



Agricultural Marketing, Price Stabilization, Value Chains, and Global/Regional Trade

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*Note: All references to taka (TK), the currency of Bangladesh, are based on the official exchange rate as of May 20, 2010: TK 69.35 per US\$1.

EXECUTIVE SUMMARY

While per capita foodgrain consumption has been stable, on average, in the last three decades in Bangladesh, there have nevertheless been important changes in food and agricultural markets during that period:

1. Price seasonality for foodgrains has decreased, due to the emergence of dry-season rice.
2. The quantities of food marketed have increased significantly because of urbanization and a growing population.
3. The direct role of the public sector in agricultural markets has declined.
4. The importance of high-value commodities, such as fruits and vegetables, fish, meat, and dairy products, is on the rise.
5. There is a shift toward the consumption of better quality food products.
6. The (small) share of processed food and modern food retail is increasing rapidly.

Most of the analysis of foodgrain and staple output markets indicates that these markets function quite efficiently for the well-connected areas—for example, market integration is high, and three-quarters of the final retail price of coarse rice is paid to the producer—benefiting from past investments in road infrastructure, the availability of mobile phones, and low barriers to entry for trade.

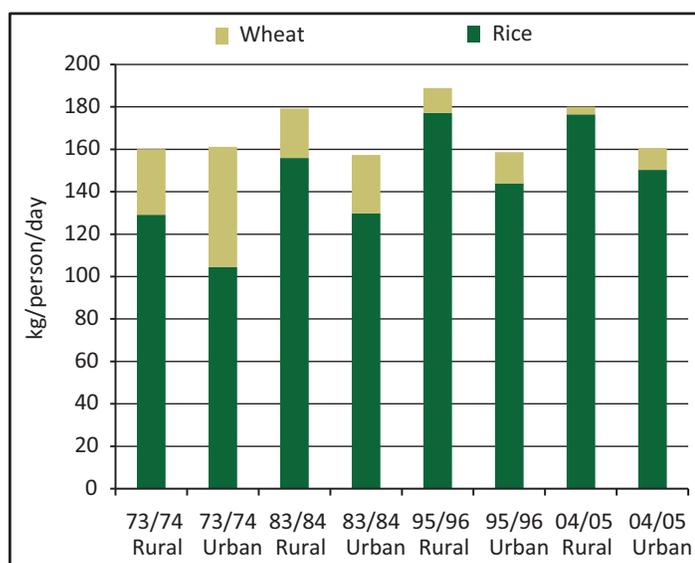
However, continuous investments are needed to stimulate the efficiency of these expanding foodgrain markets, as even small reductions in margins can lead to enormous benefits for producers as well as consumers. Various interventions and investments are further needed to assure that Bangladesh can successfully meet the challenges of production and marketing of high-value products, especially relating to food quality and safety. As shown by overcapacity in seafood and shrimp processing factories and in milk chilling plant collection centers, investments are required not only in hardware but in software as well. Several interventions are needed to establish a better integrated system of marketing and production to exploit the unrealized potential of the country: a change in policies toward an enabling environment conducive to private trade; infrastructure development; improved access to credit; research and development; and capacity building.

Agricultural trade has been an important contributor in Bangladesh to improved food security and price stability. For example, private sector imports have assured a price ceiling at import parity levels in the aftermath of major floods in 1998 and 2004. As the global price crisis has shown, however, the positive experiences with private trade might not completely eliminate the role of public food stocks. While Bangladesh is a net agricultural importer, it has also been successful in exporting cereals and high-value products such as shrimp and fish. This success has partly been due to preferential trade agreements. However, further investments are needed to assure that Bangladesh can adhere to increasing quality and safety standards and to prepare for a more liberalized international trade environment, once the Doha trade negotiations are finalized.

INTRODUCTION

The agricultural economy of Bangladesh is heavily dependent on rice. Almost three-quarters of total cropped land in Bangladesh is devoted to paddy cultivation, and per capita rice consumption is one of the highest in the world. Foodgrain consumption for an average person has stabilized over time at about 160 and 180 kg/person/year, in urban and rural areas respectively (see Figure 1). Rice is the main foodgrain product, while wheat makes up just 2 percent and 6 percent of total foodgrain consumption (urban and rural). Rice is important in the consumption basket of poor and rich alike; the poorest quintile consumes 139 and 146 kg of rice per capita, in urban and rural areas respectively. However, despite relative stability in consumption levels of foodgrains over time, several important changes have taken place—and continue to take place—in domestic as well as international food and agricultural markets.

Figure 1—Average per capita consumption of foodgrains

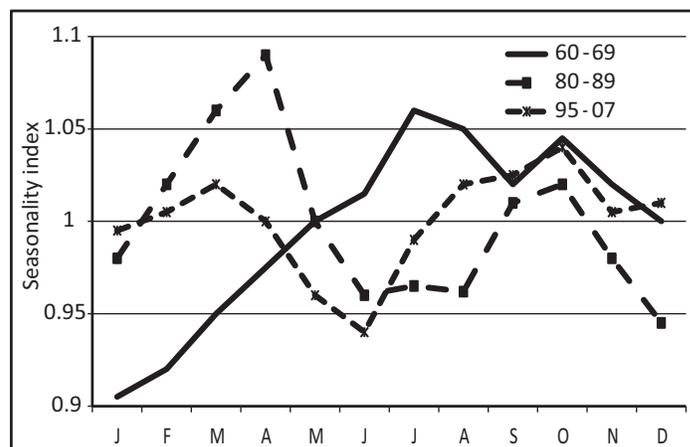


Source: HIES 2005.

DOMESTIC MARKETING

Six major changes are identified in the domestic markets over time. First, seasonality in foodgrain production and prices has changed drastically in the last decades (since the 1960s). Due to the proliferation of shallow tubewells and the development of high-yielding dry season rice varieties (*boro* rice), the share of dry season rice has increased from 10 percent of the country's rice production in 1966–67 to 61 percent in 2008 (Hossain 2009: 71–77). This change in production patterns has led to a change in price seasonality, that is, a reduced time between price peaks as well as diminished seasonal price spreads (see Figure 2). While the seasonal price spread was 15 percent between peak and trough in the 1960s, it has declined to less than 10 percent in the last decade.

