Rethinking Food Security Strategy: Self-sufficiency or Self-reliance

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ABSTRACT

Ensuring national food security is a vital concern of all governments. Until the early 1990s, the Government of Bangladesh aimed to achieve food security by following a policy of self-sufficiency (growing within the country all the food the country needs). In 1993, however, the policy was changed to one of self-reliance (importing food from the world market when prices are cheaper than growing it at home, so as to release land for other uses for which Bangladesh has a comparative advantage).

The strategy of self-reliance worked well. The private sector was able to import the food needed to make up for the losses in domestic rice output following natural disasters (e.g., following the disastrous floods, in 1998 and 2004) and, also, when the domestic price of rice exceeded the price at which Bangladesh could import it (e.g., from India). Rice is now imported, mainly by the private sector.

However, the strategy broke down during the global food price crisis of 2007-08, when India and other rice exporters introduced export restrictions followed by an export ban. Bangladesh found it difficult to import the food it needed and domestic food prices rose rapidly as traders, farmers and consumers, anticipating higher prices, stored rice. This led to increased food insecurity and higher levels of poverty, especially for the poorest and most vulnerable.

Given the experience in 2007/08, this paper asks whether Bangladesh should continue to pursue a strategy of self-reliance or return to its earlier policy of self-sufficiency through domestic production, in order to ensure national food security?

The paper: (a) reviews the impact of the food crisis in 2007/08 on food prices, food insecurity and poverty in Bangladesh, and Bangladesh's participation in the global food market, (b) examines whether the country can safely depend on the world market to meet its food deficits, by assessing the reliability of Bangladesh's main sources of imported rice (Myanmar, Thailand and India); (c) compares Bangladesh's costs of producing rice with other countries and asseses its comparative advantage in rice production.

The paper concludes that:

- Bangladesh has a comparative advantage in rice production at import parity prices, which indicates that it would be cheaper to

produce domestically than to import rice for domestic consumption. On the other hand, Bangladesh does not have a comparative advantage in rice production at export parity prices, indicating that Bangladesh is not currently capable of competing in the international market with its current production practices, prices and technology.

- Bangladesh should target self-sufficiency in rice production to satisfy domestic demand in normal production years. If there is a natural disaster or any other major events, which disrupts production, then Bangladesh will have to depend on the international market and buffer stocks to ensure food security. Food grain export restrictions imposed by exporting countries (e.g., India, especially on rice), mean that Bangladesh will have to undertake precautionary measures to ensure food security in disaster years.

INTRODUCTION

Ensuring national food security is a vital concern for all governments. Until the early 1990s, the Government of Bangladesh aimed to achieve food security by following a policy of self-sufficiency (growing within the country the food the country needs). In 1993, however, the policy was changed to one of self-reliance (importing food from the world market when prices are cheaper than growing it at home, so as to release land for other uses for which Bangladesh has a comparative advantage).

The strategy of self-reliance worked well. The private sector was able to import the food needed to make up for the losses in domestic rice output following natural disasters (e.g., following the disastrous floods, in 1998 and 2004) and, also, when the domestic price of rice exceeded the price at which Bangladesh could import it (e.g., from India).

However, the strategy broke down during the global food price crisis of 2007-08, when India introduced export restrictions (by fixing unusually high export prices) followed by an export ban. Major exporting countries such as Thailand and Vietnam followed India's lead and raised prices to similar levels. Later, India, Vietnam, Cambodia, and Egypt banned rice exports altogether. Major wheat exporting countries also imposed restrictions on international trade and Pakistan, India, Russia, Ukraine, Kazakhstan and China eventually banned wheat exports.

As a result, Bangladesh found it difficult to import the food it needed and domestic food prices rose rapidly as traders and consumers, anticipating higher prices, hoarded rice. This led to increased food insecurity and higher levels of poverty, especially for the poorest and most vulnerable.

Given this experience, this paper asks whether Bangladesh should continue to pursue a strategy of self-reliance or return to its earlier policy of self-sufficiency through domestic production, in order to ensure national food security? The paper discusses the following issues:

- The recent volatility in the price of rice and wheat in the international and domestic markets and its effect on food security in Bangladesh;
- An assessment of the reliability of the international market as a means to sustain food security;
- The lessons Bangladesh can learn from India's policies of price support, input subsidies and food grain distribution;
- The comparative advantage of Bangladesh in rice production vis-à-vis that for its trading partners;
- The strategy and policies Bangladesh should adopt if it is to achieve self-sufficiency by increasing domestic production.

TRENDS IN PRICES AND IMPACT ON FOOD SECURITY

Volatility in prices

Rice prices in Bangladesh were highly volatile between 2003 and 2009 (see Figure 1). In 2003 and early 2004, prices increased slowly; from mid-2004 to mid-2007 they rose more quickly; and then, between September 2007 and April 2008, there was a sudden escalation in prices due to speculative pressures. Prices remained high from April to September 2008 and then dropped quickly, reaching 2007 levels by April 2009. At the peak, in 2008, rice prices at Taka 35/kg were double those of 2003/04.

The unusually high rice prices resulted in higher farm gate paddy prices, which increased from Taka 500 per *Maund* (37.4 kg) in June 2007 to over Taka 750 per *Maund* by January 2008. Farmers responded with a bumper harvest of the irrigated *Boro* rice crop, which now accounts for over 55 percent of annual food grain production. The escalation in prices stopped in the third week of April as *Boro* rice entered the market. However, prices did not fall immediately because farmers and millers continued to hold stocks as prices were still rising on the world market (Figure 2). They started to fall from mid-August when world market prices plateaued in anticipation of increased supplies from major rice growing countries.

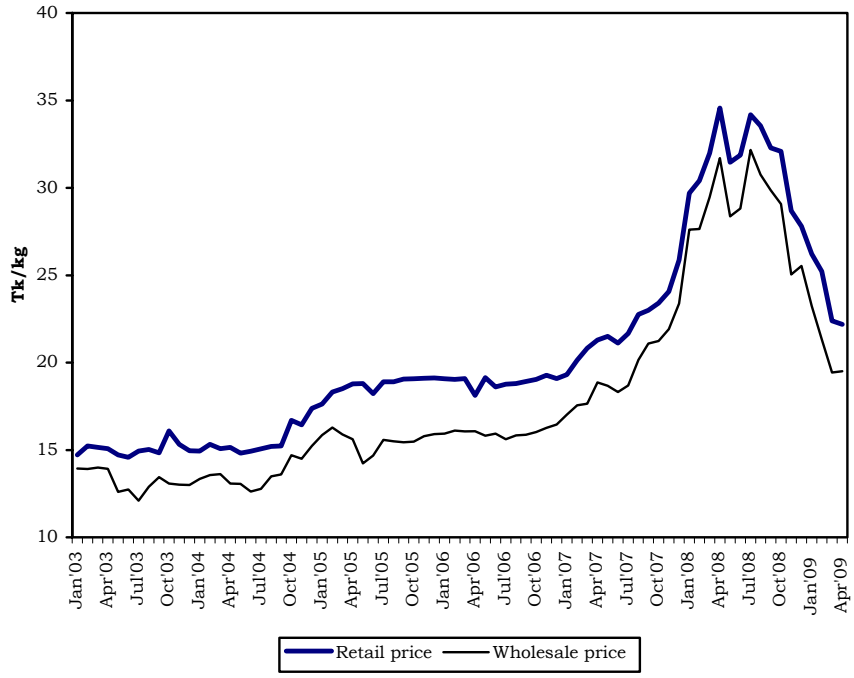
Bangladesh also experienced a bumper harvest of *Aus* and *Aman* rice in 2008 due to favourable weather conditions. With falling prices in the world market and a growing surplus from domestic production, millers, traders and farmers started releasing stocks to minimize their losses. In mid-December 2008, prices started declining as fast as they had risen during the upswing in early 2008 and by April 2009, wholesale and retail rice process had declined to the levels of July-August 2007.

Retail prices followed almost the same trend as wholesale prices during the upswing, but the gap between wholesale and retail prices was larger during the downswing. During the upswing higher prices in the wholesale market were immediately passed on to consumers; but, during the downswing, consumer prices fell more slowly than wholesale prices as traders tried to recoup some of the losses they expected to make on rice bought near the top of the market.

The wholesale and retail prices of wheat flour (*Atta*) in Bangladesh followed a broadly similar pattern to rice. From July 2000 to January 2004, the price of wheat flour increased slowly with retail wheat flour prices varying between Taka 14.04 and Taka 15.81 per kg. Between February 2004 and October 2006, wheat flour prices rose faster, reaching Taka 21.65 per kg in October 2006. In November 2006, prices of wheat flour started to escalate and the retail price peaked at Taka 45.00 per kg in March 2008. The price started to fall from April 2008 and reached Taka 20.50 per kg in April 2009.

