of Bangladesh Agricultural Development Corporation. There is no control by the government regarding the standard of notified and non-notified crops as well as the profit margin.

Even the seeds which has been produced and marketed by the Bangladesh Agricultural Development Corporation are not properly certified, agricultural experts alleged. The government needs to strengthen the Seed Certification Agency to ensure the quality of seeds, they suggested. About 92 per cent seeds of different crops and vegetables produced and marketed by the BADC under Truthful Level Seeds (TLS) are not accordingly certified, it was alleged. Local supply meets only 12.61 per cent of the country's annual quality seed demand of 9, 32,250 tons.

New Age September 12, 2006

*Proliferation of hybrid rice seed:*

Hybrid seed was introduced in Bangladesh by the NGOs like BRAC following 1998 flood. However, the result was unsatisfactory. The paddy from the hybrid seed was prone to diseases and yield was lower than HYV paddy. Over last ten years hybrid rice could not get popularity among the local farmers because of its high input cost as hybrid rice require more fertiliser and very importantly more pesticides. Besides, its cultivation procedure is more complex. Hybrid seed management is so "sophisticated" that if mishandled it could lead to a total crop failure.

**Box 3**

## Production from hybrid seed incurs loss

Md. Mosharraf Hossain of Chandina upazila in Comilla district prefers hybrid seed. He produces Ladies Finger in his small piece of land. But in 2008, he incurred huge loss as he could not provide enough pesticide for his crops. According to Mosharraf, pesticide is required everyday during the production of the vegetable. As he did not have money to buy the required pesticide, a greater portion of his produce was damaged by pests.

Source: Case studies in Comilla and Tangail

Most of our farmers are not properly trained to grow hybrids. It is a matter of great concern when the weather is unstable. The price of commercial hybrid seeds is much higher and in case of hybrid seeds four times higher than traditional varieties. A kilogram of imported hybrid seed costs around 200 taka (about 3 US dollars), whereas an equivalent amount of traditional high yielding seed costs Taka 25 (less than 0.40 US dollars). In 2007, following cyclone Sidr, and two consecutive floods, hybrid rice is being distributed to the farmers by Multinational Seed Corporations and NGOs with help of Department of Agricultural Extension (DAE). This is being proliferated by active government promotion in order to make up for the loss of Aman rice due to the cyclone and the floods.<sup>12</sup> Table 4 shows the difference in the amount of fertiliser required to produce rice with hybrid and HYV seeds. Even though according to Ispahani Seeds, farmers prefer hybrid seed as the yield is much higher than the ordinary seed.

Table 4: Fertiliser Requirement for Hybrid and HYV paddy

Name of fertiliser	Hybrid (Aloron HB by BRAC) kg/ acre	HYV (BR 11)
Bio fertiliser	2500-3000	2000-2500
Urea	108	60
TSP	52	30-35
MP	50	40
Gypsum	28	25
Zinc	4	3

Source: BRAC

In many places it is alleged that the agricultural extension workers are advising the farmers to replace their existing varieties with hybrid varieties. However, the government policy is helping the promotion of hybrid seeds in the market. In June 2008, the government had taken a quick decision to permit the import of 11,550 metric tons of hybrid rice seeds for the next Boro season (2008-09), a jump of more than 25 percent on last year's allowance. This will bring the amount of cultivated land under hybrid seed varieties to 12-15 lakh hectares, around

<sup>12</sup> UBINIG/Nayakrishi Andolon Press Release (2007) 'Promoting Hybrid Seed in the Context of Natural Disasters is Unethical', and 'Bangladesh: Profiting from Tragedy' [www.grain.org](http://www.grain.org) (last checked by author January 2008).

30 percent of the expected total output. Last year the government has given permission to import 9,200 metric tons of hybrid seeds. The actual amount imported was only 8,000 metric tons. These hybrid seeds are mostly imported from China. The seed companies are pursuing an aggressive promotion campaign popularize hybrid seed among the farmers. In addition, BRAC is compelling its micro-credit borrowers to use hybrid seeds as a condition of getting loans.

According to the Department of Agriculture Extension (DAE), hybrid rice cultivation has increased from 4 lakh (0.4 million) hectares to more than 12 lakh (1.2 million) hectares in the previous Boro season in 2008. From the field survey it was also found that in spite of increasing costs associated with hybrid seed production, the farmers prefer it, as the yield is higher.

Table 5: Boro Rice area (hectare) by region in Bangladesh in 2008

Region wise distribution	Local	HYV	Hybrid	Total
Northern Districts	20, 000	11,25,000	4,50,000	15,95,000
Haor Area	90,000	13,00,000	4,00,000	17,90,000
Southern districts	15,000	7,00, 000	4,00,000	11, 15, 000
Total	1,25,000	31, 25, 000	12,50,000	45,00, 000

Source: Compiled from the information presented in the Daily Inquilab, 30 January 2008

The proliferation of hybrid rice will further marginalize the small farmers. With rise of input costs, they have to take on more credit from formal and informal credit sources. They have to pay higher interest on these loans. With complex cultivation procedures and inability to adapt to the changing climate, hybrids will lead to loss of production at a massive level and that will indebt the small farmers. Without access to formal credit sources and the market, small farmers borrow seed from their fellow farmers. However, massive proliferation of hybrid seeds will run out farmers' stock of seeds. On the other hand, the multinational and the corporate NGOs are investing in hybrid seed development in order to make a profit. The marginal farmers are thus left at the mercy of seed companies and corporate NGOs. With their motive of making profits, the multinational corporations will certainly take advantages of any shortage in the market by increasing the seed price further.

#### *Women role in seed market*

In Bangladesh, women play a great role in the seed market of the agricultural sector along with other farming activities. Observation finds that, post-harvest processing of seeds is primarily handled by women in the rural areas. Other activities, including seed testing, germination, seed selection and storage are also handled by women in some rural areas. There are various types of difficulties women face including lack of financial assets to buy quality seeds for production. It has been observed that women find it difficult to get quality seeds from the local market. As such, they incur losses from their produce. They are dependent on the male family members to buy seeds from the markets. Therefore, the differential needs of women farmers are not addressed. A special policy intervention is necessary to ensure easier access to the inputs for women farmers.

## 2.2.2 Overview of the fertiliser sector of Bangladesh

Modern varieties of rice have come with a package with use of chemical fertiliser, irrigation and pesticides. Urea fertiliser is mostly consumed in Bangladesh, 71 percent of the total consumption, then followed by TSP, DAP and MP. Table 6 shows the increasing trend in the use of chemical fertilisers over the past few years. In the 68 zilas, total demand for urea was 28 lakh 18 thousand metric ton in 2007-08, whereas the production capacity of BCIC factories was 15 lakh MT. About 4.50 lakh MT were imported from KAFCO, and the rest from other countries.<sup>13</sup> During January-March period, that is the peak time of Boro cultivation, the demand for urea in 2009 had been estimated at about 12 lakh tones, whereas the requirement of non-urea fertiliser such as TSP, MOP and DAP has been estimated at about 11 lakh tones.<sup>14</sup> The government only provides subsidies for the Urea fertiliser and prices of other fertilisers depend on the market.

However, there is huge cost difference between urea produced in the local market and the imported urea. The production cost of urea in the local factory was about Tk. 7,200 per ton while the cost of imported urea was Tk. 31,000 per ton in 2007-08.<sup>15</sup> This huge gap in price in the local and international markets increases the subsidy by the government. This gap in the domestic demand and supply has emerged due to faulty government policy of liberalizing the fertiliser market and not increasing domestic production capacity.

Table 6: Use of Chemical Fertiliser (Thousand Metric Tons)

Type of fertiliser	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09 (Target)
Urea	2239	2324.08	2523.39	2451.37	2515	2685.38	2850
TSP	405	361	420.02	436.47	340	380	500
DAP	112	90	140.72	145	115	240	200
MOP	250	240	260.38	290.67	230	380	400
SSP	130	148	170.93	130.39	122	100	100
NPKS	30	45	90	110	125	100	150
AS	10	9	5.59	6.32	6	0	20
Zinc	2	7	8	7.5	26	45	50
Gypsum	120	140	135.7	104.95	72	160	150
Total	3298	3368	3754.73	3682.67	3551	4090	4420

Source: Bangladesh Economic Review, 2009.

### *Liberalization of the Fertiliser Market*

The initial reforms of the fertiliser market focused on the system of distribution. During the early 1980s, the government initiated a “New Market System” replacing the “Old Market system” (OMS). Under the OMS the state owned BADC remained the sole procurer and distributor of fertilisers using a limited number of retail dealers at the union level, a limited number of wholesalers at the thana level through its own stores and 97 Thana Cooperative Associates (TCCA). An estimated 75% of the fertilisers were sold through thana sales centers

<sup>13</sup> Ministry of Agriculture

<sup>14</sup> Government starts with good fertiliser stock, 2009. Available from: [www.bangladeshnews.com](http://www.bangladeshnews.com), January 8<sup>th</sup>, 2009. [Accessed on January 10<sup>th</sup>, 2009]

(TSC) and 25% through 97 TCCAs. Retail dealers/ TCCAs received commissions to cover transportation, storage, and other incidental costs and profit margins.

However under “New Market System”, instead of operating 423 Thana Sale Centers (TSCs), the state-owned BADC relinquished its retail operations to the private sector and limited its role to that of wholesalers in the 75 strategically located commercial centers known as Primary Distribution Points (PDP). The major argument behind privatisation of the retail distribution system of fertilisers was to reduce inefficiency of the government distribution system to the farm level. But the BADC till this point had enjoyed the monopoly power over wholesale distribution of fertilisers.

