



BIDS

Policy Brief

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Managing Rice Value Chain for Improved Food Security in Bangladesh¹

1. Background

For the Bangladeshi people, rice is the staple food with an estimated per capita consumption of 152 kg per year which is one of the highest in the world. Around 15 million households, equivalent to more than half of the country's population, are engaged in rice production. In addition, millions more are involved in post-harvest, marketing, distribution and other activities related to rice production and consumption. It is therefore not surprising that rice plays a key role in food security in Bangladesh. The volume of rice production was only 10 million metric tons in 1972. During the following decade, average annual production of rice was 12.3 million metric tons, which has risen to about 34 million metric tons in 2013.

It is well known that the underlying dynamics in the rice value chain have a profound impact on business relations and the livelihood of the involved people including the rice farmers. The profit margins also vary both vertically and horizontally in the rice value chain due to market imperfections, unequal bargaining power among different value chain players, asymmetric flow of information, and other factors influencing the functioning of the chain. For understanding the dynamics

of the rice market and devising effective policies for ensuring food security, it is important therefore to produce systemic and evidence based knowledge on various aspects of the rice value chain in Bangladesh and their impacts on the performance of the rice sector including the people involved in both production and distribution processes.

In the past, the linkage between value chain management and food security has received little attention particularly in the context of the rice sector in Bangladesh. This policy brief analyzes whether the application of value chain management would improve the competitive advantage of Bangladesh's rice sector, and if so, how this could be achieved in practice.

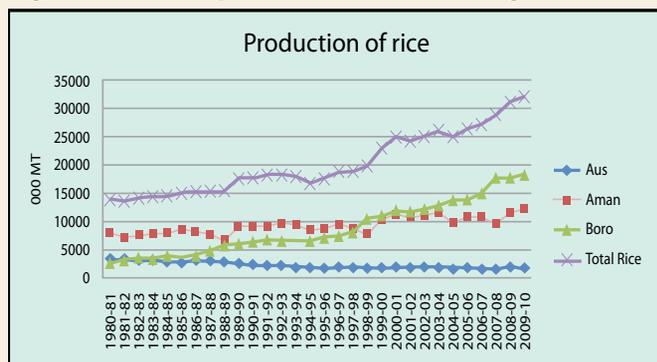
The key justification of the analysis stems from the importance of rice to food security and overall development of the Bangladesh economy. Almost all farmers in Bangladesh are rice growers and, with nearly 85 percent of the farms being small with an area of less than one hectare, the farmers have little marketable surplus of rice. It is important, therefore, to improve the competitiveness of the rice value chain which will contribute to improving the rice sector and hence the welfare of millions of small farmers.

This Policy Brief utilizes the concept of value chain management as the basis of improving the competitive advantage of the rice sector for promoting food security in Bangladesh.

¹This policy brief is based on the study, Analysis of Rice Value Chains for Improving Food Security in Bangladesh, carried out by Mustafa K. Mujeri, Nazneen Ahmed and Mohammad Iqbal Hossain under the Policy Research and Strategy Support Program (PRSSP) being implemented by BIDS with support from IFPRI and USAID.



Figure 1: Trend in production of rice in Bangladesh



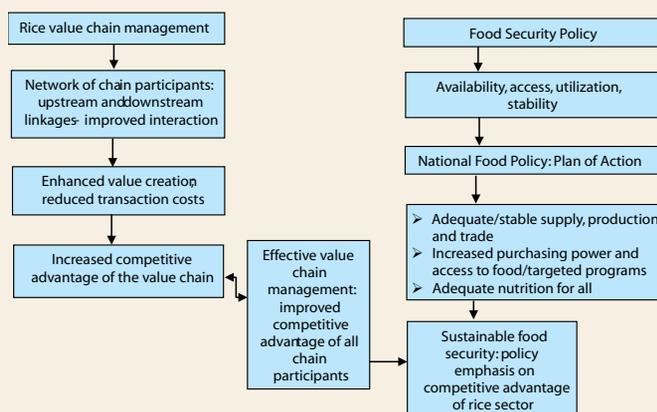
Source: Bangladesh Bureau of Statistics.

While there are a few studies on rice marketing and value chains in Bangladesh, none of these studies uses the concept of value chain for improving the efficiency of the rice sector. The present analysis seeks to identify the links of food security policies with features of the rice value chains and utilize the concept of value chain management as the basis of improving the competitive advantage of the rice sector for promoting food security in the country.