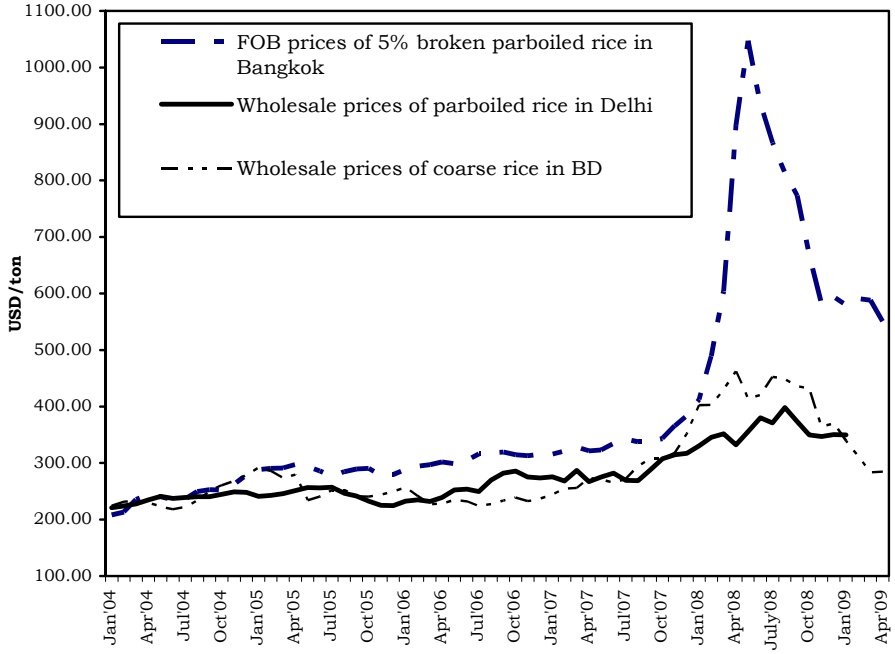
Unlike rice, however, there was a general correspondence in the movement of international and domestic wheat prices throughout the period, indicating that the market was functioning relatively efficiently.

Figure 1. Monthly wholesale and retail price of coarse rice: January 2003 to April 2009



Source: Department of Agricultural Marketing (DAM)

Figure 2. Comparison of domestic rice prices among the Bangladesh, Delhi and Bangkok: January 2004 to April 2009



Source: Department of Agricultural Marketing (DAM), Bangladesh; Thai Rice Exporters Association, Thailand and Ministry of Consumer Affairs, Food and Public Distribution, Government of India

Impact on food security

An analysis of trends in real wages of agricultural labourers shows that there was a consistent upward trend from 1990/91to 2006/07, with real wages rising by an average of 4.2 percent a year. In 1990/91 the agricultural daily wage bought 3.5 kg of rice; by 2006/07, this had risen to 5.9 kg. However, with the soaring food prices in 2007/08, rice equivalent wages declined to 4.6 kg per day.

The rapid rise in food prices caused real incomes to fall and increased poverty and food insecurity in Bangladesh. A Centre for Policy Dialogue (CPD) study (Rahman *et al.* 2008) estimates that high inflation and rapid rises in rice prices increased poverty by 8.5 percent (12.1 million people) between January 2005 and March 2008. In a second study, Raihan *et al.* (2005) estimated that the head count index of poverty in Bangladesh remained almost stagnant at 40 percent during 2004-06, but increased by 2.1 percent in 2006-07 and by a further 4.3 percent in 2007-08.

Finally, an FAO/WFP study (2008) estimated that the number of food-insecure people (with an intake of less than 2,122 kcals/person/day) in Bangladesh increased by 7.5 million as a result of rising food prices and general inflation. The report added that the number of undernourished people grew by 6.9 million (i.e., by almost 25 percent).

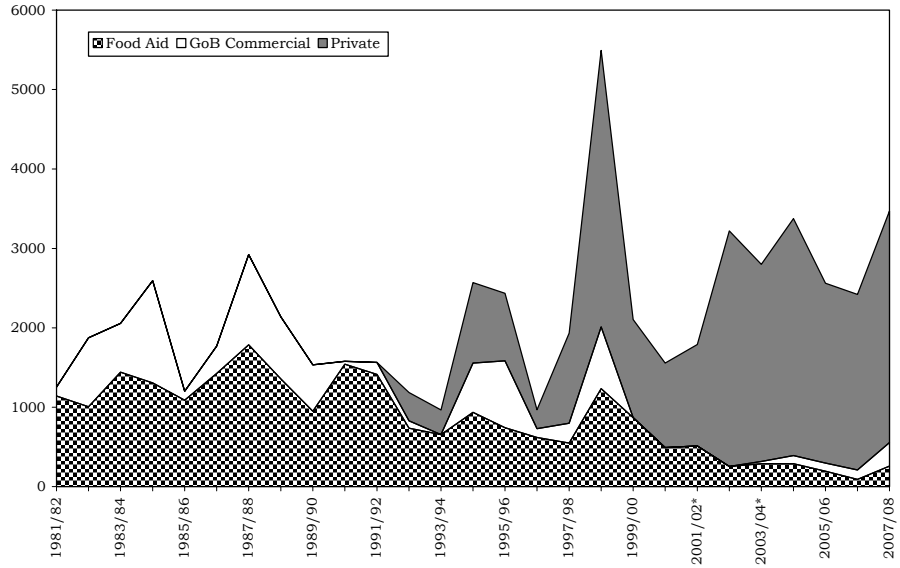
While recent falls in rice prices are likely to make more food available to the poor, they endanger future food availability by reducing farmers' incentives to sustain the growth in rice output. It is estimated, at current price levels, that tenant farmers will incur losses and owner farmers will just break even. If this happens, next year farmers may divert resources to more profitable non-rice crops thus triggering price increases in rice markets. This may also impact negatively on wage rates for agricultural labourers.

BANGLADESH'S PARTICIPATION IN THE WORLD MARKET

The trend in imports

Bangladesh is a net importer of both rice and wheat, with imports currently being managed by both public and private sectors. Before 1992/93, the private sector was not allowed to import or export rice or wheat. The Government, at the time, received food aid and also imported food grains on a commercial basis, to augment the stocks it needed to operate the public food distribution system. Both the quantity and share of food aid has declined over time.

Figure 3. Trends in import of food grains by Bangladesh: 1980/81-2007/08



Source: Directorate of food

The import of food grains has fluctuated over time (Figure 3). Higher levels of imports occurred in the years of natural disasters (e.g., after the floods of 1987, 1988 and 1998, and 2004), while, in 'normal' years, food grain imports were relatively low. The commercial import of rice was almost insignificant in 1991 and 2001 – years when the country achieved self-sufficiency. Wheat imports have steadily increased over time, with big jumps in the years following natural disasters.

Bangladesh imports mostly milled rice. Until the mid-1990s, this came mostly from Thailand, Pakistan, USA and Vietnam but, since 1995, India has been the main trading partner. Other countries exporting rice to Bangladesh, in recent years, include Myanmar, Pakistan, Thailand, and Vietnam.

India is the main source of imports because: (a) it is quicker and cheaper to bring rice from India; (b) it is possible for importers to bring in small quantities of rice by road; and (c) India exports parboiled rice, which is preferred by most Bangladeshis.