Figure 2—Changes in rice price seasonality (prices over 12-month moving average)

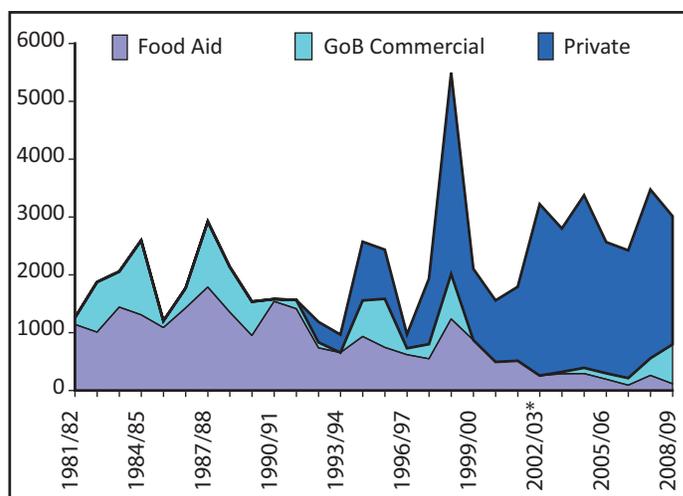


Source: Murshid et al. 2009; Chowdhury and Haggblade 2000: 73-100.

Second, the quantities of rice marketed have dramatically increased over the years. While it is estimated that production tripled since the 1960s, marketings (the proportion of harvest a farmer sells) have increased by a factor of six or more (Chowdhury and Haggblade 2000). Rice and paddy markets are very active. While about one-third of rural households are net sellers of rice, a large number of farmers who sell paddy at harvest will buy back rice at some point in the year (Klytchnikova and Diop 2006). Due to population increase as well as urbanization, it is expected that domestic marketing of rice and other staples will increase even further in the future.

Third, the share of procurement of the public sector in foodgrain markets has relatively declined over time. Since private foodgrain imports were legalized in 1993, large quantities are now being imported by private channels (see Figure 3). While the share of the public sector in total imports before that date was 100 percent, this declined to 25 percent in the beginning of

Figure 3—Imports of foodgrains by Bangladesh, 1981/82 to 2008/09



Source: Directorate of Food, Dhaka, Bangladesh.

the 2000s and to 9 percent in 2007/08. Similarly, government procurement from local rice and wheat production declined from 4 and 5 percent (respectively) at the end of the 1980s to 2 percent and 0 percent in 2007/08 (Chowdhury 2010).

Fourth, the importance of high-value and perishable commodities—such as fruits and vegetables, fish, meat, and dairy products—in the food consumption basket is increasing (World Bank 2008). Based on national household surveys in 2004/05, the share of these products was already evaluated at 40 percent and 49 percent of the food consumption basket in rural and urban areas respectively (see Figure 4). Given high income elasticities, this share is expected to further increase in the future. Using demand projections based on reasonable growth rates in incomes and population, it is estimated that Bangladesh would demand an extra \$8 billion of these high-value products by 2020 (World Bank 2008).¹

Fifth, there is a shift toward the consumption of better quality food products. Based on a recent survey of rice wholesalers in Dhaka, it is estimated that the lower-quality coarse rice makes up 28 percent of their total rice sales (compared to medium and fine rice, accounting for 43 percent and 29 percent respectively). Ten years ago, the share of coarse rice in the total wholesaler turnover was evaluated to be as high as 45 percent (Minten and Murshid, forthcoming). The increasing demand for quality rice is also seen in the rise of the share of automatic mills in the milling sector and of the share of packaged rice in rice purchases by consumers.

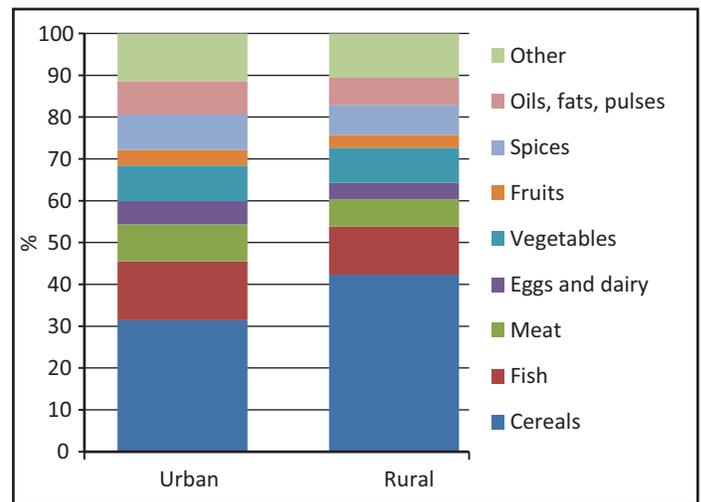
Sixth, the importance of modern retail and the processing industry has been growing and is expected to further increase in the future. While the share of processed products is currently still small, agroprocessing is estimated to have grown at 8 percent per year between 1985 and 2005. Rice mills are the most important in this sector, generating 40 percent of employment. Processing of high-value products is still limited, however. Modern food retail is currently also very small, making up less than 1 percent of urban food retail markets, but it is growing rapidly, as in a number of other Asian countries.²

Most analyses of foodgrain markets and staple markets indicate that both are working rather well in well-connected areas (Chowdhury and Haggblade 2000; Murshid et al. 2009; FPMU 2009). First, the share of the producer in the final retail price is high. Figure 5 shows the price structure for two common qualities of rice as well as potato, based on a survey conducted at the end of 2009 in Dhaka and two major production areas (about 200 kilometers from Dhaka). The share of the producer in the final retail price is estimated to be as high as 74 percent and 68 percent

¹ The transformation of agriculture is also reflected on the production side. Analysis of agricultural gross domestic product (GDP) shows that animal farming and fisheries are characterized by higher growth rates than the crop and horticulture sectors. In 2008/09, crops and horticulture accounted for 56 percent of GDP, while the share of fisheries and animal farming grew to 13 percent and 22 percent respectively.