There had been a ceiling for the price of fertilisers fixed earlier in the season. By October 1982 farm-level prices were deregulated, first in the Chittagong Division where private dealers handled 75% - 85% of all fertilisers sold to the farmers and by April 1983 retail prices were deregulated countrywide. During 1985-86, wholesaling and dealerships were liberated from the extensive monopoly of the BADC. By mid 1988, 8,000 private sector wholesalers and dealers were responsible for distributing over 97% of the total fertilisers sold from PDPs. As a result, an estimated 50,000 private dealers - without licensing requirements, no control over prices and no restrictions on movement<sup>15</sup> - replaced BADC’s retail trade of fertilisers. There had been restrictions of movement of fertiliser from the allocated areas so that the assigned areas do not run out of supply under all circumstances, especially in the peak season. The removal of this restriction allowed the fertiliser distributed to one area to move to other areas without considering the demand in that area.

Table - 7: Liberalization of Fertiliser Sector at a Glance

Year	Areas of Reform	Taken Measures
Mid 70s	Fertiliser Distribution system	Replacing OMS (old Marketing System) by NMS (New Marketing System) From total public sector monopoly to largely competitive free marketing system.
1982-83	Pricing of fertiliser	Farm level prices were decontrolled first in Chittagong and then by April 1983, it was done countrywide. Largely replaced the BADC’s retail trade of fertiliser.
1984-85	Privatization of sale of fertiliser	By July 1985, BADC closed almost all 423 Thana Sale Centres (TSCs). By mid 1988, 8000 wholesalers and dealers lifted (collection of fertiliser by the dealer from the distribution point) 97% of the total quantity of fertiliser sold from Primary Distribution Points (PDPs).
March, 1989	Private sector lifting from factory/ farm ends	Government allowed direct sales of urea from all five factories beginning March 14, 1989. The government also allowed the distributors to lift TSP and MP from port/ factory.
1992	Privatisation of import	The government excluded fertilisers from the list of restricted imports and allowed the private sector to import fertiliser. The subsidy on fertilisers was withdrawn completely in December 1992 and importation and distribution of fertiliser made open.
1995	Reversal of Urea Marketing policy Current System	The open market system for domestically produced Urea experienced a setback in 1995. Government decided to bring the market under its direct control to mitigate the ensuing crisis reintroducing controls on the marketing and distribution of Urea, which remains in place today.

Source: Titumir (2006)’ compilation from different policy documents

Beginning in 1989, the government allowed direct sales of urea from all five of the country’s fertiliser factories, owned and operated by the government. The government also allowed fertiliser distributors to lift (collection of fertilisers by the dealer from the distribution point)

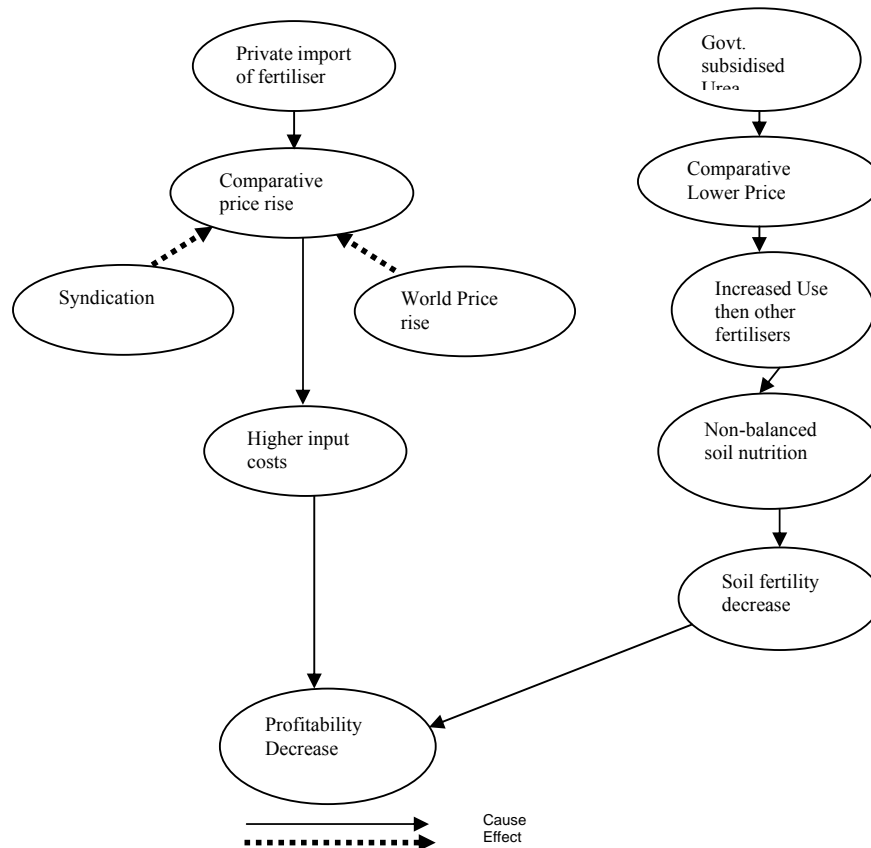
Triple Super Phosphate (TSP) and Muriate of Potash (MoP) from the port/ factory. Earlier, all the fertilisers were distributed from Primary Distribution Points (PDPs) and BADC had the control on the Primary distribution as the factory directly hands over the products to BADC. After removing this barrier, private sector dealers and wholesalers were able to collect fertiliser from the factory directly. The primary authority of distribution shifted from Ministry of Agriculture i.e. BADC to the Ministry of Industry i.e. BCIC (Bangladesh Chemical Industries Corporation)

The government excluded fertilisers from the list of restricted imports and allowed the private sector to import fertilisers. The explicit subsidy on fertilisers was withdrawn completely in December 1992 and fertiliser import and distribution for private sector made open. The extensive monopoly of importing fertiliser by BADC was ended. BADC used two different measures to provide subsidy on fertiliser;

- 1) Implicit subsidy- the price support given through production (producing cost- selling price) and
- 2) Explicit subsidy- price support given through importing at high price while selling at low price.

Import liberalization of fertiliser in 1992 swept away the provision of giving explicit subsidy as the BADC no longer enjoyed the monopoly of such import. Implicit subsidy on urea was not withdrawn till then.

Figure 7: Liberalization of Fertiliser Causes Drop in Crop Sector Profitability





The open market system for domestically produced urea experienced a setback in 1995, in view of farmers' agitations and subsequent killing of farmers. In the Boro season (the season of major rice produce in Bangladesh) of 1995, farmers faced a short of fertiliser supply in different areas of the country during the peak period. However, the government claimed that there was sufficient supply to meet the demand. Prices increased sharply and the crisis became acute. The farmers were demanding fertilisers in the streets through agitating processions all over the country. In a village of Magura district, farmers were demanding fertilisers in an aggressive procession and police opened fire on them. Nine farmers died in the incident. It is fairly assumed that the crisis was artificial and the rent-seeking dealers and wholesalers hoarded fertilisers during the peak season with a motive maximizing profits. The government at this point decided to bring the domestic urea market back under its direct control to mitigate the crisis by reintroducing controls over urea marketing and distribution. These controls remain in place today.

### *Impact of Liberalization on the Farmers*

#### ● Unabated price hike and profiteering

The fertiliser market was liberalized in view with increasing competition thus ensuring efficient price. However, liberalization resulted in the reverse. From table in Annex IV, it is evident that fertiliser prices peak during the Boro (the main season of rice cultivation) season when the fertiliser is most crucial for the farmers. Thus this market is totally exposed to private profiteering and the farmers are its hostages. The liberalization was premised on the argument that increased imports of Triple Super Phosphate (TSP) and Muriate of Potash (MoP) by the private sector would result in reduced prices for fertilisers. According to official statistics, however, the price at the farm gate, that is the price that farmers pay for specific inputs, has increased markedly, excepting urea, which continues to be subsidized. The price of urea, however, rose by 30% during 1990/91 – 2004/05 (average increased by 2% per annum) while TSP was jacked up by 187% and in case of MoP the rise was 180%. The table in Annex IV shows the price differential of fertiliser in different seasons. In the case of urea, the price was 1.35% higher than that of lean season [when there is less demand for fertiliser as it is harvesting time or gap between sowing], whereas for TSP and MoP the rate of variations were 25.4% and 18% respectively in 2004-05, showing that 'wholesalers' took advantage of the unregulated market artificially to increase the price of fertilisers during the peak seasons.

The price hike was due to syndicated and oligarchic behavior by importers and distributors, despite the fact prices were supposed to decline due to the government's subsidizing imports.<sup>2</sup> The price of TSP in the market averaged Tk. 1000 / 50 kg and Tk. 800 / 50 kg in case of MoP in 2005-06<sup>13</sup>, though the price was supposed to decrease as the government provided import subsidies in the FY 2005/06 at a rate of 25% on invoice. The import subsidy was introduced for the first time in 2005/06 in the backdrop that the prices of imported fertilisers like TSP and MoP spiked relative to that of domestically produced urea during the reforms period and aftermath. So, it is a kind of policy reversal from the so called liberalization measures aimed to discontinue sharp price rise of imported fertilisers.

With liberalization, fertiliser distribution, previously under the sole control of the state-owned Bangladesh Agriculture Development Corporation (BADC) was opened up to the wholesalers at the district levels. The majority of the said wholesalers are politically linked to the parties

in power and socially influential persons, in the words of the farmers. Often, they are not the regular dealers (i.e. they do not deal in fertilisers for the whole the year) and are only active during the peak season and force the regular dealers to raise the price up through hoarding and syndication to make a quick profit.

From field level observation, it was found that the fertiliser market is highly disintegrated, resulting in a huge burden on small and marginal farmers. The market is not integrated with respect to location and temporal variations. Price difference in the source market and terminal market is big for TSP and MoP. Price differences during the peak season are also large for all these fertilisers. Poor and small farmers do not have the ability to buy fertilisers when the price is lower; they only buy it when necessary –in the peak season. Again, small farmers need a small amount of fertiliser, so it is not feasible for them to go to the district or adjacent urban market for collecting those at a relatively lower price. They have to buy from the local retailers at a premium price. Farmers from Chandina in Comilla and Delduar upazilla in Tangail district said that they were compelled to buy at higher price from the dealers during the peak season.