The effect of Indian policy on prices

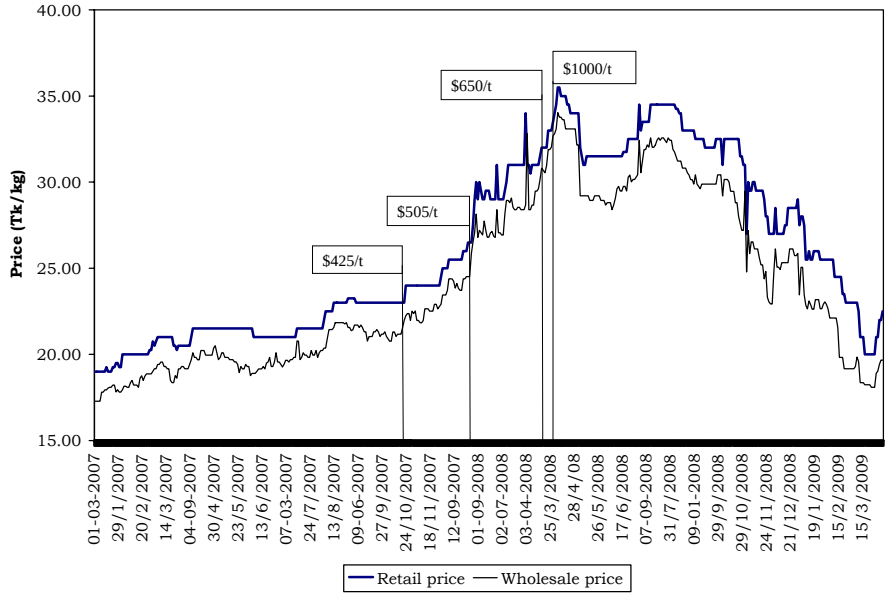
Bangladesh's rice market is affected by its own food production and trade policies, and by those of its trading partners. During 2001/02 and 2002/03, for example, the Government of India highly subsidised rice exports (Hossain and Deb 2003), with the Food Corporation of India (FCI) providing stocks to private exporters at the subsidized rate of USD 127 per tonne (milled rice) compared to an economic cost of USD 253 (GOI 2002). Rice was dumped on the Bangladeshi market and rice imports increased significantly, even though import parity prices (ex-Bangkok) were below 1.00. In 2002/03, Bangladesh imported 1.56 million tonnes of rice against the previous year's total of 127,000 tonnes. In March 2003, the Government of India banned the export of rice to Bangladesh, for domestic reasons, though this was lifted later. In October 2003, India increased the price of rice sold by the Food Corporation of India (FCI). India's policies were driven by domestic considerations and impacted adversely on Bangladesh. It would appear from this pattern of behaviour that India may not always be a dependable trade partner.

Since late 2007, India's policy of exporting food grains has been reversed. India banned wheat exports and imposed minimum export prices (MEP) for non-*Basmati* and *Basmati* rice. The Government initially fixed the MEP of non-*Basmati* rice at USD 425 per tonne on 25 October 2007, but this was increased to USD 505 per tonne two months later and rose further to USD 650 per tonne on 19 March 2008. India announced an MEP of USD 1000 per tonne for non-*Basmati* rice and USD 1,200 per tonne on 28 March 2008. Finally, India introduced a ban on rice exports on 1 April 2008 which is still continuing, one year later. Other countries, including Vietnam, Cambodia, and Egypt followed India in banning rice exports. The domestic price of rice in Bangladesh increased sharply with the announcement of Minimum Export Prices by India (Figure 4).

The global rice trade is quite small (only seven percent of global output is traded), therefore the policies of large exporters like India can influence world market prices. Studies indicate that a one million tonnes increase or decrease in rice exports by India results in a 4.7 percent change in the price of rice on the international market (Jha and Srinivasan 1999). Also, at times of production short-fall, India's imports (to meet domestic

demand) can raise international prices by up to 40 percent (Chand 2003).

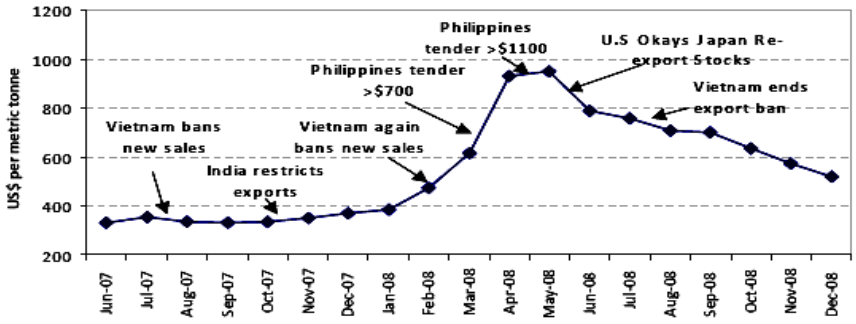
Figure 4. Retail and wholesale price of coarse rice in Bangladesh (BR 8, BR11, *Swarna*): January 2007-April 2009



Source: Department of Agricultural Marketing (DAM)

Slayton (2009) has analysed the relationship between export restrictions and international rice prices. Rice prices are directly influenced by restrictions and speculative buying by countries like the Philippines (Figure 5). Thus, food prices, food availability and food security in Bangladesh is affected by actions and policies carried out by other countries.

Figure 5. Trends in monthly price of Thai white rice (100% Grade B) and export restrictions



PRODUCTION AND TRADE POLICIES OF MAJOR TRADING PARTNERS

Can Bangladesh depend on the world market to meet its food deficit when needed? This is an important question for Bangladesh and for that matter for any country, intending to follow a strategy of self-reliance to achieve food security. To answer this question, we need to review the production situation and trading behaviour of Bangladesh and its major trading partners.

Production situation and policies of Bangladesh

In the 1970s and early 1980s, Bangladesh pursued a policy of agricultural modernization based on high yielding varieties of rice and modern agricultural inputs (seed, fertilizer and irrigation) supplied through government agencies and organizations, including Bangladesh Agricultural Development Corporation (BADC), and Bangladesh Water Development Board (BWDB). In the 1980s, the country reformed both its agricultural input and output markets. The government continued to manage the procurement and marketing of urea at administered prices, but the marketing of phosphate, potash and other fertilizers was devolved to the private sector. Between 1980/81 and 2007/08, the total amount of nitrogen fertilizer used by farmers increased five-fold, Muriate of Potash three-fold and Triple Super Phosphate by one and a half times.

New irrigation development policies, including liberalisation of imports of equipment, led to a substantial expansion in the area irrigated in Bangladesh from 1.64 million ha in 1980/81 to 5.05 million ha in 2007/08, raising the coverage of irrigation to about 65 percent of cultivated land. Minor irrigation grew rapidly and local water markets developed, based on privately installed shallow tubewells (Ahmed 1995; Hossain *et al.* 2006).

Bangladesh also invested in agricultural research and extension systems. Until the mid-1990s, Bangladesh received substantial international funds for agricultural research both directly and through international research centres[1]. The government also encouraged the private sector and NGOs to develop and promote HYVs and hybrid rice. Since Independence, the Bangladesh Rice Research Institute (BRRI) and the private sector have released about 55 improved inbred and 40 Hybrid rice cultivars. Promotion of modern seed-fertilizer-irrigation technology

[1] International Rice Research Institute (IRRI) and International Maize and Wheat Improvement Centre (CIMMYT).

increased the adoption of modern cultivars, contributing to higher rice yields and rice production in Bangladesh (Hossain *et al.* 2006). The modern rice cultivars spread to 75 per cent of the rice area in 2006/07 compared to 21 per cent in 1980/81. Since the improved varieties are scale neutral even small and marginal farmers, who account for 90 percent of the farm households in Bangladesh, adopted them.

As a result of these policies and related investments, rice output more than doubled from 13.6 million tonnes in 1981/82 to 29.8 million tonnes in 2007/08. Almost 80 percent of this increase was due to the expansion of irrigated dry season *Boro* rice (from 3.15 million tonnes in 1980/81 to 17.76 million tonnes in 2007/08). Over the same period, *Aus* production declined from 3.27 million tonnes to 1.51 million tonnes, indicating a structural shift in Bangladesh's rice production from a largely weather influenced crop to an irrigated crop, which is much more sensitive to the quality of public policy and governance than the vagaries of nature (Deb 2002, Hossain 2006).

Myanmar

After India introduced restrictions on rice exports in 2007/08, Bangladesh sought to import rice from Myanmar on a regular basis. In February 2008, the Government requested a visiting Delegation, led by Myanmar's Deputy Minister for Foreign Affairs, Kyaw Thu, to export 300,000 tonnes of rice annually to Bangladesh. The Myanmar Foreign Minister indicated that his country had one million tonnes of surplus rice for export per annum and exporting 300,000 tonnes of rice to Bangladesh on regular basis should not be a problem[2]. In this section, the feasibility and dependability of importing substantial quantities of rice annually from Myanmar will be assessed.

Myanmar is rich in natural resources. The land and climate are highly favourable for rice production (IRRI 2002; Kyaw 2007). Only a small fraction of Mynamar's land area has been brought under cultivation and the average farm size is over 2.0 ha, almost four times that of Bangladesh. However, only 25 percent of the rice land is irrigated and farmers grow modern varieties with only limited use of chemical fertilizers, leading to declining soil fertility. Rice production in Myanmar has increased from 13.3 million tonnes of paddy (8.0 million tonnes of rice equivalent) in 1980 to 32.6 million tonnes of paddy (19.6 million tonnes of rice equivalent) in 2007, but many observers consider these estimates may be exaggerated. Despite supposedly rapid increases in per capita availability of rice and rapidly rising domestic prices in recent years, rice exports have declined. Myanmar was the largest rice exporting

[2] (http://www.bangladeshnews.com.bd/2008/02/13/5-lakh-mt-rice-import-from-india-okayed/) accessed on January 17, 2009.

country four decades ago, but her place has been gradually taken over by Thailand.