2. Value Chain Management and Food Security

For analyzing the issues, the study examines two important concerns related to food security in Bangladesh: (i) role of rice in ensuring the country's food security in the midst of fundamental changes in marketing and distribution of rice in a transitional economy; and (ii) potential of utilizing value chain management in improving competitive advantage of the rice sector which can create significant positive impact on food security. The links between rice value chain management and food security policy in Bangladesh are indicated in Figure 2.

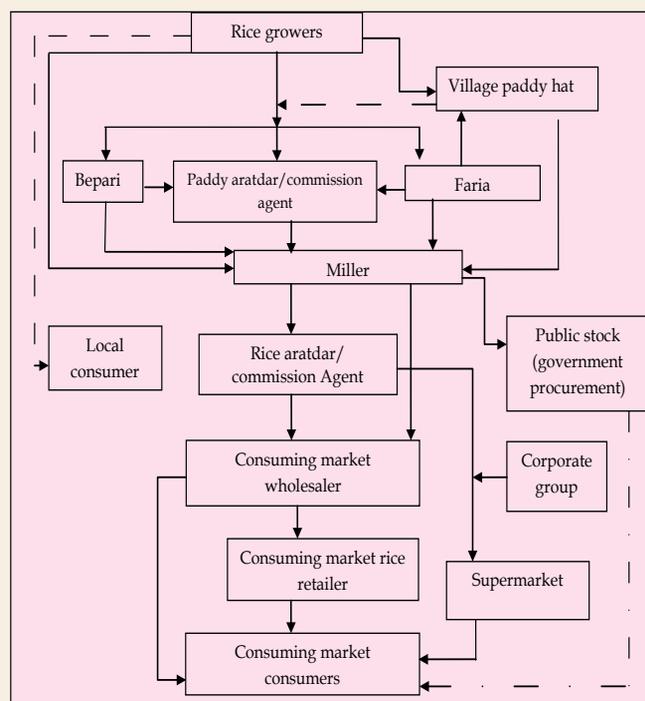
Figure 2: Links between rice value chain management and food security policy in Bangladesh



Source: Authors' compilation.

In Bangladesh, a major food security goal is to achieve self-sufficiency in rice so that the country can meet its entire requirement from domestic production. The concern has received added importance especially after the crisis that affected the global food market in 2007-08. In order to achieve the goal, the government's policy is to provide adequate support to the rice farmers to ensure competitive advantage of the rice sector through the provision of subsidized inputs in conjunction with procurement and trade policies and other measures.

Figure 3: Structure of rice value chain in Bangladesh



Source: Study Field Survey.

More effective rice value chain management would supplement the existing government policies to improve the performance of the rice supply chains, and thus the competitive advantage of the actors in the chain (including farmers) through higher levels of co-ordination and value creation among the chain members. Thus the country's food security policy and value chain management have a common focus on improving the competitive advantage of individual firms within the rice sector (see Figure 2). It is expected that this would lead to improved value creation and more equitable value sharing among chain participants, with positive benefits for food security.

The rice value chain involves a number of actors having different sizes in each group. The general structural characteristics of the rice value chain in Bangladesh can be seen in Figure 3. It presents three major types of rice value

chain in operation: (i) traditional (bulk) value chain; (ii) modern (supermarket) value chain; and (iii) price stabilizing value chain or imported private and public procurement/ public food distribution system (PFDS) value chain.

The country's dominant rice value chain is the traditional one in which the millers produce rice for the bulk market. The flow of rice to the consumers takes place through the market intermediaries or different value chain actors, such as farias, beparis, millers, aratdars, commission agents, wholesalers and retailers. The marketing channels of three different varieties of rice (coarse, medium, and fine) which have been studied separately indicate the availability of wide flexibility on the part of the farmers to supply different grades of rice to the millers throughout the year. However, the chain participants mostly work in isolation taking decisions for maximizing own returns rather than the interest of the entire chain itself.