² It is estimated that there are currently about 80 supermarket stores in the country. However, their number is growing quickly. In other Asian countries, modern retail accounts already for 10 percent in food sales in China, 30 percent in Indonesia, and 40 percent in Thailand.

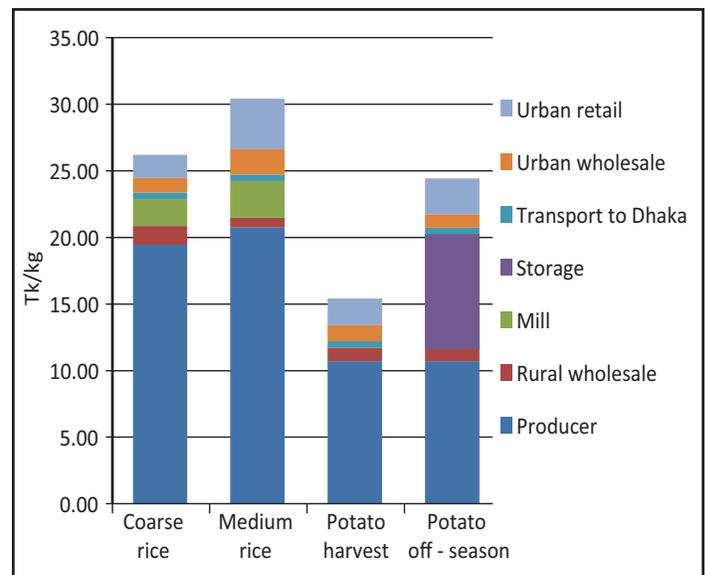
Figure 4—Per capita food expenditures in Bangladesh



Source: HIES 2005.

for coarse rice and medium rice respectively.³ Similar results were found by Murshid et al. (2009) in another survey. One-third of this realized price for the farmer was going to reward his production factors (Minten and Murshid 2010). Even for a perishable commodity such as potato, the producer share was as high as 70 percent at harvest time. In the off-season, however, potato prices increased significantly, and rewards to storage were quite high (but this might not be the case every year). Urban wholesale, rural wholesale, and transport contribute relatively little to the final price of foodgrains and staples.

Figure 5—Price structure of rice and potato (Dhaka, November 2009)



Source: Minten and Murshid, forthcoming.

³ A similar survey found that marketing and transformation costs for rice in India are about 30 percent more expensive than in Bangladesh.

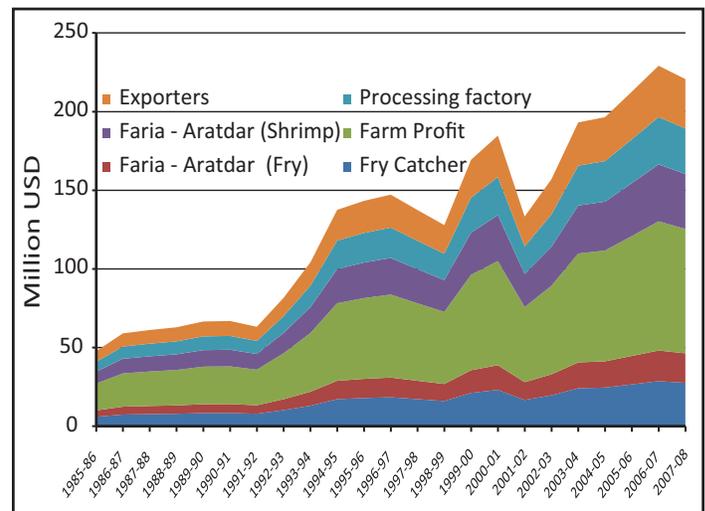
Second, in contrast with the situation earlier (see for example Ravallion 1986), foodgrain markets seem to have become well integrated over time and space (Murshid et al. 2010), possibly driven by the large investments in road infrastructure by the Bangladeshi government (and by donors) as well as by the larger availability of mobile phones (Chowdhury and Torero 2005). This result implies that information on foodgrain markets circulates well, so that foodgrains flow from surplus to deficit areas when needs arise. There also seems to be little collusion between traders to fix prices, except for short periods (Murshid et al. 2009; Goodland 2001). The increasing importance of the private sector in agricultural trade, low barriers to entry in trade, and a competitive environment seem thus to have contributed significantly toward improved food security for the country.

On the other hand, price instability is an important challenge for the government in the liberalized food and agricultural markets of Bangladesh (Chowdhury et al. 2009; Goletti 2000: 189–212; Dorosh et al. 2004). Goletti (2000) shows that overall price stabilization in Bangladesh is an especially political question as the economic benefits and impacts on poverty alleviation are limited while the costs of achieving stability might be sizable. Although the government intervenes in product markets in order to stabilize prices, its impact has been constrained given that procurement prices and Open Market Sales (OMS) prices do not function as floor and ceiling prices, as the quantities bought and sold at this price are limited (Dorosh et al. 2004). For example, OMS over total market supply never reached more than 2 percent in the four years prior to 2010 (FPMU 2009). Instead of price stabilization, the government policy has been to provide targeted subsidies to the poor through the Public Food Distribution System (PFDS). The functioning of this system and recommendations on its improvement are discussed in one of the other thematic papers.

The changing demands in domestic and international markets for high-value product markets create challenges as well as opportunities for existing food supply chains. Growing demand for high-value products might provide extra opportunities, especially for rural areas. First, it generates greater employment. The export of shrimp and fish directly employs more than 600,000 persons, and it is estimated that 70 percent of the jobs related to agroprocessing in Bangladesh are generated in rural areas. Second, high-value product markets lead to higher income for farmers. For example, when assigning net profits of the export value chain of shrimp to the different stakeholders, it is shown that the biggest share of the extra earnings directly benefits farmers. Figure 6 shows that farmers' profits make up one-quarter of the total net income—higher than any other stakeholder.