Rice exports fell to less than one million tonnes by the early 1990s and have declined further in recent years. Due to a rapid increase in domestic prices, the Government has decided to discourage rice exports. Annual exports of rice now vary widely and, in some years, exports have been less than 60,000 tonnes. During the last 30 years, the highest export of nearly one million tonnes was in 2001. Myanmar's largest export to Bangladesh of 66,000 tonnes in 2000 was followed by 49,000 tonnes in 2001. The internal demand for rice in Bangladesh is approaching 30 million tonnes, and imports sometimes reach 3.5 million tonnes. Therefore, we can conclude that Myanmar's rice surplus is too small to meet the needs of Bangladesh.

An analysis of Myanmar's rice exports (including border trade and broken rice), shows that it exported 182,000 tonnes in 2004/05, 180,000 tonnes in 2005/06 and only 14,500 tonnes in 2006/07. In 2008, Myanmar did not impose any restrictions on rice exports, which benefited Bangladesh. Exports of rice by Myanmar in 2007/08 and 2008/09 (April-June) were 358,000 tonnes and 108,000 tonnes, respectively. In recent years, most exports took place between January and April at a unit cost of between USD 200 and USD 300/tonne. In 2008, the total exported was about 426,000 tonnes (at a unit cost of USD 286 per tonne). Thus, although the availability of rice from Myanmar is small relative to the needs of Bangladesh, it is a relatively low cost source of rice imports.

Myanmar, then, does not have the capacity to supply the relatively large quantities of rice Bangladesh needs. Also, unlike India, Myanmar exports non-parboiled rice, which is consumed only in some areas of Bangladesh, such as Chittagong and Sylhet.

In conclusion, *Bangladesh should not depend on Myanmar for its rice imports due to the low and uncertain surpluses available for export. However, if Myanmar has exportable surpluses at a competitive price, Bangladesh may take advantage of it.*

Thailand

If India, Bangladesh's current main source of rice imports, continues to ban rice exports, could Bangladesh depend on Thailand to meet its import needs? The answer to this question will depend on whether Thailand will (a) continue to produce surpluses for export; (b) the type of rice it offers for export; and (c) the extent to which Thailand is likely to manipulate domestic rice and trade policies to provide prices to support to its rice farmers. This section will explore these issues.

Thailand has been the world's leading rice exporter since the mid-1960s and currently accounts for one-third of global rice exports (Isvilanonda, 2002; IRRI, 2002). The country is favourably endowed with land. Its average farm size of 5 ha is the highest in South and Southeast Asia, and almost 10 times the average in Bangladesh. But water resources for irrigation are scarce, which limits the cultivation of modern varieties. As a result, most rice is grown under rain fed conditions. Irrigated rice is mainly cultivated in central and lower Northern Regions, and accounts for less than 20 percent of the rice area. The main rice belt is the Northeast Region where rice production is constrained by drought. Farmers in this region grow mostly low-yielding, high quality, traditional rice varieties (Jasmine rice), which fetches premium prices on the world market. The farmers in the region are poor, and government has recently started investing heavily in the rice market to boost the income of the farmers.

Rice production in Thailand increased from 17.3 million tonnes of paddy in 1983 to 30.5 million tonnes in 2008 (11.1 million tonnes of milled rice in 1983 to 19.7 million tonnes in 2008). Growth in rice production has been slower than in other major rice producing countries in Asia, but Thailand continues to generate substantial surplus for export because of the gradual fall in per capita consumption of rice, as middle income consumers opt for a diversified diet.

About half of Thailand's total production is exported. Exports have increased from 3.5 million tonnes of milled rice in 1983 to 9.2 million tonnes in 2007, with the value of rice exports rising from USD 875 million in 1983 to almost USD 3,500 million in 2007. In 2008, Thailand benefited from a lack of competition and soaring rice prices, which peaked in May 2008 at USD 1,100 a tonne. Between January and December 2008, Thailand exported 10.2 million tonnes of rice and earned USD 6,040 million. The rapid increase in the value of rice exports was mainly due to the rapid rise in rice prices. Thailand did not ban rice exports like India and Vietnam and it can be assumed that Thailand will continue to generate substantial rice surpluses and could meet the future demands of Bangladesh.

An important and relevant question is whether Thailand will be able to control the international market in future. In late April 2008, Thailand took an initiative to form an Organization of Rice Exporting Countries (OREC), with Myanmar, Laos, Vietnam and Cambodia, in order to try to control world rice prices. The then Prime Minister of Thailand, Samak Sundaravej, declared that OREC would be similar to the oil cartel OPEC (Organization of the Petroleum Exporting Countries). How feasible is Thailand's desire to form OREC and control world rice prices at a level which will increase farmers' incomes and reduce the growing inequality between farm and non-farm populations?

Between 1960 and 1985, Thailand intervened to influence international prices through: (a) a rice premium collected from rice exporters by the Ministry of Commerce, (b) export duties collected by the Ministry of Finance, (c) requiring rice exporters to sell their rice reserves at a price lower than the market price, and (d) controlling export quantities by limiting export permission to exporters. These measures had a negative impact on domestic and international prices. The cost of these measures resulted in a 30 to 40 percent increase in prices during 1950-1972, and a 50%-60% rise during 1973-74. The impact of the measures gradually declined as premium and export quotas and export stock were cancelled (Siamwalla and Setboonsarng, 1988, as cited in Wiboonpongde and Chaovanapoonphol, 2001) in order to encourage exports. Another measure used to encourage exports included "packing credit", which was provided to exporters, together with other financial facilities, via the Export-Import Bank.

One of the most recent rice-related policies in Thailand is the Agricultural Restructure Program which encourages farmers in marginal areas to substitute other crops for rice. The target was to reduce rice production area by 500,000 ha. In addition, farmers are encouraged to use quality seed and Khao Hom Mali (Jasmine) rice varieties. Since 2003, Thailand has purchased rice from farmers at prices fixed by the Government, which is substantially higher than the market price, under the Paddy Pledging Program, which involves huge subsidies by the government.

In May 2008, the Thai government outlined a USD 1.3 billion plan to intervene in the domestic rice market, by paying rice farmers up to 15,000 baht (USD 450) per tonne for ordinary rice and 19,000 baht (USD 570) per tonne for jasmine rice to boost farmers' incomes and stockpile grain for exports. But Thai rice exporters fear that above-market prices will undermine Thailand's competitiveness and rice exports would fall, if the government pursues its policy of offering above-market prices to farmers to stockpile the grain.

The Thai government policy of buying rice from farmers at above-market prices has operated since 2003 as part of its populist policies to support the poor. The policy has resulted in huge stockpiles that the government then tries to sell abroad. The current (September 2008) stockpile is estimated at 3.6 million tonnes, including some rice that is two to three years old (Bangkok Post, September 2008).

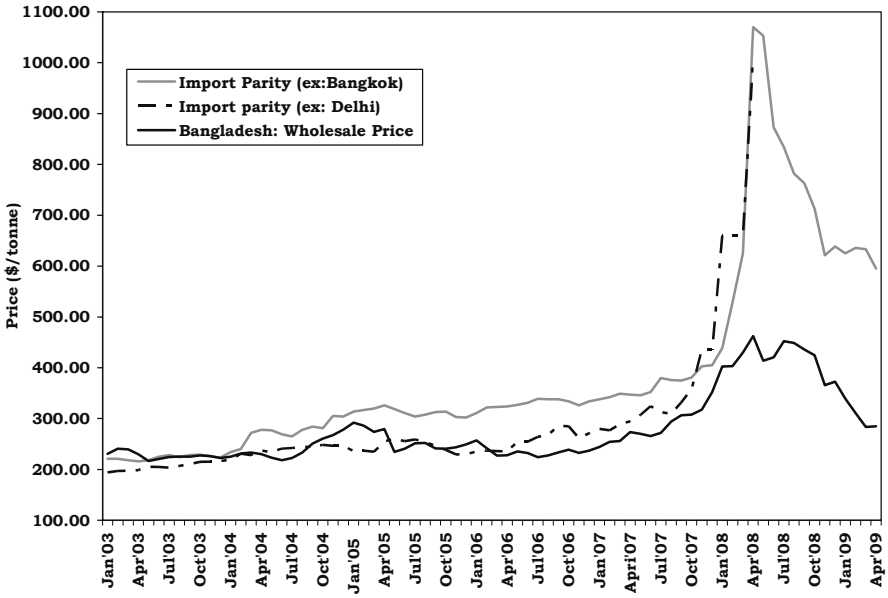
This review of long-term rice policies, impacts and reactions of different stakeholders in Thailand, indicates that Thailand will continue to follow direct intervention policies to maintain an upward trend in rice prices, using its monopoly power in the world market whenever feasible. Its key objective is to raise the incomes of poor rice farmers.