The farmers illustrate their hostage-like trap to the fertiliser dealers. The application of fertilisers is a time-bound phenomenon. If it is not applied to the soil at the appropriate time, there is a significant negative impact on the yield. The dealers profit out of such vulnerability, leaving the small farmers the victims to the whims of those who control market.

#### **Box 4**

##### Dependency on Dealers

Mohor Ali and many other farmers in the Srimantapur village of Comilla district depend on the dealers for getting fertiliser. According to Mohor Ali, a subsistence farmer, 'We have to stand in lines for a long time to get the low amount of fertiliser. The price is high and we also get lower amount than the actual measured weight'. Mohor Ali said that the dealers create artificial crisis in the market by hoarding large amount of fertiliser. The farmers during the peak season are compelled to buy fertiliser from the dealers.

Source: Case study in Comilla and Tangail

- Unbalanced use of fertiliser, declining soil fertility

Beside the promise of lower fertiliser prices, the liberalizers argued that availability of different types of fertilisers due to the internationalization of the market would lead to balanced and sustainable use of fertiliser in the fields, keeping the fertility of land at an appropriate level, which would not only ensure higher yield, but also maintain the fertility of land at sustained level. Affordable price and availability of fertiliser will induce the use of different types of fertiliser whereas it was confined into some specific types like Urea earlier.

The official statistics on sale of fertiliser of different varieties do not lend support to the above-mentioned contention; rather they suggest a disproportionate use of fertilisers, with obvious pressures on the fertility of land. The sale of fertiliser rose to 2,523,395 MT in 2004-05 from 1,547,407 MT in 1992-93, a 63.07% growth over the period, while the sale of TSP either declined at a sharp pace or remained stagnant (420,029 MT in 2004-5 and 407,002 MT in 1992-93). The rate of growth in sale of MoP is 106%, from 126,083 MT in 1992-93 to 260385 MT in 2004-5, but a major source of fertiliser remains urea (Annex V).

There has been no change in composition of the use of fertilisers in Bangladesh agriculture, as the share of urea in total use of fertiliser remains almost same over the period, accounting for 67% of the total use of fertiliser in 2004-05 while it was 69% in 1992-93. The scenario

fairly suggests that the liberalized regime could not trigger the use of other fertiliser at an expected rate due to higher level of prices of those types, though these were promised to be low, while the prices of urea remains same due to subsidy provided to it at factory level. So the prime reason for this may be the failure of the liberalization regime to keep the price of the fertilisers low.

The unbalanced use of fertiliser in the sense of soil fertility (which is assessed according to the gap between recommended dose of fertiliser and its actual use in fields) is also evident in official literature. The significant gap between the recommended dose and actual amount of fertiliser given to land is very high in case of TSP and MP (Table 8). Due to unbalanced use of fertiliser, the loss in soil fertility is also significant in Bangladesh.

Table - 8: Use gap between actual and recommendation of Fertiliser use in Bangladesh  
(Figures in Kg/ha)

Name of Crop	Recommended dose			Actual Use			Use Gap (%)		
	Urea	TSP	MP	Urea	TSP	MP	Urea	TSP	MP
T.Aus	141	101	69	135	28	17	4.26	72.28	75.36
T.Aman	166	101	69	135	30	24	18.67	70.30	65.22
Boro	269	131	121	192	47	37	28.62	64.12	69.42

Source: Agriculture Sector Review, MOA, May, 2004

- Unbridled adulteration of fertiliser

The farmers claimed that in most cases they found the fertiliser adulterated; fertiliser sacks contained less than the specified quantities. The farmers are thus paying higher prices for lower quantities. They were of the opinion that the fertiliser market is hostage to low quality fertilisers, imported mainly from India and China for higher rate of return by the importers. The Ministry of Agriculture in their review<sup>16</sup> also acknowledged the issue of rampant contamination in fertilisers. Usually fertilisers are contaminated through mixing of substances like the micro-granules of particular fertilisers. In case of TSP, red contaminants like cracked bricks are mixed with the actual granules which are usually inseparable by the poor farmers from actual one.

#### *Private Sector Actors in Fertiliser Market*

Private sector has been playing an important role in the supply of fertiliser. Bangladesh Chemical Industries Corporation (BCIC) is responsible for the operation of 6 urea plants and one TSP plant in the country. Fertilisers are supplied to the farmers through dealers acquainted by BCIC. According to the Bangladesh Fertilisers Association, demand for urea fertiliser is 28.50 lakh MT, of which 14 lakh MT is produced domestically, with the rest being imported through tenders by the BCIC. The private sector imports non-urea fertilisers, namely TSP, MOP and DAP. Bangladesh Agriculture Development Corporation (BADC) has been involved in the fertiliser marketing again from 2006. Since then 50 percent of the import of TSP and MOP has been done by BADC, the rest by the members of Bangladesh Fertiliser Association (BFA). Table 9 shows the demand, production, import and consumption of TSP. TSP Complex limited produces TSP domestically. Its import by the private sector is shown from the fiscal year 2000 to 2006 and afterwards by both the private sector and BADC.

<sup>16</sup> Agriculture Sector review, Ministry of Agriculture, GoB, Dhaka, October 2004

Table 9: TSP Market Scenario

<b>TSP</b>				
Year	Demand (Lakh MT)	Production (MT)	Import (MT)	Consumption (Lakh MT)
2000-01		67700	363000	4.05
2001-02	4	65560	340900	4.25
2002-03	4	65220	327580	3.75
2003-04	4.5	67000	359000	3.61
2004-05	5	53848	418306	4.2
2005-06	4.5	56392	400000	4.36
2006-07	4.5	50,181	400000	3.4
2007-08	4.75	30,000	405740	3.8
2008-09	5			

Source: Bangladesh Fertiliser Association, 2009

According to BFA sources, during the year 2006-07, 3.75 lakh MT of TSP was imported by the private sector while 1.25 lakh MT was imported by BADC. In 2008-09, 237,000 MT was imported by the private sector and 168740 MT by BADC.

Table 10 shows the situation of MOP and DAP. During the fiscal year 2007-08, 290,000 MT was imported by the private sector while BADC imported 69,600 MT.

Table 10: DAP and MOP Market Scenario

<b>DAP</b>			
Year	Demand (Lakh MT)	Import (MT)	Consumption (Lakh MT)
2000-01		126000	9.04
2001-02	2	87680	1.27
2002-03	2.5	118470	1.33
2003-04	2	101000	1.48
2004-05	3	225000	1.71
2005-06	3	119000	1.75
2006-07	2.5	40,000	1.15
2007-08	2.5	10,000	2.4
2008-09	2		
<b>MOP</b>			
Year	Demand (Lakh MT)	Import (MT)	Consumption (Lakh MT)
2000-01		122623	1.33
2001-02	3	247920	2.23
2002-03	3.25	278449	2.71
2003-04	3.25	235000	2.4
2004-05	4.5	380000	2.6
2005-06	3	210000	2.91
2006-07	3	250000	2.3
2007-08	4	359600	3.8
2008-09	4		

Source: Bangladesh Fertiliser Association, 2009

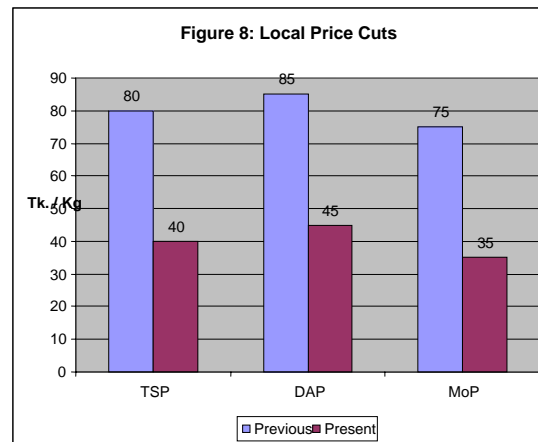
Over time, import cost of fertilisers experienced significant increase when there was rise in the price of fertiliser in the world market and cost of local urea production also accelerated. Government reintroduced the subsidy for imported products. In 2007 for each ton of urea

costing Tk. 31,000, a subsidy of Tk. 25,700 was given. During the year 2007-08, Tk. 3,120 crore was provided for urea, whereas Tk.486 core for TSP, DAP and MOP.<sup>2</sup> The present government in its manifesto had pledged to provide subsidy for agricultural inputs and enhance the availability of inputs to the poor farmers. Towards attaining those objectives, after assuming power, the government adopted different measures such as the reduction in the price of fertilisers and fuel.

According to BFA, the private sector faces loss from import as the government does not announce the fixed import amount of fertiliser at the right time. As a result, the importers after importing a certain volume of fertilisers, have to sell them at a knock-down price and incur a loss. The subsidy to be given to the imported fertilisers should also be announced at the right time to save the importers from making this huge loss. After the Awami League government assumed power, it has been providing 50-55 percent subsidy to the importers, but it was announced late. The importers had already imported fertiliser, which they have to sell at low price due to the huge stock and they are incurring a loss from that.

### *Fertiliser Subsidy: Recent Policy Measure*

The government realized a necessity to provide financial support to farmers during the beginning of Boro season of 2009, subsidized the price of fertiliser. The prices of non-urea fertilisers were slashed to almost half per kilogram to help farmers during the Boro season. Previous prices of TSP at Tk. 75-80, MOP at Tk. 65-75 and DAP at Tk. 80-85 had been reduced to Tk. 40, 35 and 45 respectively. The aim of the government was to reduce the production cost of rice for the farmers and make fertiliser more easily available to the poor farmers. Figure 8 shows the price cut of the government during January 2009.