On the other hand, there are also significant challenges in high-value markets. For example, 90 percent of Bangladesh's milk production is produced by smallholder and landless farmers in rural areas, but due to a weak and fragmented value chain only 9 percent reaches the growing urban markets, requiring the country to import 30 percent of its total dairy consumption

Figure 6—Net income of various stakeholders involved in Bangladesh shrimp export



Source: Deb and Bairagi 2009.

Note: *Faria* and *aratdar* are types of marketing intermediaries.

needs. Large formal sector processors (such as BRAC and PRAN Dairy) have built chilling plant collection centers throughout the country but most are operating significantly under capacity, indicating that building hardware infrastructure alone is not sufficient. Two-thirds of smallholder farmers and half of landless farmers own dairy cows, but their dairy practices are usually limited to traditional subsistence farming techniques. Even with improved knowledge of productivity- and income-enhancing practices, opportunities for smallholder farmers are constrained by lack of access to quality inputs (such as veterinary services, concentrate feeds, and artificial insemination) and lack of access to output markets for selling milk.

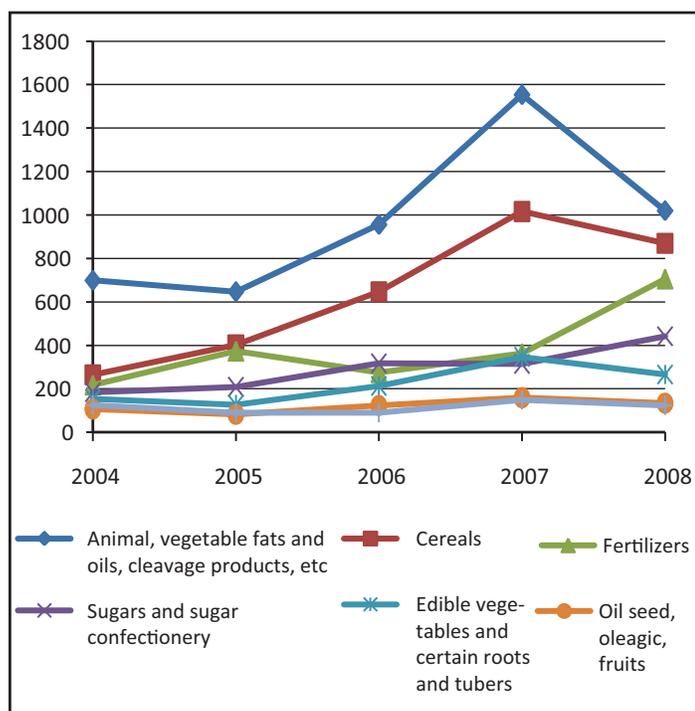
GLOBAL AND REGIONAL TRADE

Trade is an important tool for achieving food security and price stability for several reasons. First, well-designed trade liberalization based on comparative advantage will increase economic growth and raise income through specialization. Second, trade allows for importing food products at a lower cost from regional and world markets. However, such a situation can also be risky at times when exports are restricted, as seen in the recent global food crisis. Third, imports of farm inputs such as fertilizer, machinery, and seeds are often critical to enhance the productivity of the agricultural sector. However, whether Bangladesh can take advantage of the contribution that trade can make to improved food security and price stability depends not only on its own production decisions but also on its success in coordinating national trade policies with regional and multilateral trade opportunities.

Bangladesh is overall a net agricultural importer. The country's food imports accounted for 16 percent of total imports in 2008 (Figure 7). Main food imports are concentrated in cereals (almost \$1 billion⁴ in 2008), vegetable oils, sugar, and vegetables. Exports of agricultural products by Bangladesh have steadily increased, almost tripling in the last two decades, from \$306 million in 1990/91 to \$870 million in 2008/09. Exports of raw jute, frozen foods, vegetables, fruits, tobacco, and other primary products have increased over time, but exports of tea declined due to increased domestic demand and declining productivity. The fishery sector (mainly shrimp) dominates Bangladesh's food exports (Figure 8), reaching more than \$500 million in 2008.

Agricultural imports are an important part of any food security strategy in Bangladesh. For example, private sector imports have assured a price ceiling at import parity levels in the aftermath of the floods in 1998 and 2004. Moreover, the stimulation of domestic production of foodgrains to relieve the country's dependence on food imports may not suffice to improve its trade balance or guarantee price stability. Higher local foodgrain production could, for example, lead to a deepening of the net trade deficit on fertilizers, which reached \$700 million in 2008 (Figure 9), almost as high as the value of imports of cereals. Even though higher reliance on imported chemical fertilizer might increase local production and possibly reduce food imports, it would at the same time expose Bangladesh to further volatility in the world markets, given the strong correlation between fertilizer and energy prices.

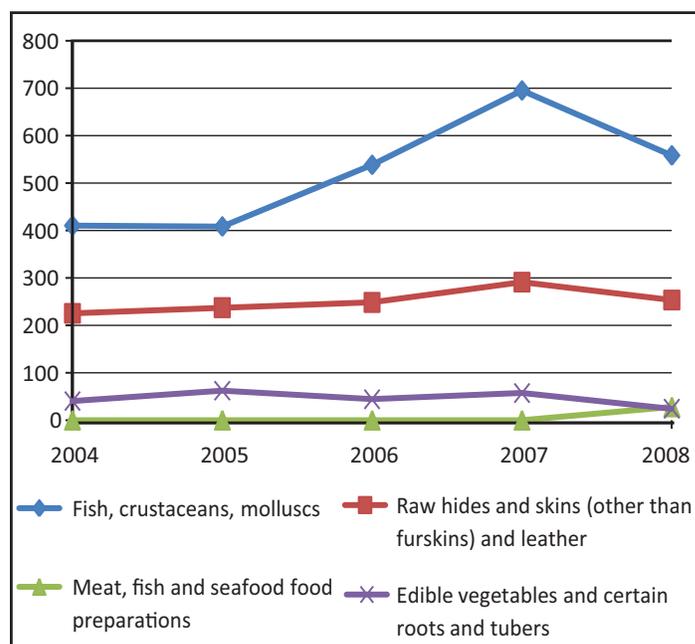
Figure 7—Agricultural imports (\$ millions)



Source: Comtrade, Mirror trade values for 2008.