It is clear that Thailand could be a dependable source for rice imports for Bangladesh, but the question is whether the rice will be available at a price which is lower than other sources of import such as India and Pakistan? A comparison of rice prices revealed that the rice price in Thailand is higher than in Bangladesh and India (Figure 6), while that in India is generally, but not always, lower than that of Bangladesh.

Thailand exports both parboiled and non-parboiled rice. The cost of transport and insurance from Thailand to Bangladesh is about USD 45 per tonne. Moreover, it takes about three weeks to ship rice from Thailand and importing of small quantities is not possible.

In conclusion, *Thailand is a dependable source of imports since it regularly exports about a third of the rice transacted on the world market. However, it is a costly source of rice for Bangladesh. The procurement price is expected to be higher than the domestic cost of production in Bangladesh and the price at which imports will be available from India.*

Figure 6. Trends in domestic and international price of rice: July 1999-April 2009

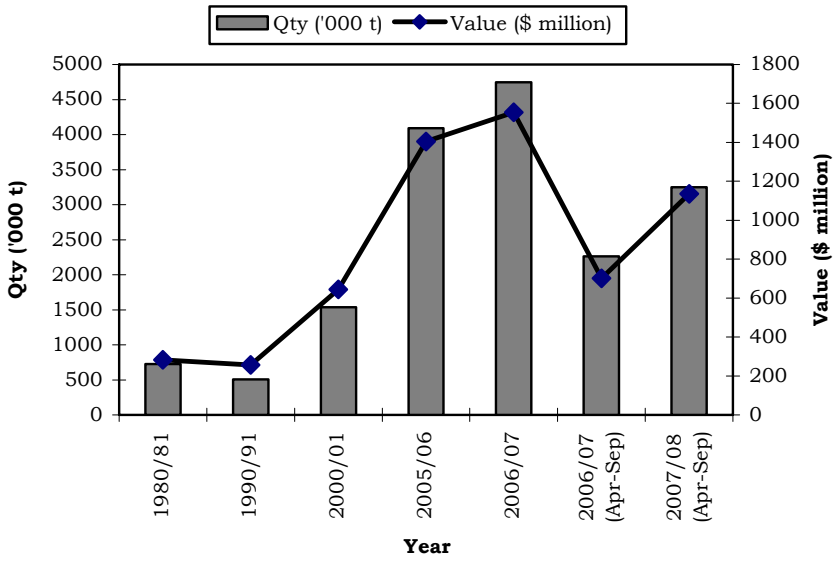


Source: Directorate of Agricultural Marketing (DAM), Bangladesh; USDA; and Price Monitoring Cell, Ministry of Consumer Affairs, Food and Public Distribution, Government of India

India

India was a rice importing country in the 1960s but started to export rice in the 1970s. Rice exports have increased over time, from 0.73 million tonnes in 1980/81 to 4.75 million tonnes in 2006/07 (Figure 7). However, exports fluctuate, largely as a result of the domestic supply situation and trade policies, which are dictated by the interests of Indian consumers.

Figure 7. Trends in rice export by India: 1980/81-2007/08



The Green revolution was started in India in 1965/66. It was based on high yielding varieties (HYV) of wheat and rice and the use of fertilizers and irrigation. The strategy produced quick results with a quantum jump in yields and increases in total factor productivity leading to self-sufficiency in food grains by the early 1980s (Janaiah *et al.* 2006). Since then, India has been a major exporter of rice.

Two key institutions, the Food Corporation of India and the Agricultural Prices Commission, were created to: (a) provide incentives to commercial farmers to grow more food by providing minimum support prices and (b) ensure food security for the urban and rural poor.

The Agricultural Prices Commission (APC) was set up in 1965 to advise the government on how to achieve a balanced and integrated structure of prices. In formulating policy, the Commission was required to keep in view: (a) the need to provide incentives to producers for adopting the new

technology and maximising production and (b) likely effects of the price policy on the cost of living, level of wages and industrial cost structure. The policy has been quite effective in encouraging the adoption of new technologies in the areas with good irrigation and has contributed to the high growth in wheat and rice output (Acharya 2001).

The Food Corporation of India (FCI) was setup under the Food Corporation Act 1964. The FCI is responsible for ensuring remunerative prices to producers, maintaining affordable prices for consumers, and maintaining a buffer stock to guard against the adverse impact of year-to-year fluctuations in output on price stability. In recent years, FCI has played a significant role in transforming the crisis-management-oriented food security system in India into a stable system.

However, these two institutions (APC and FCI) are criticised for mainly benefitting rice and wheat crops, which are the major cereals and staple food for the country, and not other crops or livestock. Agrarian reforms during this period took a back seat while research, extension, input supply, credit, marketing, price support and spread of technology were the prime concern of policy makers (Rao 1996).

Agricultural trade liberalization measures began to be introduced in the late eighties. Between 1988 and 1991, food grain exports were restricted through licensing. While these restrictions continued between 1992 and 1997, some exports were allowed, so long as they were priced above the minimum export price. In the early 2000s, India had a huge buffer stock which forced the country to export both rice and wheat at a subsidized rate (half of the economic cost). There was no customs duty on cereal imports until 1999. However, the removal of quantitative restrictions (QRs) and the freeing of imports led to a sudden surge in the import of wheat, which forced India to impose import tariffs (Chand and Kumar 2006).

Besides promoting improved technologies, India used other measures to keep costs of production low in order to provide incentives to farmers and promote output growth. Output increases were achieved after 1970/71 by raising productivity rather than expanding the area under cultivation, since most suitable land was already cultivated. To encourage productivity improvements, a four pronged strategy was followed: (a) increased cropping intensity, (b) technological improvement, (c) increased use of productivity-enhancing inputs, and (d) diversification from low value to high value crops and from crops to livestock (Chand and Kumar 2006). The government also provided substantial subsidies for fertilizer and irrigation.

According to Chand and Pandey (2008), fertilizer subsidies increased from Rs 891 *crore* during early 1980s to Rs 22,452 crore during 2006-07,

with fertilizer subsidies, in real terms, almost doubling between 1990 and 2005. This was due to an increase in fertilizer use and an increase in the subsidy per unit of fertilizer. On a per hectare basis, NPK use increased from 32 kg to 113 kg for the gross cropped area and from 39 kg to 153 kg for the net cropped area. The authors estimate that if fertilizer subsidies are removed completely, the price of fertilizer would increase by 69 percent, which would reduce food grain output in the country by 9 percent, limiting the availability of surpluses for export.

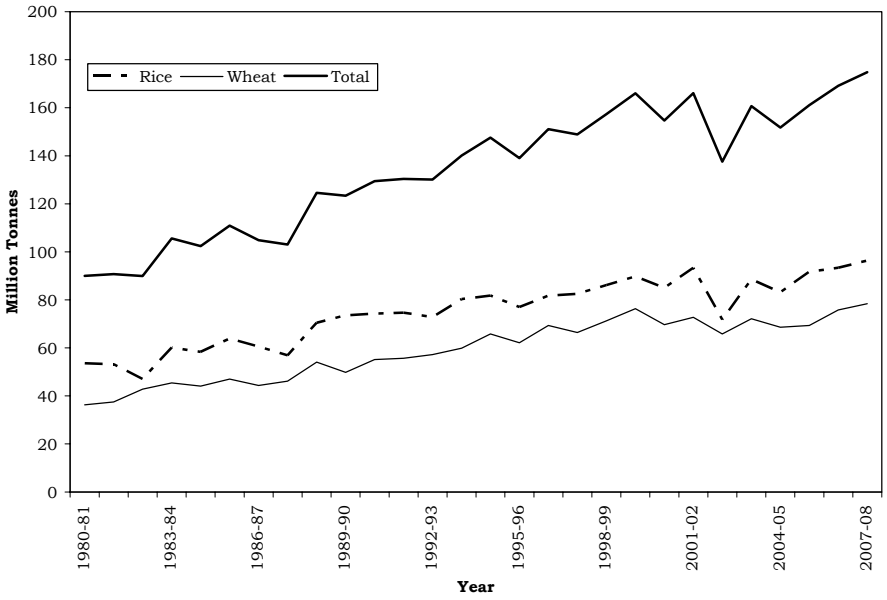
Another factor which could adversely affect the future growth of rice ouput, is the dependence of rice farming on the monsoon. The relatively stagnant food grain output during to the first half of this decade was due to the severe country-wide drought in 2002, and localized droughts and floods in different parts of the country since then.