3. A Brief Outline of Methodology

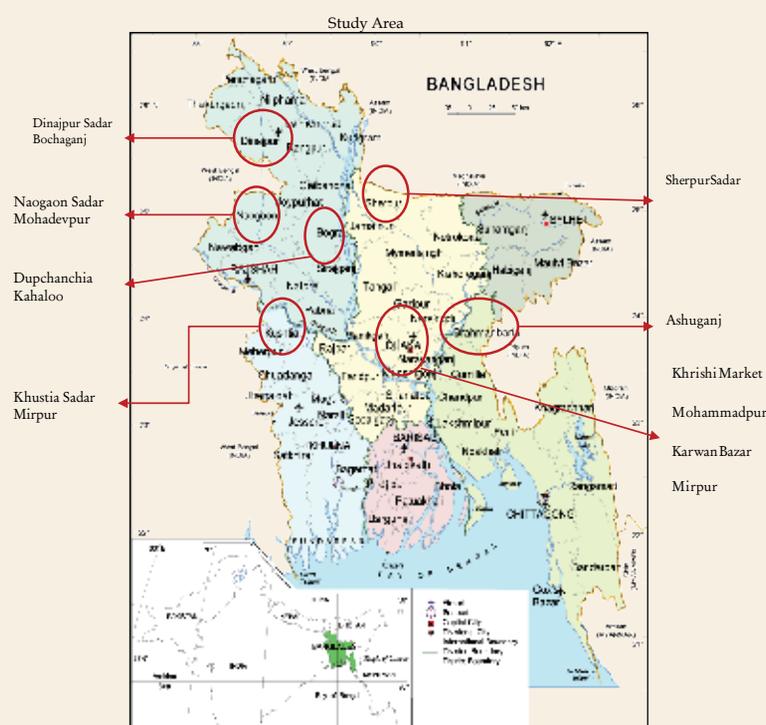
The analysis is guided by a social constructionist paradigm with a focus on qualitative analysis. Both qualitative and quantitative data collected from primary and secondary sources have been used in the analysis. The primary data are obtained from fieldwork using separate semi-structured questionnaires for different rice value chain participants. The data were collected during the months of March-April 2012 from seven purposively selected districts (Bogra, Brahmanbaria, Dhaka, Dinajpur, Kushtia, Naogaon, and

Sherpur) of the country (see Figure 4). The analysis adopts a mixed method incorporating case studies, inductive analysis, and marketing margin analysis. For capturing the differential impact on typical rice value chains, three different chains have been studied separately: traditional, modern (supermarket), and imported private and public procurement (PFDS).

4. Summary of Empirical Findings

The analysis indicates that the production, marketing, and trading system of rice in the country has undergone significant changes, especially since the early 1990s. The economic reforms of the period created wide scope especially for the participation of the private sector in rice trade, including import of rice from the world market. The public procurement of rice from the domestic market, though its importance has diminished in quantity over the years, is dominated by the big private rice millers. The procurement system is widely criticized for being of little benefit to the rice growers. Most of the farmers, being small and unorganized, have little financial ability and storage facility to hold paddy and hence are forced to sell their products immediately after harvest either on farm or to the local traders at low prices.

Figure 4: Map of Bangladesh and study areas



The three major rice value chains in operation in Bangladesh indicate that the farmers get similar prices under alternative chains and the end product quality variation does not bring much benefit to the farmers. The major beneficiaries of such differentiation are the millers and other participants in the upstream chain e.g. wholesalers, retailers, and the supermarkets. The analysis suggests that the largest amount of the value in the chain is created and retained by the millers and the highest net margin is also received by these millers (Table 1).

Table 1: Gross and net marketing margins of rice

(Tk. per kg)

Actor	Gross margin			Net margin		
	Coarse	Medium	Fine	Coarse	Medium	Fine
Grower	0.91	2.43	6.41	0.60	2.07	6.00
Faria/bepari	2.02	1.90	2.53	1.26	1.12	1.68
Paddy aratdar/agent	1.30	1.81	3.97	0.53	1.01	3.13
Miller	5.28	5.48	7.73	1.63	1.76	3.98
Husking	5.21	5.44	7.77	1.59	1.75	4.06
Major or semi-automatic	5.13	5.29	7.07	1.31	1.39	3.15
Automatic	5.12	5.36	5.58	2.00	2.18	2.38
Agents/ aratdar cum wholesaler	1.22	1.30	2.89	1.06	1.02	2.60
Wholesaler	2.36	2.13	2.18	1.63	1.38	1.43
Retailer	2.51	2.37	1.98	2.29	2.13	1.75

Source: Field Survey.

Note: In the case of transaction in paddy, rice equivalence is taken.