⁴ All dollar figures are USD.

Figure 8—Agricultural exports (\$ millions)



Source: Comtrade, Mirror trade values for 2008.

There is a high degree of concentration in exports and imports of key products, with the three most important trade partners representing 75 percent of market share in most products. This is potentially risky, and efforts should be made to diversify the trade pattern. However, this high level of concentration is partly related to the structure of world markets: palm oil from Malaysia and Indonesia; soyabean/oil from Argentina, Brazil, and the United States; sugar production from Brazil, Thailand, and India. The share of rice imports from India has also increased over time because (a) it is quicker and cheaper to bring in 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 (Deb et al. 2009). It seems, therefore, that the scope of diversification for these products will remain limited.

Over the past three decades, Bangladesh has undertaken a series of policy measures toward liberalization of agricultural trade. Bangladesh has removed quantitative restrictions on trade flows, reduced tariffs, and established a market-based floating exchange rate. Policy reforms were carried out for both input and output markets in agriculture. The private sector and nongovernmental organizations (NGOs) are now allowed to import any improved germplasm for research and development and to develop facilities for producing foundation seeds. They are also allowed to import and sell seeds, with the exception of five notified crops (rice, wheat, sugarcane, potato, and jute).⁵ Output market-related reforms were carried out relating to the food procurement and distribution system, import of foodgrains, reduction in tariff rates, and removal of quantitative restrictions.

⁵ For importing seeds of notified crops, the private sector and NGOs have to observe some procedural formalities.

At the global level and for all products combined, Bangladesh now faces an average tariff of 4.4 percent on its exports, much lower than the tariff it applies to its imports (17.2 percent). This reflects, on the export side, the country's participation in various preferential schemes (such as the General System of Preferences). On the import side, Bangladesh has the status of a least developed country (LDC) in the World Trade Organization (WTO), which makes it subject to special and differential treatment.

Agriculture on average is more protected than industry. However, the gap between the average tariffs applied to agriculture and industry is much smaller, at 19.7 and 16.7 percent respectively, than observed in the rest of the world (Boumellassa et al. 2009). In the agricultural sector, food products are more protected, at more than a 21 percent tariff, than nonfood products, at 14 percent. This pattern is in line with world averages, but it still reflects significant tax levels for food consumers. The most protected products are sugar, fisheries, dairy products, rice, and vegetables. Compared to its South Asian partners, Bangladesh applies equal or higher tariffs for imports. On exports, the tariffs faced by Bangladesh follow a more heterogeneous pattern, driven by products subjected to high protection globally such as sugar (91 percent), paddy rice (77 percent), wheat (52 percent), and processed food (58 percent). Bangladesh faces the highest tariffs from India, especially for agricultural and food products: 80 and 70 percent for paddy and processed rice, respectively; and 100 and 98 percent for wheat and vegetables and fruits, respectively.

Bangladesh has relied heavily on export subsidies to boost growth of shrimp and vegetable exports in the last ten years. While these subsidies have been successful and have increased income in the exporting sector, the efficiency and sustainability of this policy may be limited. While export subsidies can help to launch an activity, give farmers incentive to innovate, and help traders to establish new networks, they may not be maintained in the long run for several reasons. First, the cost of a subsidy program will rise with an increase in the value of exports. This then becomes an important fiscal cost for the country. Second, the subsidy creates artificial specialization, a concern especially for the shrimp industry that concentrates resources in specific markets that may have potentially negative environmental externalities. Third, while multilateral disciplines on export subsidies will probably not affect Bangladesh soon (as an LDC), it will be difficult to implement good practices in the region and eliminate trade distorting policies if some countries want to keep their own (non-cooperative) trade tools.

The EU market grants the largest value of preferences to Bangladesh, totaling \$40 million in 2004 through the "Everything but Arms" initiative. India follows, with preferences totaling a twentieth of the value of the EU's preferences. Crustaceans and sugar products exported mainly to the EU market benefit from large preferential margins, due to high tariff rates to most importers in the European Union. While this demonstrates the role and value of preferences for Bangladesh, it also indicates the

risk of overspecialization for Bangladesh if its preferences were to be eroded under the Doha Trade Round. The utilization rate of existing preferences in the EU markets for frozen shrimp and prepared shrimp was between 60 and 70 percent. Efforts to bring this rate to 100 percent could lead to more than \$10 million in extra benefits a year. In the U.S. market, the rate of utilization of the preferential scheme for various vegetables is also low, but the amount at stake is more limited (\$100,000). In any case, both examples illustrate the potential difficulty of taking advantage of existing preferences in these markets.

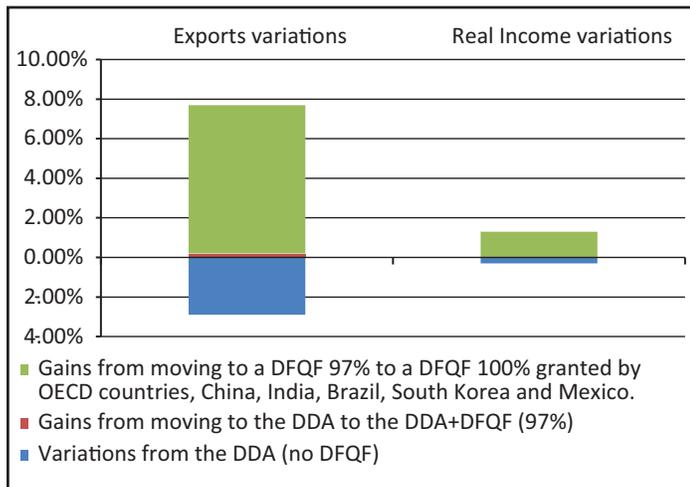
The South Asian Free Trade Area (SAFTA) agreement came into force in January 2006, paving the way for the most significant step toward intensified trade integration in the region. Bangladesh's gains in the current SAFTA agreement, however, are not obvious, especially since it will generate large trade deviations that will particularly hurt Bangladesh, with its high initial tariffs. Simulations show that Bangladesh is the only member of SAFTA for which liberalization in SAFTA leads to (small) negative changes in real income (Bouet, Mevel, and Thomas 2010; Bouet and Corong 2009). The current agreement limits Bangladesh's potential exports of sensitive products to key partners (especially India) that will maintain high protection on many products. The full Free Trade Agreement scenario—exempting Bangladesh's sensitive products—will not improve the overall outcome significantly. Only a more ambitious scenario, tackling inefficient trade-distorting subsidies, will improve its situation. Therefore, it seems there is a need to focus investments on long-term policies to compensate the effects of suppressing existing subsidies with their high efficiency costs.