Despite these difficulties, rice and wheat production in India has increased over time (Figure 7). Total production of rice and wheat in India is estimated to have risen from approximately 90 million tonnes in 1980/81 to 175 million tonnes in 2007/08.

Although growth in food grain production in India has kept pace with population growth, recent performance has been poor compared to Bangladesh. The average rice yield in India is now lower than in Bangladesh.

Bangladesh's better performance is due to the spread of dry season irrigated rice cultivation. Since India's rice production is still highly dependent on the monsoon season, the increasingly erratic monsoons in India in recent years (which might be the effect of climate change) could reduce future output growth. This, plus rising demand in Eastern India due to population growth, could reduce India's exportable surpluses in future.

Figure 8. Production of rice and wheat in India: 1980/81-2007/08



Source: Ministry of Agriculture, India

The analysis so far shows that India could be a low-cost source of rice because of the Indian Government's policy of providing heavy subsidies to farmers to keep the cost of production low and ensure that rice can be afforded by low income consumers. However, India may not have surpluses available for export in future if growth in food grain output slows and/or demand from India's poverty-stricken rice consuming states continues to grow.

INDIA'S BUFFER STOCK POLICY

In view of the difficulties Bangladesh faced in procuring rice from the international market in 2007/08, many policy analysts argue that the country should have a buffer stock to deal with crisis situations. India has had such a stock for a long time. In this section, we will explore the operational aspects of this policy in order to understand the challenges India faced, the strategies adopted to overcome those challenges and what Bangladesh can learn from the Indian experience.

The Government of India procures large quantities of food grain through FCI and other official agencies in order to: (a) ensure remunerative prices to producers, (b) ensure reasonable prices to consumers, and (c) maintain price stability. In the late 1980s, the Government procured 10 to 15 percent of total rice output in the country and 15 to 22 percent of wheat production (Chand 2003). After initiating its economic reforms in 1991, the government tried to reduce its role in the food grain trade, but was not successful. In 2000-01, public procurement was at an all-time high (measured as share of wheat and rice produced in the country), even though production was lower than in the previous year and the buffer stock was already double that required. The public stock of rice and wheat reached a level of about 60 million tonnes, which was far above the buffer stock requirement (16.8 million tonnes in January, 15.8 million tonnes in April, 24.3 million tonnes in June and 18.1 million tonnes in October).

In order to reduce the level of buffer stock to a reasonable level, FCI had to sell rice to private exporters at about half of its economic cost (approximately USD120 per tonne, while the economic cost was about USD 218) and much lower than open market prices (Business Standard, 9 August, 2001, Delhi).

The FCI also faced problems with wheat. In 1999-00, wheat imports by private traders were high (1.3 million tonnes) despite record buffer stock levels in the country. The domestic price of wheat was higher than international market prices mainly due to higher procurement prices. In 2001/02, India disposed of excessive public wheat stocks by selling them to wheat exporters at half of the economic cost (USD 91 per tonne compared to more than USD176 a tonne (Economic Times, May 16, 2001)).

It was argued by the Indian authorities that exporting rice and wheat at a huge loss, and at a price below the domestic market price, was the only

way to dispose of the massive stock of rice and wheat without reducing domestic prices and incentives to producers.

Bangladesh can learn from the Indian experience of buffer-stock management. If Bangladesh (with its smaller population and higher incidence of poverty) were to follow the Indian approach it would need to procure at least 3.0 million tonnes of rice and maintain a minimum stock of about 2.0 million tonnes

India was able to develop a reasonably well managed public procurement and distribution system over time. However, FCI's experience demonstrates the importance of adequately balancing market and procurement prices. Setting a procurement price is important to safeguard farmers' interest but if it is set much higher than market price then it can be a huge liability which may jeopardise even the survival of the institution.

Given this, Bangladesh must carefully review the operation of its public food grain distribution system and ensure that buffer stock levels, procurement prices and distribution targets are carefully balanced. Another important lesson is that, if the Government needs to dispose of a large quantity of food grains from the buffer stock, then the Bangladesh government should distribute these to poor and vulnerable people at a subsidized price rather than selling them to foreign countries at a subsidized rate.

COST OF PRODUCTION AND COMPARATIVE ADVANTAGE

Whether Bangladesh should pursue a strategy of self-sufficiency or self-reliance depends on its unit cost of production and comparative advantage in producing rice and wheat.

This section compares costs and returns of rice and wheat production in Bangladesh and major exporting countries such as India, and Vietnam.

Comparative costs of production

Detailed information on the variable cost of production of rice and wheat in Bangladesh, India and Vietnam in 2007/08 is presented in Table 1 and Table 2. The costs do not include the cost of land rent and interest charges on working capital.

In Bangladesh, over 55 percent of the annual rice production and most of the marketed surplus of rice comes from the *Boro* season. The major costs of production are human labour, irrigation charges, chemical fertilizers and machine rental for land preparation and threshing. Human labour and machine rental accounts for about half of the total cost, irrigation charges about 23 percent, and chemical fertilizers about 17 percent. The cost of production per ha (excluding land rent) is about USD 652 and USD 122 per tonne of output. If we include land rent, which is a real cost for the tenant, the cost per tonne of output was USD 202. At the prevailing farm gate price of paddy of USD 183 per ton of paddy in 2007, the owner farmer made a surplus of more than 50 percent over the cost of production, but the tenant incurred a loss of about 10 percent.

In the *Aman* season, the cost is substantially less, because (a) the farmer does not have to incur the cost of irrigation, and (b) the cost of fertilizer is almost half of that for the *Boro* season, because farmers use less (due to the risk of crop failure from floods) and the lower requirement of fertilizer in regularly flooded lands, which are enriched with silts. The total variable cost for the production of *Aman* rice was USD 356 per ha, about 45 percent lower than *Boro*. But the yield of *Aman*, was also about a third lower than *Boro*. The unit cost per tonne of output for the *Aman* season was USD 97 per ton, about 20 percent lower than for *Boro* rice. For the tenant, who pays about 1.5 ton per ha as land rent to the land owner, the cost per tonne of output was USD 163. At the prevailing farm gate price of USD 208 per tonne, the owner farmer made a surplus of 114 percent over the cost, and the tenant farmer 25 percent. Thus, the rain fed *Aman* cultivation is highly profitable in Bangladesh, although it low

yielding and is a risky economic activity due to uncertain monsoons and frequent floods.

How does the cost of production compare with India and Vietnam, the major rice exporting countries? Vietnam does not provide any subsidy on fertilizer, so the cost on account of this input is substantially higher than for India and Bangladesh, but the cost of irrigation is only about one-fifth compared to Bangladesh because of low irrigation charges from the large scale surface water irrigation projects funded by local government. The unit cost per tonne of output is about eight percent lower in Vietnam than it is for *Boro* in Bangladesh, but about 15 percent higher than the cost of production for the *Aman* rice. Also, the Vietnamese farmer does not have to pay the substantial land rent that the tenant farmer pays to the land owners. Compared to the costs incurred by tenant farmers in Bangladesh, unit costs are substantially lower in Vietnam.

Table 1. Cost of production of paddy in India, Vietnam and Bangladesh: 2007/08

(USD/ha)

	Mekong Delta, Vietnam	Punjab, India	Andhara Pradesh, India	West Bengal, India	*Aman* HYV, Bangladesh	*Boro* HYV, Bangladesh
Seed	26.69	16.02	22.49	17.85	17.21	18.14
Fertilizer	205.24	62.63	61.00	42.98	66.67	114.15
Manure	nil	3.29	14.04	9.85	5.45	14.46
Pesticides	56.50	34.75	30.03	4.59	5.85	11.88
Irrigation	34.88	94.48	25.79	38.17	2.80	149.76
Machine rental	36.65	115.81	58.30	26.11	60.44	59.15
Animal labour	nil	1.70	24.46	64.95	9.46	5.37
Human labour	288.66	128.87	242.94	253.76	235.50	278.80
Total cost	648.62	457.54	479.04	458.25	356.28	651.71
Yield (t/ha)	5.79	6.48	5.236	3.601	3.66	5.34
Unit cost ($/ton)	112.02	70.66	91.49	127.26	97.34	122.04
Price ($/ton)	145.79	160.60	160.80	167.50	207.96	182.74

Source: For India, RBI (2008); for Bangladesh, Sample survey of 62 villages conducted by BRAC in 2008; for Vietnam Ngan PH (2009)

In India, the cost of production is even lower than in Vietnam, mainly due to the lower cost of fertilizer (due to high subsidies) and labour. The cost of production is very low in Punjab and Andhra Pradesh, the states that generate most of the marketable surplus in India. In Punjab, the unit cost of production is about 45 percent lower than for *Boro* rice in Bangladesh, and 27 percent lower than for *Aman* rice. In the neighbouring State of West Bengal, the cost of production is comparable to Bangladesh.