Source: The Daily Star, 15<sup>th</sup> January, 2009

Allegations have been raised that the price cut of fertiliser has benefited the businessmen rather than the poor farmers. During that time the price of fertilisers had already decreased in the international market. In that case, the local importers and their syndicates had become obstacles to the farmers in getting the input at reduced price. There has been complaints that in some places non-urea fertiliser has been sold at the previous price, without the enforcing the subsidized price.<sup>17</sup>

<sup>17</sup> Non-urea fertilisers selling at old prices, The New Age, 19<sup>th</sup> January, 2009.

### 2.2.3 Irrigation sector

#### *Chronology of Reforms in Irrigation*

During the pre-liberalization phase, the BADC followed a system of renting out publicly owned deep tube wells (DTWs) and low lift pumps (LLPs) to cooperatives and a variety of informal farmers' groups with relatively low rental charges, involving substantial subsidy. Shallow tube wells (STWs) were sold to private individuals or groups at prices which contained virtually no subsidy<sup>18</sup>. Private individuals, with sufficient wealth and influence, however, bought STWs, usually enjoying the benefit of subsidized credit from state-owned banks.<sup>19</sup> The operation of all types of irrigation equipment including private STWs was subject to regulatory control by BADC.

The reforms, begun in 1978-79, allowed the private sector to import and distribute STWs subject to 'standardization' requirements mainly on engine configuration i.e. some technicality like brands, horse powers, water lifting capacity, used fuel type and so on. The policy of increasing rental charges on DTWs and LLPs, however, was pursued in parallel with that of selling these to cooperatives and private individuals, with assisted access to cheap institutional credit. By 1983, 43 percent of operating DTWs and 48-56 percent of the LLPs were transferred to the private individuals or groups, while STWs were almost entirely privately owned. Groups were formed through unions of farmers and the ownerships of DTWs and LLPs were left to these groups as a whole.

Privatization of the import of irrigation equipment (diesel-fired engines) began in 1986, accompanied by the lifting of restrictions on their makes and models (brands), initiating the dismantling of the standardization requirements.

The next step in the deregulation process came about in 1988, when unrestricted private imports were allowed and duties on imported machinery were removed. Furthermore, regulations on standardization of irrigation equipment were totally withdrawn, removing the last vestiges of control by the public sector agencies. These changes were accompanied by the complete elimination of subsidy on minor irrigation equipment. It was assumed that the removal of all sorts of restriction on importing irrigation equipments would trigger private sector investment in the irrigation sector; the irrigation facilities will expand rapidly and production in the dry season would step up.

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<sup>18</sup> Hossain, Mahabub. 1988. Nature and Impact of the Green Revolution in Bangladesh, July, 1988. International Food Policy Research Institute.

<sup>19</sup> Palmer-Jones 1992. Sustaining Serendipity? : Groundwater Irrigation, Growth of Agricultural Production and Poverty in Bangladesh. JSTOR: Economic and Political Weekly. September, 1992.

Table 11: Liberalization of Irrigation Sector

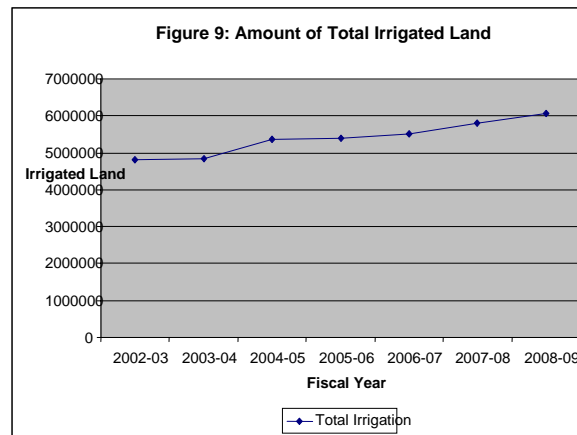
Year	Areas of Reform	Measures Taken
1978-79	Private sector import and privatization of the means of irrigation	The private sector was allowed to import and distribute shallow tube wells (STWs) subject to 'standardization' requirements. The policy of increasing rental charges on deep tube wells (DTW) and low lift pumps (LLP) was pursued in parallel with that of selling them to cooperatives and private individuals assisted by access to cheap institutional credit
1986	Import liberalisation	Privatisation of the import of irrigation equipment (diesel engines) begun in 1986, accompanied by the lifting of restrictions on their makes and models (Brands).
1988	Removing all sorts of restrictions on minor irrigation equipment.	Unrestricted private import was allowed and duties were removed. Furthermore, regulations on standardization and siting of irrigation equipment were totally withdrawn

#### *Consequences of Irrigation Reforms on Farmers*

The coverage of irrigation increased from 1569.10 hectares in 1979-80 to 4725.63 hectares in 2004-05 (Annex VII) with an annual rate of increase of over 4%, which is about 3 times the average of the Asia and Pacific. STWs observed the highest growth rate following the liberalization of imports in 1988. In 2002-03, SWTs occupied about 59% of the total area irrigated, as against only 23% in 1986-87, the year before the import liberalization. Despite the fact that liberalization of small irrigation equipment has contributed to the extraordinary expansion of the irrigation facilities; access to the poor and marginal farmers to the service is squeezed in the context of incremental price. Financial access of the poor is tightening through the development of an unregulated private water market in the rural areas mainly controlled by the rural elites.

This robust increase in the STWs has contributed to the yield of paddy into Boro season (Annex VI). The irrigation area under Boro crop increased from 1008.40 in 1979-80 hectares to 3450.28 hectares in 2002-03.

Though production experienced extraordinary growth, coinciding with the liberalization of the minor irrigation sector in the country, the cost of production for small and marginal farmers (who are 82 percent of total farmers) went upward, as the cost of water rose due to profiteering by the owners of the means of production. Figure 9 shows the increasing trend of irrigation in Bangladesh over the past few years.



Source: Bangladesh Economic Review, 2009

There is no systematic official data available on the cost incurred for irrigation over the years; a comparative analysis on cost escalation is not therefore possible. Nevertheless, fieldwork attempts to provide an alternative measure based on data shared by respondents in a number of research areas.

### *Tight Water Market in Rural Settings*

A very tight water market in monetary terms is now prevalent, which on investigation reveals, and is mainly controlled by a merchant class. Selling of irrigation equipments to the private sector had the predictable consequences of creating and sustaining a market for water without making any provision for small farmers. As a result, the big landowners have privately owned the small tube-wells (STWs) and deep tube-wells (DTWs) for irrigation and marketed the irrigation service to small farmers levying exorbitant prices. In this way, an unregulated market for water has been developed, which is controlled by water lords. Small farmers have no financial capacity to own a DTW or STW personally to sell water to others who demand it; rather they are the buyers of the newly grown private services. Moreover, it is not easy to set up a pump in the field, without influence, in the rural power structure. All these factors are responsible for further marginalization of the poor farmers in the wake of private irrigation market in agriculture. So a new class of water lords along with the landlords emerged in the rural economy of Bangladesh.

The empirical evidence shows that a very tight and highly concentrated water market has been developed in the areas like Chandina and Tangail. In the areas with available irrigation facilities, the rural elite and landlords usually own almost all means of irrigation. Ponds that are privately owned and some poor people also own some ponds but the capacity of a pond in the dry season is unable to meet the irrigation needs, especially in the winter season. The case



of rivers and other forms of traditional wells faces the same problem of scarcity of water in dry season. So, the ground water irrigation is the main source of water in dry season. Means of attaining ground water are almost exclusively owned by the rural elite. They are also the main grabbers of government subsidy in irrigation, including the subsidies on diesel and electrification because they are empowered by the existing socio-politic and economic structures. The small and poor farmers have no choice but to buy water from these 'water lords'. Many small farmers usually depend on rain to irrigate their land given the increasing costs of irrigation. The high cost of irrigation is mainly due to a few water lords controlling the water market and the rising price of diesel. Therefore, a vast amount of land has remained single cropped; the rain-fed *Aman* is sown there. The latest hikes in the price of diesel (as prescribed by the World Bank and the IMF) have increased the irrigation costs further. One of the major problems for irrigation is the unavailability of necessary electricity in the rural areas. From the field level observation it has been inferred that farmers irrigate their land by shallow machines and also by electric motors. Irrigation cost is lower in case of electric motors; but farmers are unable to provide necessary irrigation due to power outages. The owners of the machines sometimes do not allow the irrigation facility to the farmers to save their fuel costs. In that case, the farmers are deprived of proper irrigation for their crops and do not get the expected yield.

#### *Reduction of Diesel Price: Recent Policy Measure*

During the last Boro season, the caretaker government sanctioned Tk. 545 as direct subsidy per acre of land for irrigation. But it has been observed that around Tk.50 crore of direct cash subsidy for diesel has gone to ineligible farmers due to irregularities in the listing and disbursement process.<sup>20</sup> Among the criteria of eligible farmers are those who do not own more than 2.5 acres of cultivable land and those who cultivate not more than 2.5 acres either their own or by tenancy. During June 2007, with the increase in the price of crude oil in the world market to \$140, the interim government had to increase the prices of diesel and kerosene to Tk. 55. The interim government later lowered the prices to Tk. 46 in two phases by December 2008, when the oil price decreased to about \$40.

The Awami League government in its manifesto pledged to reduce input cost and enhance subsidies for agricultural inputs and make the availability of agricultural inputs easier. Keeping this in view, to enable farmers to grow more rice during the Boro season and to attain self-sufficiency in the grain, the government targeted irrigation as the major cost of production in Boro season. After assuming power in January 2009, the government reduced the price of diesel by 4.34 percent that is only by Tk.2.

Table 12 shows the prices of diesel/kerosene and crude oil over the period of three years. According to economists, government had the scope to reduce diesel price by more than Tk.10, which they did not. This would have enabled farmers to benefit from lower irrigation cost. The efforts of the governments at various times in the past 3/ 4 years have not been successful as there has been an increasing trend in the price of diesel, which is shown in table 13.