The Doha Round of trade negotiations was launched in 2001, and although negotiations have moved slowly, it is expected to produce a conclusion of the round in 2011 or 2012. Bangladesh must be prepared to tackle its conclusions in global trade policies in the coming years. Without an ambitious Duty Free Quota Free (DFQF) initiative in the Doha Round, Bangladesh will suffer adverse effects, with a decline in exports and real income (see Figure 9). These results arise from the combined effects of preference erosion, increases in agricultural prices in world markets, and an absence of domestic reforms driven by the Doha negotiations. To avoid such a situation, it will be important for Bangladesh to diversify its export structure (products and markets) as well as move up in the quality range, to avoid the main effects of preference erosion and the increase in price competition.

In the case of an ambitious DFQF (100 percent, with participation of large emerging countries), it will be important for Bangladesh to grasp the new market opportunities generated by the new preferences as soon as possible, in order to maximize income growth. New food imports and domestic production increases will be needed to support the growing demand. It is expected that investments related to trade facilitation measures will be part of the Doha agreement and will benefit from the Aid for Trade package offered by developed countries,

ensuring a better price for exporters and a lower price for buyers of imported food by reducing inefficient trade costs.

Figure 9—Effects of the Doha Development Agenda trade negotiations on Bangladesh



Source: Bouet, Laborde, and Mevel 2008.

Notes: MIRAGE CGE model.

DDA = Doha Development Agenda; DFQF = Duty Free Quota Free

INTERVENTIONS AND INVESTMENTS

Continuous investments are needed to further stimulate the efficiency and competitiveness of expanding foodgrain markets, as even small reductions in margins can lead to large benefits for producers as well as consumers.⁶ Producing and marketing high-value products successfully requires a range of interventions and investments, including a change in policies toward an enabling environment conducive to private trade; infrastructure development; improved access to credit; research and development; capacity building; and taking advantage of international trade.

Policy changes toward an enabling environment conducive for private trade

A better regulatory framework and management structure of local markets is needed. Local markets are currently governed by a multitude of institutions, and the fees charged to traders and farmers are often not clear and transparent. Moreover, the fees collected on markets often go toward other purposes than market development and service provision for farmers and traders, serving merely to increase transaction costs for participants in the value chains, leading to lower prices for producers

⁶ To take a simple hypothetical example: if we assume 10 million tons of rice marketed annually in Bangladesh (paddy production in 2007/08 was 29 million tons, representing about 19 million tons of rice), saving 1 taka/kilogram in the marketing margin would lead to annual benefits of 10 billion taka (\$150 million), to be distributed between producers and consumers. Depending on assumptions on marketed shares, these benefits can go up or down. (Unfortunately, no good data on the marketed share of agricultural products are available.)

and higher costs for consumers. Market management should be better streamlined by amending various market-related laws, improving market monitoring systems, and rationalizing market charges.

As high-value product value chains are more demanding in food safety and quality standards, greater attention is required for certification and quality enforcement (for both inputs and outputs) and for adherence to quickly changing standards. While Bangladesh has been able to address previous shortcomings in this area—by, for example, having been allowed exports into EU markets (Alam and Pokrant 2009)—further initiatives are needed to improve controls over pesticide use, increase food safety standards, and reduce contamination of heavy metals such as arsenic, even in domestic markets. This must include the strengthening, reforming, and enforcement of institutions such as the Department of Agricultural Marketing (DAM), the Hortex Foundation, and specific quality certification systems.⁷

Export market policies need to be reformed to better contribute to Bangladesh's growth. Although price distortions in Bangladesh are currently low (Ahmed et al. 2009: 305–337), the government has relied heavily on subsidies, tax exemptions, and export benefits to promote agricultural exports. The effectiveness and efficiency of these subsidies remain unclear (World Bank 2005). For example, the seafood processing sector remains attractive for continuous investment, even though capacity is largely underutilized. Estimated subsidies for fruit and vegetable exports were 60 percent of their FOB value in 2003/04, calling into question the fiscal sustainability and appropriateness of this scheme. Further export supports should be done in such a way as to enhance capacity and efficiency of the value chain actors.

Marketing infrastructure development

Given the importance of quality and safety in high-value, perishable agriculture products, as well as the expanding production and trade in foodgrains, appropriate marketing infrastructure is required.

Efficient transportation and product handling is a crucial requirement for trade of agricultural products and is an important factor in assuring good prices and alleviation of poverty in rural areas (Khandker, Bakht, and Koolwal 2009). This requires investments and improved maintenance⁸ of road and port infrastructure, as well as improvements in railway container handling and enhanced air cargo capacity. These investments should be carefully weighed against the expected export potential. Just as important as infrastructure improvements, modifications of policies, processes, and management are needed to improve appropriate and timely shipping of high-value products (World Bank 2005).

⁷ The ADB and the FAO have recently started investments in this area.

⁸ Repair and maintenance of existing roads often have even higher returns than new construction.

For easily accessible areas, the share of total transportation is only 2 percent of the final retail price of foodgrains.⁹ Further reductions of transportation costs in well-connected areas will thus contribute little to higher producer and lower consumer prices for foodgrains, but they might have more impact on the adoption of more perishable crops. The biggest payoff of infrastructure development for food security and poverty reduction would be achieved by focusing these additional road infrastructure investments on backward areas such as chars, manga areas, river-erosion belts, mono-cropped areas, and hill tracts (Chowdhury and Torero 2005).