The above analysis indicates that Bangladesh will not be able to compete in the world market for rice at the prevailing costs and market prices. Taking transport costs and trade margins into account, Bangladesh may

be able to withstand competition from Vietnamese imports, but is unlikely to be able to compete with imports from India (Punjab and Andhra Pradesh).

For wheat, India is in a much stronger position than Bangladesh. The cost of production is lowest in Punjab which has a favourable environment for growing wheat. The yield in Punjab is about 75 percent higher than in Bangladesh (Table 2). In India the cost of wheat production is also substantially lower because of higher fertilizer subsidies. The costs of other inputs are broadly similar. The unit cost of wheat production is about 125 percent higher in Bangladesh compared to Punjab, because of the low yields. The unit cost of production in Bangladesh is between 35 and 50 percent higher than other major wheat-growing states in India. The Commission for Agricultural Costs and Prices (CACP) in India, however, reports that the economic cost of the procurement of wheat by the Food Corporation of India (FCI) is higher than the world market price. Thus, at current prices, Bangladesh cannot withstand competition from imported wheat from the world market.

Table 2. Cost of production in the cultivation of wheat in India and Bangladesh: 2007

(US $/ha)

Cost Items	Punjab	Haryana	Uttar Pradesh	Madhya Pradesh	Bangladesh
Seed	26.74	29.05	36.63	33.48	52.54
Fertilizer	71.64	0.11	52.75	31.01	138.85
Manure	1.21	65.35	0.52	0.34	7.20
Pesticides	26.78	16.09	52.33	0.13	0.88
Irrigation	14.72	53.40	74.38	42.40	52.58
Machine rental	106.64	112.54	79.80	51.16	60.95
Animal labour	1.62	10.90	21.07	17.86	5.61
Human labour	79.86	113.66	97.93	74.29	106.39
Total cost	329.22	401.11	415.41	250.67	425.00
Yield (t/ha)	4.17	3.94	3.06	2.17	2.38
Unit Cost ($/ton)	79.03	101.93	135.62	115.73	178.57
Price ($/ton)	237.50	275.00	262.50	237.50	369.48

Source: For India, RBI (2008); for Bangladesh, Author's calculation from a sample survey conducted by BRAC for the 2007 wheat season

An analysis of the prices of three major agricultural inputs - urea fertilizer, irrigation and labour revealed that the price of urea is about one-third lower in India, but is roughly the same in Vietnam and Bangladesh. The difference in the price of fertilizer would not, however, make a large difference in unit cost of production, since chemical fertilizers account for only 15 percent of the total variable costs.

There are large differences in the cost of labour in different countries. A higher wage rate, however, does not necessarily lead to higher costs of production since the farmer may adopt mechanisation to address the scarcity of labour. Vietnamese farmers now use about 80 days of labour per ha of rice cultivation, compared to about 140 days in Bangladesh. Indeed, the substitution of agricultural machinery for human labour and animal draft power reduces unit cost of production. In Indian Punjab, where mechanisation is high, the costs of production, on account of power, is the lowest. Mechanization of agricultural operations is now proceeding rapidly in Bangladesh in response to the rising cost of labour, and an aversion to manual labour by the increasingly educated labour force.

The cost of irrigation is the major factor behind the high-cost of rice cultivation in Bangladesh, especially for *Boro* rice. The irrigation cost in Bangladesh (*Boro* season) is 60 percent higher than in the Punjab and four to five times greater than in Vietnam. The low cost of irrigation in other countries is mostly due to the subsidised supply of electricity (India) and subsidised public sector investment in the construction and the operation and maintenance of large-scale irrigation projects (Vietnam, India). In Indian Punjab, electricity is provided free for tube well irrigation and the farmer is also provided with free water from irrigation canals. In Bangladesh, the major source of irrigation is privately owned shallow tube wells and power pumps, mostly run by diesel. Diesel has now become a major agricultural input in the cultivation of *Boro* rice, and so the cost of *Boro* cultivation is very sensitive to the price of diesel.

Comparative advantage in crop production

Comparative advantage refers to the ability of one country, compared with another, to produce a good at lower cost relative to other goods. Under conditions of perfect competition and undistorted markets, countries tend to export goods in which they have comparative advantage. Because most markets in developing countries are distorted (because of import and export duties, taxes and the exchange rate) the comparative advantage involves by adjusting for these distortions.

Comparative advantage in the production of a given crop is measured by imputing the value of production and the costs of tradable inputs at the border price (world market price adjusted for transport cost and trade margins) and the opportunity costs of non-tradable inputs, and comparing the value added with the social and opportunity cost of producing, processing, transporting, handling and marketing an incremental unit of the commodity. If the opportunity cost of producing a crop in the country is less than the border price, then the country has a comparative advantage in producing that crop.

Shahabuddin *et al.* (2002) estimated the comparative advantage of producing rice and wheat in Bangladesh using recent input-output prices, market distortions and production coefficients (Table 3). The following conclusions can be drawn from this analysis.

- At export parity price, Bangladesh has a comparative advantage in the production of *Aman* rice. Bangladesh can gain by increasing production, provided surpluses can be exported to the world market. The *Aman* crop is, however, subject to high risks due to floods and droughts. If we make provision for frequent production losses, the normalized unit cost will be higher, and Bangladesh will not have comparative advantage at that cost.

- At import parity prices Bangladesh has comparative advantage in the production of *Boro* rice. Bangladesh will not be able to compete in the export market for this crop. But because of the transport costs and trading margins, the cost of importing these commodities into Bangladesh would be higher than the opportunity cost of producing them within the country.

- Bangladesh does not have comparative advantage in the production of wheat. The country will gain by importing these commodities, if the resources tied in the production of these commodities can be diverted to the production of other crops. The farmer in Bangladesh has already started shifting land from wheat to maize since the agro-ecological conditions are better suited to the production of maize.

Table 3. Financial and economic profitability, and domestic resource cost of rice in Bangladesh: 2000

Crop	Net financial return	Net economic return ($/hectare)		Domestic resource cost	
	($/hectare)	Import parity	Export parity	Import parity	Export parity
Rice	203	376	178	0.65	0.87
Deepwater *Aman*	87	176	84	1.29	1.49
Traditional *Aus*	22	110	34	0.61	0.76
Traditional *Aman*	143	260	138	0.58	0.71
Modern *Aman*	266	432	242	1.63	1.97
Modern *Boro*	215	425	177	0.69	0.97
Wheat	178	184	-	1.02	-

Source: Shahabuddin, Hossain, Mustafi and Narciso (2002)

The estimates of comparative advantage reported above will vary depending on the cost of production of the incremental output if Bangladesh embarks on achieving self-sufficiency and extends cultivation on marginal lands. The additional production will come largely from (a) the adoption of hybrid rice, (b) expansion of cultivation in

regions where rice cropping intensity is still low such as in the Sylhet and the Barisal regions, and (c) expansion of dry season irrigated rice farming in the coastal areas. The marginal cost of production will be lower for hybrid rice because of its yield advantage, and for dry season rice farming in the coastal belt because of the lower cost of surface water and tidal irrigation.

IMPLICATIONS FOR POLICY

1. World prices and the trade policies of other countries, especially India, affect domestic prices and availability of rice and wheat in Bangladesh. In view of this, the Government of Bangladesh should: (a) constantly monitor international prices and the prices and policies of India and other major rice and wheat exporting countries; and (b) regularly review the *Aman* and *Boro* production situation in Bangladesh, so as to set and modify its trade policy in an effective manner.

2. Bangladesh has a comparative advantage in rice production at import parity prices indicating that it would be cheaper to produce domestically than to import rice for domestic consumption. On the other hand, Bangladesh does not have a comparative advantage in rice production at export parity prices, indicating that Bangladesh is not currently capable of competing in the international market with its current production practices, prices and technology.

3. Bangladesh does not have comparative advantage in wheat production except in limited areas. This implies that Bangladesh should focus on promotion of other crops such as maize, potato and vegetables in the winter season instead of wheat, with domestic demand for wheat being met through imports from the international market.

4. The higher costs of irrigation using diesel-operated engines compared to electricity-operated engines in Bangladesh (when compared to India, Thailand and Vietnam) indicates that the country must provide electricity for irrigation if it is to attain a cost efficient irrigation system and reduce unit costs of rice production. Promotion of electricity operated irrigation systems will also help Bangladeshi farmers to achieve comparative advantage in rice production and may open up export opportunities.