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<sup>20</sup> The Daily Star, 16<sup>th</sup> January, 2009. 'Tk.50 cr subsidy ended up in wrong hands'. Retrieved on 15<sup>th</sup> June, 2009

Table 12: Prices over 3 years

Time Period	Diesel/ Kerosene( price per litre)	Crude oil( price per barrel)
Sept 5,2005	Tk.30	\$70
June 10,2006	Tk. 33	\$72
April 1,2007	Tk. 40	\$64
July 1,2007	Tk. 55	\$141
Oct 27,2008	Tk. 48	\$62
Dec 23,2008	Tk. 46	\$43
Jan 13,2009	Tk. 44	\$39

Source: The New Age, 13<sup>th</sup> January,2009

The subsidy policy adopted by the government in many cases had not been successfully implemented. From a study of Bangladesh Institute of development Studies (BIDS), it has been found that 80 percent of the farmers who were listed for getting diesel subsidy, did not receive any cash support from the government. The study showed that in the process of distributing diesel subsidy, at least Tk. 50 crore was drained out. 13 percent of the payments were made to those who were not entitled to subsidies that were meant for marginal farmers.

Table 13: Diesel prices in peak Boro Season (January-April)

Year	Tk./litre
2009*	44
2008	40
2007	33
2006	30
2005	23

Source: The New Age, January 14<sup>th</sup>,2009

\* Re-fixed on January 13

According to analysts, the problem lies in the implementation of the policies that are adopted. It should be ensured that the benefits to be provided through policy measures reach the hardcore poor farmers in the rural areas. In that case it may be necessary to change the distribution process of the subsidies and other types of cash benefits

### 2.3 Adopted Government Policies

The government policies adopted during different time periods is given in the paper (Annex VII). There are several measures in the policies aimed at specific objectives in the different sub-sectors of the agricultural sector. There are very few policies that are related to input markets.

The policies adopted during different time periods have been adopted with specific objectives. Most of the policies have been adopted before the PRSP had been in place. As such it may be the case that the policies would not reflect the objectives of the PRSP. Most of the policies, such as NAP, APB and other crop sector policies mainly have focused on food production, mainly rice and as such non-crop items such as vegetables and fruits have been neglected. Diversification of production has not been given enough emphasis. The private sector, very important for making the agricultural sector sustainable, has also received little

attention from the policy makers. It would be required for the policy makers and the government to bring the missing issues into the future policies to make them more compatible.

## **Section 03**

### **3.1 Policy Options and Advocacy Agenda**

Over the last three decade, the agricultural sector was neglected by the policy makers. It was believed that the “power of market” will create efficiency and the “free market” will lead to the price stability by the inflow of rice from the international market when the price is high. However, this idea was totally stunned in 2007 when the country observed losses of crops due to natural disaster and could not import rice from the international market due to supply shortage. So, the neo-liberal market based argument for solving the problems in agriculture was not valid in 2007 when the country enjoyed about 9% inflation because of supply shortage of food grains. Besides, new liberal policy implementation has lead to increased input cost of crop production. Hence, there is a loss of profits by the farmers. Further, degraded quality of fertilisers and seeds has caused a decrease in production or a whole production loss. The small and marginal farmers are the most vulnerable to this shock. Loss in investment has made paupers of small farmers over the years.

The state agriculture policy needs to be reoriented in order to save the poor farmers from the volatility of the market. In the agrarian policy of Bangladesh, the reforms should be based on immediate, long and short term policy goals. In the following section some plausible policy measures in the input sector have been described. These measures have been considered in terms of affordability, adaptability and relevance to the sector in Bangladesh. Some successful examples have been stated.

#### **3.1.1 Institutional Reform**

Farmers’ participation in policy making in Bangladesh has always been absent. Farmers are always considered ignorant and illiterate. It is of the utmost importance to listen to the voices of the farmers before making any policies that govern their fate. Over the years state decision making mechanism has proved unaffected and inefficient due to a lack of grass-roots participation. It is therefore important to decentralise the decision-making process. The allocation and distribution of inputs should be in the hands of farmers’ community as they know their condition better. However, a deficiency of any sort of farmers’ associations is a major obstacle for mobilizing the voices of the farmers. It is vital to introduce farmers’ association at the village level. These associations should be given control over the distribution of seeds, fertilisers and irrigation to their constituencies. The farmers’ association should be regulated under the active guidance of the Union Parishad or UP (Union Council). Union Parishad, as a local level organization would pick up the voices of farmers from the rural areas. The UPs should estimate the annual and seasonal needs of inputs in their constituency with consultation of their farmers association. The role of the state should be catering to the demands of input suggested by the UPs. In the West Bengal of India, village level *Panchayet* (local government body) is responsible for allocating irrigation water and fertilisers to the farmers. There are two tiers of the Panchayet system in West Bengal, India – one is village level and the other at the district level. The Panchayet members are elected in

every five years. The state bodies allocate fertiliser to the Local *Panchayet* and the farmers collect fertilisers from them. The *Panchayets* also owns the water pumps and distributes water to the farmers.

### **3.1.2 Seed Sub-sector**

Seeds are the most important input for farmers. Ensuring quality of the seeds is pivotal to maintaining consistency of agricultural production. The main issues regarding seeds are long replacement periods, lack of storage capacity at local level and losses of seed. The proliferation of hybrid seeds is going to destroy farmers' control on the seed.

In order to get more production from the HYV seeds it needs to be replaced regularly by the new variety. However, the current capacity of the BADC for supplying good quality seeds is about 12-15 percent of the demand. It intends to increase this to about 40 percent by 2012. Farmers often cannot save the seeds because of the production losses due to poor harvests or natural disasters. Keeping natural disasters in mind, seed banks should be established at the union level immediately and in the long run seed banks should be established at the village level under the control of farmers' associations. The BADC should increase its capacity for producing good seeds as well, in order to reduce replacement period seeds. Andhra Pradesh of India and Vietnam are good examples of the high replacement of seeds.

The government should stop unabated proliferation of hybrid seeds which is now being promoted by some corporate NGOs and multinational pesticide companies. This proliferation of hybrid seeds, imported from China and India, will eliminate the local varieties and it is also a threat to the biodiversity of our ecosystem. The government has permitted hybrid varieties to ensure food security. It is necessary to increase the production of and invest in producing new varieties of the high yielding varieties. The government should strictly regulate and monitor the hybrid seed companies.

Issue	Policy measures	Example
Long Replacement Period	<ul style="list-style-type: none"> <li>Increasing institutional capacity and inter-institutional cooperation of the producers of the breeder's seed in order to reduce the gap between innovation of new seeds and its introduction to farmers</li> </ul>	<ul style="list-style-type: none"> <li>In India replacement period is about 5 years</li> </ul>
Lack of seed storage capacity	<ul style="list-style-type: none"> <li>Introduction of seed Bank Union and local level</li> <li>Increase state supply capacity of improved seed</li> </ul>	<ul style="list-style-type: none"> <li>There are already established seed banks of different government institutions in Bangladesh</li> </ul>
Loss of seeds during natural calamity / market access of seeds	<ul style="list-style-type: none"> <li>Introduction of seed Bank Union or local level</li> </ul>	<ul style="list-style-type: none"> <li>In Vietnam at village level they have seed bank</li> <li></li> </ul>
Proliferation of Hybrid seed	<ul style="list-style-type: none"> <li>Increase R&amp;D of local varieties</li> <li>BRRI, BINA, agricultural Universities should take initiative for innovating new yielding variety seed from local varieties in order to match with local soil and climate</li> </ul>	<ul style="list-style-type: none"> <li>In India and China state agencies are involved in producing both hybrid and HYV varieties.</li> </ul>
Climate change	<ul style="list-style-type: none"> <li>Introduction of climatic change tolerant variety with less cultivation period</li> </ul>	
Research and Development	<ul style="list-style-type: none"> <li>The state should invest heavily on research and development on Agriculture</li> </ul>	<ul style="list-style-type: none"> <li>This year budget has allocated Taka 600 crore for agriculture research and development. The question of proper utilization is a major question</li> </ul>

### 3.1.3 Fertiliser

The present mechanism for fertiliser distribution has already proved to be inefficient in ensuring easy access to quality fertilisers for the farmers. At the peak of the fertiliser crisis, there is a profiteering motive of the dealers, every year. As the dealers are related to the ruling political party, the law enforcement authorities are powerless in punishing them. In addition, most of the dealers are not involved in agriculture at all. Their profit motive leads to hoarding and adulteration of fertilisers. As a result, the present instructional setup of fertiliser distribution must change. In the short run, to avoid fertiliser crisis the small and marginal farmers should be identified and supplied with coupons that ration fertilisers to them. In long term, the local governments or farmers' associations should be given the dealership of fertilisers, replacing the existing dealers in order avoid private profiteering and adulteration.

Fertility loss from overuse of chemical fertilisers is also a major issue. The farmers should be provided with technology in order to measure the appropriate fertiliser needs of the soil. The farmers should be given access to leaf charts that measure the fertiliser needs of the crop, and other suitable technologies in order to reduce the over and under use of fertilisers.

Use of bio-fertilisers should be revamped. In order to increase the use and production of bio-fertilisers, the DAE should take the initiative and exchange the necessary knowledge with the farmers.