Assembly and wholesale market infrastructure is deficient, and Bangladesh would benefit from upgrading these markets. Most of the assembly, wholesale, and retail markets tend to be highly congested and lack much-needed basic facilities such as potable water, toilets, sewage systems, loading spaces, and storage facilities. Poor market infrastructure contributes to important losses in high-value food market chains.^{10,11} Bangladesh might further benefit from establishing more ice plants in rural areas, to improve the quality of fish and shrimp products.

To enable Bangladesh to adhere to the increasingly important food safety requirements for high-value products, investments are needed in laboratory and testing infrastructure to make them compatible with international standards. This will require modern equipment, skilled manpower, and enforcement of Hazard Analysis and Critical Control Points (HACCP) operations to control all types of food contamination (as suggested by the Plan of Action (PoA) of the National Food Policy). The Bangladesh Standards and Testing Institution (BSTI) currently lacks capacity and equipment to carry out some of the more demanding tests. Proof of adherence to these tests will be increasingly important in export markets, as well as for more demanding local markets.

While not specific to the agroprocessing sector, electricity provision was cited by agrifood processing firms as the most important constraint for doing business in Bangladesh, in a large recent business survey. Lack of consistent and reliable power, along with difficulties of connection, will continue to be a bottleneck for value-addition plans in horticulture, meat and dairy, poultry, and fish and shrimp products. Major new power plants are required to generate the additional small- and industrial-scale capacity that Bangladesh needs. To stimulate investments in processing, this constraint should urgently be tackled.

⁹ This is based on a survey of rice producers in Noagoan, a district located 200 kilometers north of Dhaka (Minten and Murshid, forthcoming). Transportation costs might be higher or lower depending on exact distances from the consumption zones.

¹⁰ The extent of these losses might have been exaggerated. In the case of potato, these losses were valued at a quarter of the production (World Bank 2008). However, in a careful recent potato value chain study which asked different stakeholders about their losses, this number was evaluated at 6.4 percent (in the off-season).

¹¹ To improve the governance of these markets, the PoA suggests involving local communities, institutions, NGOs, and the private sector to manage and plan them.

Bangladesh could further establish commodity exchanges for rice in major growing areas, supported with both hardware and software components. Such investments would significantly improve price discovery in trade. However, as recently shown in Ethiopia, traders may not be easily persuaded to participate in such modern trading platforms. Such exchanges would seem to be a priority in the long-run.

Credit

Access to timely credit might benefit stakeholders in agricultural value chains in several ways. First, small and medium farmers in particular are shown to rely on credit markets to pay for input costs. The need to pay back these input costs, or other pressing cash needs, pushes some of these farmers to sell immediately at harvest time when prices are low (Goodland 2001). Easier access to inventory credit or “farmer credit cards” might help to address this constraint. The first intervention attempted—a warehouse receipt system—received mixed reviews in Bangladesh (Goodland 2001). Farmers’ credit cards in India (*kisan* credit cards) have been a rather successful intervention in reducing the importance of the informal sector in credit markets, often characterized by predatory interest rates.

Second, other value-chain actors should all have similar facilities, to achieve operational efficiency. For example, access to finance is mentioned by agroprocessing firms as an important constraint in doing business in Bangladesh (World Bank 2008). There will thus be benefits from stimulating access to credit for these businesses as well as for agricultural traders. On the other hand, even without credit access, the presence of a large number of small traders working with low levels of working capital has contributed significantly to the competitive trading environment in Bangladesh.

Research and development

Additional research into the improvement of input markets as well as the output of high-value products is needed. Several studies show that there are high returns to investments in agricultural research and development (Alston et al. 1998; Fan, Gulati, and Thorat 2008). Traditionally, the majority of the limited resources in agricultural research in Bangladesh have been directed toward rice, developing new varieties that have contributed to dramatically increased production levels. Similarly, the development of productive high-value products will require significant and sustained investment in several areas: the development and distribution of better seed varieties for horticulture plants—a major bottleneck in current value chains (Weinberger and Genova 2005); improved breeds for livestock and fisheries; disease and health management; processing of high-value products; and post-harvest management. These investments must be a priority for improved functioning of high-value product chains.

There is also a lack of research and information on the functioning of output markets. Studies are hampered by the lack of reliable data on these sectors, and investments are needed to improve the information base (World Bank 2008). Market actors, especially exporters, miss out on opportunities because information is not available or current. Market studies are needed to better understand how to comply with the requirements of potential importing countries. An assessment of the constraints in access to information on marketing performance is also a necessity.

Another problem in promoting high-value products is that, because of higher investments and risks, the poorest households are less likely to participate in these markets (World Bank 2008). Encouraging farmers to pool resources and market produce together can reduce marketing costs through economies of scale; however, such cooperatives—outside the milk marketing sector—have a poor track record in South Asia and Bangladesh. There are nevertheless some success stories of effective producer marketing organizations in Bangladesh that need to be better understood, in order to be replicated in different settings.

There is currently not enough emphasis on evaluation and impact studies of investments and interventions in the marketing sector. There is a lack of large-scale studies that might carefully document the effects of investments and policies, and that quantify the impact on different population groups. Because of the lack of such reliable data, few cost–benefit analyses of the impact of market interventions have been done, hampering the rational setting of priorities. Such solid evaluations are a priority for the development of the sector.

The establishment of agro-export and processing zones, along with better vertical linkages between farmers and buyers (such as contract farming and vertical integration), can help to overcome some of the risks inherent in the marketing of high-value products. For example, Chowdhury and Torero (2005) show that contract farmers in Bangladesh benefit from such contracts.¹² Lessons learned, for example with respect to contract farming and producer organizations, would help guide future initiatives in this area.

Capacity building

Capacity building is required for various market participants. Extension systems at the farm level are especially important given the often quickly changing requirements of food quality and safety regulations and the availability of new technologies in high-value agricultural markets; such systems should use private–public partnerships and include marketing extension programs.

¹² By meeting buyer specifications, production and marketing contracts have the potential to reduce the mismatch between supply and demand regarding the quality and variety of produce, thereby eliminating unnecessary production costs and reducing product waste. In many instances, produce buyers team up with growers to provide technical assistance (for example, greenhouse growing techniques) and supplies (including, netting and drip irrigation equipment). In some cases, buyers extend production credits to growers as a way to overcome credit constraints.