5. There is also scope to reduce per unit cost of production, if the yield of rice can be increased by research and development of new rice cultivars and crop husbandry practices. Higher food grain output requires investment in agricultural research, technology dissemination and, most importantly, assured supply of inputs (fertilizer, quality seed, electricity and diesel for irrigation, and agricultural credit). Cultivation in seasonally fallow coastal lands

and in Sylhet division, and increasing efficiency in agricultural production, would also be needed.

6. On the question of self-reliance vs. self-sufficiency, Bangladesh should target self-sufficiency in rice production, which will satisfy domestic demand in normal production years. If there is a natural disaster or any other major events, which disrupts production, then Bangladesh will have to depend on the international market and buffer stocks to ensure food security. Food grain export restrictions imposed by exporting countries (e.g., India, especially on rice), mean that Bangladesh will have to undertake precautionary measures to ensure food security in disaster years.

7. One such measure would be to increase the level of current food stocks and involve the public sector more. To this end, Bangladesh will have to expand its targeted social safety net programs to ensure the food security of low income and poor households. Another complementary measure could be to enhance regional cooperation and take steps to establish the South Asian Association for Regional Cooperation (SAARC) Food Bank. If it is operated in an effective manner, it would be able to provide food to Bangladesh and other member countries when it is badly needed. In the national budget for 2008/09, the Government has already announced an expansion of the social safety net programmes of 3 million (30 lakh) tonnes. This must be effectively implemented.

8. There is currently a debate about estimates of food grain demand and actual production, which the Bangladesh Bureau of Statistics should resolve urgently by undertaking a thorough and consultative review with concerned experts.

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Box 1.

EXPORT RESTRICTIONS IMPOSED BY DIFFERENT RICE EXPORTING COUNTRIES
• July 6, 2007: Thailand and Vietnam, the world's top two rice exporting nations began three days' talks focusing on mutual co-operation in the rice trade in the hope of ending a price war between the two countries. • July 26, 2007: Chinese government introduced an export tax on major grain products. • September 3, 2007: Indonesian government increased import duty on rice from Rp 450 per kg to Rp 550 per kg (from USD 0.05 to USD 0.06 per Kg). • September 4, 2007: Vietnam decided to cease signing rice export contracts until next year • October 9, 2007: India's Cabinet Committee on Economic Affairs decided to ban exports of non-*Basmati* rice. • October 25, 2007: India's Cabinet Committee on Economic Affairs decided to exempt non-*Basmati* rice varieties from export ban, but set a minimum export price (MEP) of USD 425 per tonne for export in the global market. • December 02, 2007: India lifted rice export ban for cyclone-hit Bangladesh. However, it was communicated later on that Bangladesh will have to import rice from India through government agencies. • December 17, 2007: China's Ministry of Finance cancelled the value-added tax rebates on exports of wheat, corn, rice, soybeans and flour made from the products effective from December 20. • December 27, 2007: Indian government decided to raise the export price of rice from USD 425 to USD 500 per tonne. • January 3, 2008: Vietnam extended its suspension of duty on rice imported from Cambodia until 2009, and increased the tax-free limit by one-third to 200,000 tonnes next year. Vietnam has allowed Cambodian rice to be imported without tax since 2006. • March 19, 2008: India increased minimum export price (MEP) of non-*Basmati* rice to USD 650 per tonne. • March 27, 2008: Cambodia banned rice export. • March 28, 2008: India increased minimum export price (MEP) of non-*Basmati* rice to USD 1000 per tonne and for *Basmati* rice to USD 1,200 per tonne. • March 28, 2008: Vietnam government banned the signing of new export contracts up to June 2008. It added that Vietnam will reduce its exports by 22 per cent this year, compared to last year. • April 1, 2008: Egypt banned rice export for the period April 1, 2008 to October 2008. • April 1, 2008: India banned export of non-*Basmati* rice. • April 10, 2008: Vietnam imposed USD 750 tonne as minimum export price (MEP). • April 30, 2008: Thailand announced that four rice exporting countries (Thailand, Vietnam, Cambodia and Myanmar) will set up Organization of Rice Exporting Countries (OREC). • May 6, 2008: Bangladesh banned export of non-scented rice for six months • June 18, 2008: Vietnam has lifted a ban on rice exports. However, Vietnam will export only 3.5 million tons of rice.

[Continued...]

Box 1 (Continued…)

- Date not known: Thailand government (Samak Cabinet) decided to buy a total of 8 million tonnes of paddy rice from October 16, 2008 to February 2009. As is known, it might have a potentially huge budgetary burden to the tune of Bt120 billion for this scheme.
- September 15, 2008: The Thai Rice Exporters' Association asked the new government to lower the price-intervention level for main-crop rice in the upcoming harvest. The government currently buys white paddy rice from farmers at Bt14,000 per tonne as part of the market intervention programme, compared with the prevailing market price of around Bt12,000. According to the rice traders, the market price of Bt12,000 a tonne for white rice is still appropriate for farmers, given that production cost is now about Bt7,000 a tonne. Rice exporters argued that the country's rice trading system will be seriously damaged by such a price distortion and they would not be able to compete with other rice exporting countries.

Source: Authors' compilation

Box 2.

EXPORT RESTRICTIONS IMPOSED BY DIFFERENT WHEAT EXPORTING COUNTRIES

- June 22, 2006: Indian government imposed ban on export of wheat to Bangladesh.
- May 2007: Pakistan Economic Coordinating Committee (ECC) announced a ban on wheat exports effective from May 25, 2007.
- June, 2007: Ukraine, the world's sixth largest wheat exporter, introduced prohibitive cereal export tariffs.
- August 30, 2007: The Economic Co-ordination Committee (ECC) of Pakistan imposed ban on export of wheat flour (*atta*), super-refined wheat flour (*Maida*), India granulated but not pulverised wheat (*Suji*) and *baisen* (gram flour) through sea and rail routes. Over the preceding two and a half years, Pakistan was imposing an export ban on wheat to protect domestic supplies.
- October 9, 2007: India banned exports of wheat flour and extended the ban on exports of wheat for an indefinite period and extended the time period for restriction-free wheat imports indefinitely.
- December 20, 2007: China cancels the current export tax rebate on grain and grain flour products, including wheat, rice and corn.
- December 28, 2007: The Russian government raised the export tariff on wheat and blended flour (*meslin*) to 40% *ad valorem*, but not less than 105 Euro per tonne, effective 30 days from publication to April 30, 2008.
- January 14, 2008: The Indian government waived the export ban on wheat and wheat flour exports, permitting the sale of 17,000 tonnes of wheat flour to Maldives.
- February 19, 2008: Russia imposed temporary restrictions on wheat exports to Belarus and Kazakhstan due to attempts to re-export its grain produce through these countries.
- April 15, 2008: Kazakhstan introduced a ban on wheat exports in a bid to stem domestic inflation and stave off a repeat of last year's bread shortages.

Source: Authors' compilation

ABBREVIATIONS AND ACRONYMS

APC	Agricultural Prices Commission, India.
BADC	Bangladesh Agricultural Development Corporation.
BRAC	Bangladeshi NGO.
BWDB	Bangladesh Water Development Board.
CCAP	Commission for Agricultural Costs and Prices, India.
CIMMYT	International Maize and Wheat Improvement Center
CPD	Centre for Policy Dialogue, Bangladesh.
DAM	Department of Agricultural Marketing (Bangladesh).
ECC	Economic Coordination Committee, Pakistan.
FAO	United Nations Food and Agriculture Organization.
FCI	Food Corporation, India.
GOI	Government of India.
HYV	High Yielding Variety.
IRRI	International Rice Research Institute
Kcal	Kilocalorie.
Kg	Kilogram.
MEP	Minimum Export Price.
OPEC	Organization of the Petroleum Exporting Countries.
OREC	Organization of Rice Exporting States.
PFDS	Public Food Distribution System, Bangladesh.
QR	Quantitative Restriction.
RBI	Reserve Bank of India.
SAARC	South Asian Association for Regional Cooperation.
USD ($)	United States Dollar
WFP	United Nations World Food Programme.

GLOSSARY

Aman	Monsoon rice crop, Bangladesh.
Atta	Wheat flour.
Aus	Pre-monsoon rice crop, Bangladesh.
Baht (Bt)	Unit of currency, Thailand.
Baisen	Gram flour.
Basmati	Long-grained aromatic rice.
Crore	Ten million
Lakh	One hundred thousand.
Maida	Super-refined wheat flour.
Maund	Measurement of weight equal to 37.4 kg, Bangladesh.
Meslin	Blended flour.
Rp	Rupiah (unit of currency, Indonesia).
Rs	Rupees (unit of currency, India).
Suji	A granulated but not pulverised Indian wheat.
Taka	Unit of currency, Bangladesh.