Issue	Policy measures	Example
Availability of fertiliser	<ul style="list-style-type: none"> <li>• Increase local production capacity</li> <li>• Introduction of coupon for the Farmers</li> </ul>	<ul style="list-style-type: none"> <li>• India and Vietnam are good examples. Fertiliser distribution system in West Bengal is a very good example.</li> </ul>
Accessibility of poor farmers to the fertiliser	<ul style="list-style-type: none"> <li>• Distributing fertiliser through the local level farmers association or cooperatives</li> </ul>	<ul style="list-style-type: none"> <li>• Fertiliser distribution system in West Bengal</li> </ul>
Ensuring quality	<ul style="list-style-type: none"> <li>• Increasing market monitoring capacity of the central authority</li> <li>• Local government and farmers association should monitor the quality of fertiliser</li> </ul>	
Loss of soil fertility due to over use of chemical fertiliser	<ul style="list-style-type: none"> <li>• Increase use of organic fertiliser. In order to do that government should heavily invest on production of bio-fertiliser.</li> </ul>	<ul style="list-style-type: none"> <li>• In Bangladesh UBINIG model</li> </ul>
Increased price of chemical fertiliser	<ul style="list-style-type: none"> <li>• Introducing leaf chart and other technology</li> </ul>	<ul style="list-style-type: none"> <li>• Leaf chart has already been introduced in Bangladesh but it is not widespread yet.</li> </ul>

### 3.1.4 Irrigation

Privatization of irrigation has further marginalized the poor farmers who cannot buy irrigation equipment. So they are hostages in the hands of the local water lords. Therefore irrigation water should be distributed according to the needs of the farmers. Absence of the local monitoring authority or farmers' association will not solve this problem in the short run. In West Bengal in India irrigation pumps are owned by the village level *Panchayet* and they distribute water to the farmers. It is necessary to establish village level farmers' association to carry out this job.

Overexploitation of ground water is leading to disasters like arsenic contamination and desertification. In order to avoid these consequences, surface irrigation capacity should be increased. Due to the unabated plan of building roads, embankments and the encroachment of wetlands many rivers, canals and other water bodies have dried out in Bangladesh. The existing water bodies should be preserved in order to ensure water supply in the dry season. The government should plan surface water irrigation systems and revive the dying water bodies and connect them with canals. Surface water irrigation systems in the Punjabs of

India and Pakistan are good examples. However, surface water irrigation system will not meet the whole demand of water in the dry season but it will certainly curtail overuse of ground water.

In Bangladesh most of the pumps are run by the fuel oil because of inadequate electricity coverage and supply. However, over the last two years the government has increased diesel price by about 60 percent. This increased the production cost for the farmers and reduced their profitability. In the short run in order to cushion them against the fuel oil price increase the government should introduce coupon rationing of diesel for the small and marginal farmers. In the medium term the government should ensure electricity coverage for the water pump and ensure adequate supply.

Recently, the government is supplying electricity free of cost to the farmers of Northern Bangladesh for irrigation. There has been inadequate rainfall for sowing Aman seeds and the farmers have been unable to sow the seeds in due time. This measure of the government is praiseworthy. These initiatives can be adopted to ensure smooth irrigation facilities for the farmers. In West Bengal they have been successful to keep irrigation cost low by taking most of the water pumps under electricity coverage.

Issue	Policy measures	Example
Inaccessibility of the poor farmers to the private water sources	<ul style="list-style-type: none"> <li>• Providing irrigation through village level farmers association or cooperative</li> </ul>	<ul style="list-style-type: none"> <li>• Irrigation management system in West Bengal through gram <i>Panchayet</i></li> </ul>
Releasing the tight water market	<ul style="list-style-type: none"> <li>• Forming local farmers association and cooperatives to for allocating irrigated water to the farmers.</li> </ul>	<ul style="list-style-type: none"> <li>• Irrigation system in the west Bengal</li> </ul>
Ground water loss due to overexploitation	<ul style="list-style-type: none"> <li>• Surface water irrigation system through canal and making reservoir and giving distribution rights to the farmers association</li> </ul>	<ul style="list-style-type: none"> <li>• Surface water irrigation system in India and Pakistan</li> </ul>
Increased diesel price leads to increase in irrigation cost.	<ul style="list-style-type: none"> <li>• Increase electricity coverage of the water pumps</li> <li>• Providing direct subsidy to the farmers through coupon system</li> <li>• Giving local government the charge of distributing diesel to the farmers. The state only ensure supply of diesel to each local government unit according to their demand based on total irrigation requirement</li> </ul>	<ul style="list-style-type: none"> <li>• Reintroduction previously own rationing system with improved practice of monitoring and evaluation.</li> <li>• In west Bengal most of the water pumps are under electricity coverage.</li> </ul>

The success of above-mentioned policies depends on the proper planning and willingness of the government. Existing systems of production and distribution of inputs has proved inefficient and therefore need to change for the betterment of the rural economy.

Some advocacy agendas can be set at the national and local levels to develop agricultural input market in Bangladesh.

### *Agendas to be adopted at national level*

- The state should invest heavily on research and development in agriculture. Adopted measures should be properly implemented.
- Provide incentives to farmers to increase the use of organic fertilisers. The government should heavily invest on production of bio-fertilisers
- Introduction of coupon system for the farmers
- Give initiatives and support to the private sector for providing input support to the farmers.
- Role of BADC should be revived.

### *Agendas to be adopted at local level*

- Introduction of seed bank at the union parishad and village level
- Distribution fertilisers through the local level farmers association or cooperatives
- Provision of irrigation through village level farmers' associations or cooperatives
- Provision of direct subsidy to the farmers through coupon system
- Giving local government the charge of distributing diesel to the farmers. The state only ensures supply of diesel to each local government unit according to their demand based on total irrigation requirement

## **3.2 Concluding Remarks**

With the decline of the allocation and support to the agricultural sector, there has been a decline in the contribution of agricultural sector to GDP. This had an adverse impact on the livelihood of the small farmers. For a particular period of time, the rising input cost have been outstripped the increasing yield, leading to decrease in the earning of the farmers. To increase the profitability of farmers and improve their standards of living, it is necessary to ensure timely and adequate supply of agricultural inputs to the small and marginal farmers. The present government has realized the necessity of ensuring smooth flow of inputs to farmers and pledged to provide the necessary support to the farmers. Different measures such as fertiliser and diesel subsidy for the farmers have been adopted. However, the different policies adopted at different times had drawbacks for which farmers have not achieved the expected results. As such it will be necessary for the policymakers to ensure not only the adoption but also proper implementation of the various measures. The importation and distribution process of the inputs have to be managed in a way in which the farmers at the bottom of the supply chain get access to the inputs more readily and at the right prices. Privatization of the input market has no doubt had benefits for the farmers, but it should be



ensured that private profiteering and interest of the private traders do not obstruct the farmers from getting their expected yields. In order to achieve a 4 percent growth rate in agriculture sector, an objective of achieving MDGs, and halving the poverty rate, farmers' access to adequate supply of inputs must be ensured.

## ANNEX I

### *Selection of study area*

The study has been conducted in three areas predominant in agriculture representing small and marginal farmers of the country. The areas are Kopakhi in Delduar upazila under the districts of Tangail and Srimantopur in Chandina upazila under the district of Comilla. In the area of Delduar upazila in Tangail, about 81 percent of farm households consist of marginal and small farm households. There are 10.13 percent of landless farmers in the area. The major crops of the area are the different varieties of rice including Irri, Boro and Aman. In the area of Chandina upazila in Comilla, there are 52.61 percent of small and marginal farmers. There are 23 percent landless farmers. This area is also predominantly agricultural.

### *Nature and Source of study*

The study is explanatory in nature. It comprises both qualitative and quantitative data and information. In order to achieve the objectives of the study, data has been collected from both primary and secondary sources. Primary data has been collected through field visits which are mostly qualitative. Secondary data is obtained from reports, journals, research papers, newspapers and books. Information on relevant issues area collected from websites available on the internet.

### *Method of data collection*

Relevant information on the concerned issue has been collected through focus group discussions and interviews. Information regarding the obstacles to farmers in reaching the inputs and effectiveness of government policies for making inputs accessible to farmers has been collected through the group discussions and interviews with farmers and officials of NGOs and government organizations. Moreover, farmers' views regarding the changes to be brought in the agricultural input markets have also been collected through the group discussions. Primary information collected through interviews and group discussions have been summarized and analyzed for the purpose of the study.

### *Method of data processing*

Qualitative data collected through the interviews and focused group discussions have been analyzed to identify the important aspects of the input markets in Bangladesh. Information has been collected through interviews of individual farmers and incorporated in the paper as case studies. The case studies given in the paper reveal the problems and views of poor and marginal farmers in the rural areas of Bangladesh. There are some special cases and some cases that reveal the problems prevailing generally in the rural areas. Secondary data will be analyzed to understand the problems prevailing in the agricultural input market and find out ways to overcome these.