Awareness programs for other stakeholders in the value chain, including government bodies such as the Ministry of Agriculture or the Ministry of Commerce, are equally needed, given their lack of knowledge on these issues (Dasgupta, Meisner, and Huq 2007). Vocational training centers should be established (such as for aquaculture) to improve labor quality and productivity.

Market information systems have to be developed to enable farmers and traders to react quickly to changing structures. The government could stimulate the use of innovative models using information communication technologies (ICT) to provide farmers and traders with updated market information based on early warning systems. Forecasted supply, demand, and price information could be provided, based on Geographic Information System-facilitated crop and price mapping (that is, by agroecology). Relatively low-cost mobile phones and other ICT can provide an efficient way to shorten geographic distances and empower dispersed and underserved rural populations, by giving them access to agricultural prices and other technical information, as well as modern financial services. There have been some unsuccessful trials in Bangladesh of improved information access for farmers through ITC (Ahmed and Lentz 2008); the lessons learned from these failures, as well as from successes elsewhere, can be integrated in future programs. For example, India has successfully experimented with some price and extension information systems through mobile phones (Mittal et al. 2010).

Well-functioning commodity and industry organizations can be an effective vehicle to ensure efficient functioning of the value chain. These can help to build much required trust between different actors in the value chain, as well as with the government. They can also be used toward effective information sharing on market challenges and opportunities for particular sectors. Strengthening the capacity of these organizations is important. Such institutional structures might have high payoff for improved organization of the value chain.

International trade opportunities

Exports of fish, shrimp, and other food products should be encouraged. Two interventions are needed. First, improved processing can help Bangladesh cope with both the expected increased price competition from emerging competitors and with the potential erosion of trade preferences. To be successful, such a strategy should be supported by investments in increasing quality and promoting conformance with the public and private standards of destination markets. Second, the impact of the export cash subsidy program (that is, the reduction of marginal export costs) should be carefully assessed and possibly replaced by long-term investment policies that instead reduce fixed production and trading costs in order to support the sector. All of this will create a better platform for more diversified exports, as these facilities will be used for other products and to help access other markets, and these measures should also help to improve the quality of exports. On the import side, it is desirable to reach a more diversified pattern of consumption across commodities to reach

a better balance in suppliers, by, for example, optimizing the mix of cereals, oilseeds, and the like.

Even though Bangladesh already benefits from trade preferences, it appears that many food sectors have underutilized their preference potential for the EU market. Many food and tobacco sectors in which Bangladesh effectively exports in some markets have large neglected preferential margins. The livestock sector (namely, dairy products) and some quality cereals show high potential for benefits.

Limiting trade liberalization to SAFTA countries does not provide an attractive market for Bangladesh exports; a wider agreement involving more countries would be more beneficial. At this stage, multilateral liberalization seems a better strategy since

it will avoid losses related to trade deviation. However, SAFTA might be valuable under certain circumstances: (1) if it includes additional measures targeting trade-distorting subsidies, cooperation policies to avoid export taxes, and export bans; (2) if it is aimed to reduce informal trade, beyond tariff reduction (which will not be sufficient); and (3) if regional policy helps Bangladesh to reap the gains of the agreement, by reducing transportation costs and limiting the market powers of larger economies through regional competition policy.

Table 1 provides an overview of the marketing reform objectives discussed in this section, for the six areas of marketing development, distinguishing between short-term and long-term priorities.

Table 1—Goals of marketing reform efforts

| Areas | Short-term priorities | Long-term priorities |
|-----------------------------|---|---|
| 1. Policy changes | Develop better regulatory framework for local markets and for agribusinesses Strengthen quality certification schemes Improve export/import procedures and processes | Develop commodity exchanges Support modern retail by establishing contract production and supply system |
| 2. Marketing infrastructure | Invest in expansion and creation of assembly and wholesale market infrastructure (drainage, potable water access, storage facilities) Invest in cargo handling Invest in laboratory and testing infrastructure | Invest in establishing agro-export and processing zones Support private sector investments in cold storage and warehouse system Invest in the development of cold chains from producers to consumers Construct and protect an integrated base of marketing and production of rice in appropriate zones Invest further in road infrastructure in underserved areas |
| 3. Credit | Assure availability of investment credits for agroprocessing and other value chain actors through the creation of a specialized fund Establish farmers' credit cards | |
| 4. Research and Development | Improve data and information base Improve agricultural marketing research (in collaboration with DAM) Better understand triggers for success of market producer organizations/cooperatives and sustainable contract farming models | Improve impact evaluation of input and output marketing interventions and derive lessons learned Develop and improve forecast models of demand, supply, and prices of products Develop technology for the preservation and transportation of perishable products |
| 5. Capacity building | Improve extension systems, including marketing extension, toward better crop production and marketing practices Establish vocational centers to build capacity of farmers Strengthen capacity of commodity and industry organizations to provide services to members and to better assure private sector considerations in public policy Improve capacity building in trade policy analysis to promote Bangladesh priorities in trade negotiations | Improve market information systems, possibly through ICT Establish producer marketing organizations |
| 6. Agricultural trade | Assess effect of cash export subsidies and potentially revise toward sustainable models for capacity development Use trade preference schemes more effectively | Further diversify trade partners Diversify export structure |

CONCLUSION

Agricultural trade has been an important contributor to improved food security and price stability in Bangladesh. As the global price crisis has shown, however, the positive contribution of private trade might not completely eliminate the role of public food stocks. Even so, there are important opportunities to expand the scope of international trade in agricultural products.

Bangladesh has been successful in exporting cereals and high-value products such as shrimp and fish, in part as a result of preferential trade agreements. With well-targeted policy reforms and investments (detailed in the previous section), Bangladesh has the opportunity to increase exports in these areas while meeting relevant quality and safety standards. Such an approach is essential to prepare Bangladesh for a more liberalized international trade environment once the Doha trade negotiations are finalized.

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