## ANNEX II: Bangladesh Agriculture sector Reform in Brief

Inputs	Type of Reform Measures	System Prior to Reforms	System After the Reforms
Fertilisers	<ul style="list-style-type: none"> <li>-Privatisation of distribution services</li> <li>-Withdrawal of Subsidies</li> <li>-Deregulation of Price</li> </ul>	<ul style="list-style-type: none"> <li>-BADC procured and shipped fertilisers to Primary Distribution Points (PDP).</li> <li>-Dealers appointed through a complex process</li> <li>-Dealers had to:                             <ul style="list-style-type: none"> <li>-buy fertilisers from PDP</li> <li>-sell at government fixed prices at a defined area</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>-BADC withdrew from retail and wholesale markets at PDP.</li> <li>-Licensing process for dealers simplified</li> <li>-Dealers can now:                             <ul style="list-style-type: none"> <li>-Buy from factory gates or ports</li> <li>-Sell fertilisers in their own price</li> <li>-Import fertiliser from world market.</li> </ul> </li> </ul>
Irrigation devices	<ul style="list-style-type: none"> <li>-Privatisation</li> <li>-Withdrawal of Subsidies</li> <li>-Deregulation</li> </ul>	<ul style="list-style-type: none"> <li>--BADC operated irrigation devices against a flat charge per acre.</li> <li>--Restriction on import of engines and pumps</li> <li>--Private sector only allowed to import certain makes and models subject to the approval of the Ministry of Agriculture</li> </ul>	<ul style="list-style-type: none"> <li>-- Credit support for purchase of these machineries.</li> <li>-- Liberalization of trade, import of agricultural machinery and minor irrigation devices made duty free</li> <li>-- Restriction on imports withdrawn, standardization requirements removed.</li> </ul>
Seeds	Deregulation, liberalisation	Restrictions on import of seeds by private sector.	<ul style="list-style-type: none"> <li>--Private sector allowed to import develop and register new seed varieties of all seeds and distribute to the farmers</li> <li>--Easy credits, and access to facilities and equipments</li> </ul>

Source: Azmat, F and Coghill, K., "Good governance and Market-based Reforms: A Study of Bangladesh", <http://www.buseco.monash.edu.au/mgt/research/governance/pdf-downloads/f-azmat-wshop.pdf>

ANNEX III: ADP Allocation of Ministry of Agriculture from 1970 -71 to 2006-07 (million Takas)

Plan	Year	Crop	Minor	Forestry	Rural	Total	Country	Share of
Period			Irrigation		Institution		Allocation	MOA (%)
1	2	3	4	5	6	7	8	9
	1970-71	460.10		-	-	460.10		
	1971-72	580.10	94.60	-	-	674.70	2178.40	30.97
	1972-73	550.00	12.50	-	-	562.50	3145.10	17.88
First Five year	1973-74	321.90	366.00	-	-	687.90	5233.50	13.14
	1974-75	474.79	492.50	-	-	967.20	5250.00	18.42
	1975-76	925.50	682.60	-	-	1608.10	9500.00	16.93
	1976-77	1039.00	471.80	-	-	1510.80	10057.10	15.02
	1977-78	1194.80	610.00	-	-	1804.80	12785.00	14.12
Two Year	1978-79	1790.20	677.00	-	-	2467.20	16026.20	15.39
	1979-80	2050.70	1518.50	-	-	3569.20	15678.50	22.76
Second five year	1980-81	1834.30	1895.60	-	-	3729.90	23689.90	15.74
	1981-82	2096.40	1925.60	-	-	4022.00	27152.50	14.81
	1982-83	2504.70	1668.10	-	-	4172.80	31263.00	13.35
	1983-84	2894.70	1831.60	-	-	4726.30	35847.00	13.18
	1984-85	2096.10	1661.00	-	-	3757.10	35084.10	10.71
Third five year	1985-86	1154.70	1195.60	-	-	2350.30	40960.00	5.74
	1986-87	1351.60	1310.20	-	-	2661.80	45130.00	5.90
	1987-88	1425.50	1137.70	-	-	2563.20	46510.00	5.51
	1988-89	2001.50	1431.00	-	-	3432.50	45960.00	7.47
	1989-90	1466.00	1427.40	-	-	2893.40	51030.00	5.67
Fourth Five Year	1990-91	1898.00	1192.00	-	-	3090.00	61210.00	5.05
	1991-92	2892.30	1332.00	-	-	4224.30	71500.00	5.91
	1992-93	2276.00	1096.20	-	-	3372.20	81210.00	4.15
	1993-94	2780.40	1302.00	-	-	4082.40	96000.00	4.25
	1994-95	2942.90	1490.40	-	-	4433.30	113500.00	3.91

Two Year	1995-96	2952.68	1204.30	-	-	4156.98	104470.00	3.98
	1996-97	3434.65	952.00	-	-	4386.65	117000.00	3.75
Fifth Five Year	1997-98	3589.30	721.80	-	-	4311.10	122000.00	3.53
	1998-99	3709.70	810.28	-	-	4519.98	140000.00	3.23
	1999-00	4292.90	903.40	-	-	5196.30	165000.00	3.15
	2000-01	3713.10	974.50	-	-	4687.60	182000.00	2.58
	2001-02	3346.60	847.10	-	-	4193.70	160000.00	2.62
Three Year Rolling Plan	2002-03	3409.78	817.70	-	-	4227.48	171000.00	2.47
	2003-04	3677.30	1030.30	23.40	200.00	4931.00	190000.00	2.60
	2004-05	3123.20	1542.10		200.00	4865.30	220000.00	2.21
	2005-06	3363.30	2430.70		200.00	5994.00	245000.00	2.45
	2006-07	3354.60	1923.20	29.20	200.00	5507.00	260000.00	2.12

Source: Handbook of Agriculture Statistics, 2007, Ministry of Agriculture

## ANNEX IV: Farm Level Fertiliser Price 1990-2005

Taka / 50 Kg.

Month	1990-91	1992-93	1994-95	1996-97	1998-99	2000-01	2002-03	2004-05
<b>UREA</b>								
July	228.90	260.00	252.00	242.00	273.00	280.00	298.00	298.50
August	230.00	260.00	236.00	238.00	273.00	276.00	289.00	296.00
September	240.90	267.00	234.00	238.00	280.00	282.00	291.00	298.00
October	232.80	267.00	226.00	238.00	277.00	282.00	294.00	297.00
November	232.00	262.00	226.00	242.00	281.00	287.00	288.00	295.50
December	234.50	266.00	235.00	253.00	287.00	287.00	289.00	296.50
January	232.60	268.00	250.00	259.00	292.00	281.00	290.00	297.00
February	236.10	277.00	291.00	247.00	295.00	286.00	285.00	296.00
March	257.40	302.00	358.00	241.00	291.00	281.00	286.00	294.50
April	235.90	279.00	320.00	240.00	278.00	277.00	283.00	296.00
May	235.50	267.00	240.00	235.00	271.00	281.00	282.00	296.50
June	237.70	265.00	239.00	273.00	272.00	280.00	286.00	293.50
<b>Triple Super Phosphate (TSP)</b>								
July	256.10	341.00	404.00	571.00	640.00	564.00	597.00	719.50
August	254.50	351.00	403.00	568.00	638.00	546.00	594.00	718.50
September	259.10	382.00	403.00	572.00	638.00	576.00	617.00	715.00
October	281.10	383.00	390.00	603.00	649.00	584.00	582.00	719.50
November	300.90	390.00	384.00	622.00	631.00	608.00	569.00	730.50
December	283.70	405.00	403.00	579.00	629.00	582.00	573.00	724.00
January	262.00	402.00	408.00	635.00	628.00	550.00	566.00	707.00
February	265.50	395.00	448.00	660.00	657.00	530.00	578.00	611.00
March	267.60	399.00	445.00	667.00	628.00	574.00	603.00	627.00
April	256.40	393.00	442.00	644.00	634.00	577.00	645.00	647.00
May	257.80	400.00	462.00	634.00	628.00	561.00	615.00	643.50
June	269.30	399.00	462.00	664.00	317.00	557.00	618.00	673.50
<b>Muriate of Potash (MOP)</b>								
July	214.30	285.00	355.00	375.00	399.00	429.00	441.00	661.50
August	211.50	290.00	353.00	373.00	400.00	419.00	456.00	669.00
September	212.10	328.00	358.00	386.00	406.00	424.00	458.00	655.50
October	217.50	344.00	339.00	367.00	425.00	420.00	448.00	667.50
November	220.80	353.00	369.00	364.00	427.00	447.00	464.00	682.00
December	221.00	357.00	408.00	355.00	447.00	437.00	461.00	687.00
January	208.00	353.00	443.00	349.00	482.00	428.00	460.00	658.50
February	217.10	345.00	327.00	343.00	479.00	415.00	463.00	590.00
March	214.80	353.00	334.00	347.00	463.00	449.00	485.00	584.50
April	209.50	352.00	341.00	350.00	470.00	401.00	462.00	591.50
May	209.80	357.00	345.00	348.00	451.00	410.00	465.00	590.00
June	212.80	357.00	369.00	366.00	450.00	427.00	473.00	582.00
<b>Single Super Phosphate (SSP)</b>								
Month	1990-91	1992-93	1994-95	1996-97	1998-99	2000-01	2002-03	2004-05
July			267.00	289.00	279.00	285.00	360.00	361.50
August			282.00	291.00	315.00	268.00	382.00	381.50
September			282.00	293.00	283.00	274.00	382.00	372.50
October			293.00	284.00	292.00	291.00	349.00	377.50
November			292.00	285.00	286.00	305.00	348.00	395.00
December			292.00	291.00	272.00	305.00	353.00	447.00
January		237.00	308.5	283.00	266.00	302.00	350.00	431.00

February		239.00	299.00	275.00	261.00	310.00	370.00	450.00
March		244.75	299.00	276.00	264.00	303.00	367.00	452.00
April		250.84	293.5	282.00	256.00	280.00	367.00	437.50
May		255.23	286.00	282.00	251.00	288.00	350.00	444.50
June		260.00	289.00	298.00	254.00	296.00	313.00	444.50

source: MMIS, Ministry of Agriculture/ATDP, IFDC

ANNEX V: Sales of Fertiliser by Type - 1980-81 to 2004-05 (Figures in metric tons)

Year	Urea	TSP	SSP	DAP	MP	Gypsum	Zinc	ASP	NPKS	TOTAL
1981-82	518,775	208,478	-	48,518	44,836	-	810	-	7,906	829,323
1982-83	629,058	205,999	-	73,161	50,420	393	498	-	8,889	968,418
1983-84	708,070	260,730	-	93,831	63,222	1,267	745	-	1,196	1,129,061
1984-85	831,808	345,670	-	403	69,271	1,379	1,217	-	10,430	1,260,178
1985-86	794,496	297,418	-	53	59,867	3,269	706	-	178	1,155,987
1986-87	915,019	335,659	-	-	65,850	2,824	1,353	-	238	1,320,943
1987-88	1,029,077	390,159	-	-	86,139	1,390	1,630	6,796	-	1,515,191
1988-89	1,135,062	415,993	-	-	94,172	60,745	2,800	93	173	1,709,038
1989-90	1,369,237	479,767	718	4	118,663	67,808	5,180	1,785	18	2,043,180
1990-91	1,323,397	514,761	12,120	31	149,761	101,782	2,743	2,763	211	2,107,569
1991-92	1,533,481	456,672	36,201	-	137,135	115,334	3,805	4,797	-	2,287,425
1992-93	1,547,407	407,002	119,828	2,010	126,083	108,140	722	4,992	-	2,316,184
1993-94	1,578,955	234,185	170,608	28,675	103,875	86,051	5,200	10,036	97	2,217,682
1994-95	1,748,459	122,947	533,485	1,837	154,240	77,161	-	2,491	-	2,640,620
1995-96	2,045,535	111,095	596,881	-	155,881	103,577	1,029	8,692	-	3,022,690
1996-97	2,119,883	72,629	525,285	-	219,302	86,611	1,161	11,692	-	3,036,563
1997-98	1,872,725	62,382	473,295	6,778	193,496	113,430	661	9,716	-	2,732,483
1998-99	1,902,024	170,247	362,370	38,633	210,748	128,215	269	12,418		2,824,924
1999-00	2,151,233	259,263	237,201	109,171	239,464	189,398	1,170	26,003		3,212,903
2000-01	2,121,096	399,428	138,589	90,077	123,788	102,260	3,006	13,020		2,991,264
2001-02	2,247,422	401,464	127,126	127,033	233,249	115,578	238	20,083	12,876	3,285,069
2002-03	2,247,000	375,130	132,527	122,010	270,620	150,520	5,000	10,000	26,000	3,338,807
2003-04	2,324,080	361,000	148,000	90,000	240,000	140,000	7,000	9,000	45,000	3,364,080
2004-05	2,523,395	420,029	170,931	140,718	260,385	135,704	8,000	5,592	90,000	3,754,754
2005-06	2,451,370	436,470	130,390	145,000	290,670	104,950	7,500	6,320	110,000	3,682,670
2006-07	2,515,000	340,000	122,000	115,000	230,000	72,000	26,000	6,000	125,000	3,551,000

Source: Ministry of Agriculture, Government of Bangladesh



ANNEX VI: Irrigated Area Under different Crops, 1979-80 to 2002-03

Year	Aus	Aman	Boro	Wheat	Potato	Vegetables	Others*	Total	Total Cropped Area	% of Irrigated Area
1979-80	91.90	128.60	1008.40	172.50	64.60	40.00	63.10	1569.10		
1980-81	119.79	140.40	998.60	184.80	71.40	43.50	80.60	1639.09	13160.00	12.46
1981-82	113.00	184.30	1041.70	189.60	76.90	46.90	73.40	1725.80	13200.00	13.07
1982-83	125.30	194.30	1139.90	193.50	73.10	50.10	71.80	1848.00	13000.00	14.22
1983-84	145.00	158.80	1197.80	214.50	73.80	44.40	85.70	1920.00	13360.00	14.37
1984-85	140.60	156.20	1285.30	283.30	69.80	49.20	88.30	2072.70	13150.00	15.76
1985-86	164.50	190.00	1258.90	267.00	67.80	53.30	96.10	2097.60	13540.00	15.49
1986-87	164.00	190.20	1363.10	253.60	68.40	57.30	102.40	2199.00	13340.00	16.48
1987-88	118.70	159.80	1678.00	196.39	56.60	33.70	104.30	2347.49	13820.00	16.99
1988-89	144.50	211.30	1865.20	260.50	76.60	62.60	116.70	2737.40	13710.00	19.97
1989-90	141.50	213.86	2050.30	277.40	78.40	70.16	105.70	2937.32	14060.00	20.89
1990-91	137.66	214.55	2127.46	282.46	81.89	74.87	109.12	3028.01	14030.00	21.58
1991-92	152.79	235.50	2314.40	260.30	79.90	77.80	109.91	3230.60	13810.00	23.39
1992-93	145.58	241.10	2320.10	271.20	82.40	82.60	110.92	3253.90	13700.00	23.75
1993-94	132.40	262.70	2323.00	271.63	88.20	86.20	125.64	3289.77	13480.00	24.40
1994-95	125.53	321.50	2391.90	283.02	94.79	89.15	123.89	3429.78	13520.00	25.37
1995-96	114.80	295.60	2530.10	298.40	100.60	82.45	131.95	3553.90	13510.00	26.31
1996-97	111.90	304.50	2631.25	316.10	104.60	90.20	109.70	3668.25	13800.00	26.58
1997-98	105.26	338.87	2681.76	345.75	113.36	98.45	86.05	3769.50	14090.00	26.75
1998-99	95.95	291.90	2822.02	361.94	145.43		106.93	3939.80	13960.00	28.22
1999-00	109.20	320.45	2941.36	372.25	163.15	117.40	162.75	4186.56	14270.00	29.34
2000-01	93.48	316.06	3196.97	383.64	150.14	117.76	161.06	4419.11	14300.00	30.90
2001-02	98.74	311.60	3343.87	401.85	152.16	121.40	166.72	4596.34	14194.56	32.38
2002-03	89.78	317.22	3450.28	394.30	160.45	123.42	189.69	4725.14	14174.55	33.34
2003-04		325.77	3617.01	382.02	180.49	134.35	295.82	4935.46	14039.31	35.15
2004-05		339.12	3661.93	364.21	199.10	152.16	318.07	5034.59	14104.09	35.70

Source: Bangladesh Bureau of Statistics (BBS)

\*Others Means Others Cereals, Pulses, Oil Seeds, Sugarcane, Cotton and others crops

## ANNEX VII: Adopted Policies for Agricultural Sector

Sub- Sector Policies	Major Goals and Policy Thrusts	Implementing Ministry
A. Crop sub- sector		
1. National Agriculture Policy [ NAP], 1999	<ul style="list-style-type: none"> <li>• Food security, profitable and sustainable production, land productivity and income gains, IPM, smooth input supplies, fair output prices, improving credit, marketing and agro- based industries, protecting small farmers' interests</li> </ul>	Ministry of Agriculture
2. New Agricultural Extension Policy [ NAEP], 1996	<ul style="list-style-type: none"> <li>• Provision of efficient decentralized and demand led extension services to all types of farmers, training extension workers, strengthening research extension linkage and helping environmental protection</li> </ul>	Ministry of Agriculture
3. DAE- Strategic Plan, 1999-2002	<ul style="list-style-type: none"> <li>• Adoption of Revised Extension Approach, assessment of farmers' information needs, use of low or no cost extension methods, promotion of food and non-food crops, and mainstream gender and social development issues into extension service delivery.</li> </ul>	Ministry of Agriculture
4. Agricultural Extension Manual, 1999	<ul style="list-style-type: none"> <li>• Annual crop planning, seasonal extension monitoring, participatory technology development and rural approval partnership, technical audit, attitude and practice surveys</li> </ul>	Ministry of Agriculture
5. Seed Policy, 1993	<ul style="list-style-type: none"> <li>• Breeding of crop varieties suitable for high-input and high-output agriculture, multiplication of quality seeds,</li> </ul>	Ministry of Agriculture

	balanced development of public and private sector seed enterprises, provision of training and technical supports in seed production, processing and storage monitor, control and regulate	
	quality and quantity of seeds	
6. Seed rules , 1997	<ul style="list-style-type: none"> <li>• Delineations of rules and regulations regarding changing functions and of national seed board, registration of seed dealers, seed certification, marketing truthful levels and modalities of seed inspection</li> </ul>	Ministry of Agriculture
7. Plan of Action on NAP,2003	<ul style="list-style-type: none"> <li>• Reviewing NEP and its implementation, setting out strategies and actions, and identifying institution and programme framework</li> </ul>	Ministry of Agriculture
8. Action Policy Brief [ APB],2004	<ul style="list-style-type: none"> <li>• Prioritize immediate medium-term and long-term policy measures with respect to seed, fertiliser, land, irrigation, mechanization, marketing, agricultural research and extension with a view to increasing labour and water productivity, investment in agriculture and improve risk management</li> </ul>	Ministry of Agriculture
9. National Jute Policy,2002	<ul style="list-style-type: none"> <li>• keeping jute production at a desirable level, stabilizing supply and prices of jute, developing commercially viable jute industries, and developing multiple uses of jute and jute goods</li> </ul>	Ministry of Jute
B. Non- crop sub- sector		

10. Livestock policy and Action Plan,2005	<ul style="list-style-type: none"> <li>• Improvement of small-scale poultry and dairy farming replicating CLDDP, reform of DLS, information of law and regulations towards animal feeds, vaccines and privatization of veterinary services, adoption of breeding policy and establishment of livestock insurance development fund and livestock credit.</li> </ul>	Ministry of Fisheries and Livestock
11. National Fishery Policy	<ul style="list-style-type: none"> <li>• Development of fishery resources, increasing fish production and self-employment, accelerating fish exports and improvement of public health</li> </ul>	Ministry of Fisheries and Livestock
12. National Forest Policy,1994	<ul style="list-style-type: none"> <li>• Bringing 20% area under deforestation, enriching bio-diversity, extending assistance to forestry development through development of land and water resources, implementation of national and international efforts and agreements related to global warming, desertification control of wild bird and animal trade, prevention of felling of trees and haunting of wild birds</li> </ul>	Ministry of Environment and forest,1994
C.Cross-cutting Policies		
13. National Land use Policy	<ul style="list-style-type: none"> <li>• Minimizing loss of crop land, stopping indiscriminate use of land, preparing guidelines of land use for different regions, rationalizing land acquisition and synchronization of land use with natural environment</li> </ul>	Ministry of Land
	Development and management	Ministry of Water Resources

14. National Water Policy, 1998	of surface and groundwater in an efficient manner ensuring access of the poor, women and children to water	
Source: A Synthesis of Agricultural Policies in Bangladesh, Agriculture Sector Review, Ministry of Agriculture, Dhaka, July, 2006		

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