Figure 5 shows that around 25 percent of the net margin of coarse rice goes to the retailers while their share is 20.3 percent for medium rice. The growers earn 29 percent of the net margin for fine rice. In general, marketing margin analysis shows the disadvantaged situation of the farmers who receive the least returns along with bearing a higher share of risks. Although the conventional belief that the net margin earned by the growers is relatively low is true for the medium and coarse varieties of rice, it appears that the net margin for the rice farmers in the case of fine quality rice is higher. More interestingly, although the growers are supposed to receive price support from the government for coarse rice (through public procurement under PFDS), they earn very low net margin for this variety of rice.

Figure 5: Share of different actors in net marketing margin of rice



Source: Field Survey.

The costs incurred by the actors in the rice value chain suggest that there exists significant scope for improvement in management efficiency of the value chain, especially through rationalizing rental charges and electricity costs and by downsizing wastages. It seems important also to reduce uncertainties in terms of prices through providing right information at the right time which is important for minimizing the risk of business. It may be noted that the activities of several actors in the value chain involve high capital cost along with substantial primary and initial investments. Since most of these actors are micro and small scale business entrepreneurs (probably with the exception of modern millers and supermarket chains), their access to low cost capital is an important aspect of improving the value chain management.

Under the prevailing system, despite the existence of opportunities of engaging in value adding activities, the farmers are mostly constrained by their individual capacity. For example, the small farmers are unable to engage in most value adding activities due to their small quantities of production, lack of capacity to hold the produce after harvest, immediate cash needs to repay loans, and similar compulsions. Many small farmers are also observed to be involved in informal credit arrangements with specific local traders to whom sell of paddy becomes somewhat mandatory for the farmers. This brings out the importance of improving the capability of the small farmers along with improved access to formal credit for enabling the farmers to engage in value creating activities.

The large rice millers, by virtue of their big volume of business, can exert significant influence on the value chain, especially at the upstream level, and create pressure on other chain participants to act in favor of the interest of the large millers.

It appears that the rice sector is likely to be increasingly dominated by the large rice millers (e.g. automatic and/or semi-automatic rice mills) who will exert significant control over rice processing and marketing in Bangladesh.

The recent development of the supermarket rice value chain provides packaged rice of differentiated qualities. The rice, which is packaged by the supermarkets and/or designated suppliers (and large millers), is branded and is marketed both through traditional retailers and modern supermarkets at premium prices. As rice is highly differentiated (in terms of both varieties and brands) in the supermarkets, the large rice millers and suppliers usually exert significant influence on rice availability of different qualities and price and related information flows especially at the upstream level. The provision of credit and assured availability of marketing outlets are factors that create bonds among the exchange partners who enter into chain relationships. Although the farmers have to meet the quality requirements of the traders, they normally do not get any benefit of differentiation in terms of quality and branding beyond the prevailing harvest price at the time of marketing.

The supermarkets select specific suppliers (e.g. millers and commission agents) who supply the required quantities of rice of specific qualities. It is likely that the system acts to the disadvantage of the farmers since the contractual agreement to supply rice at fixed prices would force the suppliers to become cost-efficient at the downstream level in terms of paying higher prices to the disadvantage of the

farmers. The increased production of differentiated rice (e.g. finer varieties) would no doubt increase competitive advantage of the rice value chain if such chains are made more collaborative such that the small farmers can establish vertical relationships to adopt coordinated activities.

Under the public procurement channel, the millers and large traders are usually involved to deliver rice to be procured meeting certain quality specifications under contracts. Since the procured rice usually involves coarse and, to a certain extent, medium varieties, the rice millers have greater flexibility in supplying the required quantity of rice. This may provide greater opportunity for the farmers to create additional value. However, the farmers' ability to engage in such value adding activities is limited by several constraints faced by them and their capacity to withstand such constraints. For example, the small farmers tend to sell most of their harvested paddy, after deducting the amount to be kept for home consumption, immediately after harvest. This is especially true for the wet season paddy as the risk of retaining paddy is usually greater for this variety relative to the dry season ones.

The above indicates that, despite the avowed objective of providing fair prices to the growers through procurement by the government, it does not necessarily bring benefit





to the farmers although this creates scope for involving the private sector in public procurement. The issue of purchasing paddy/rice directly from the farmers during the peak harvesting season has been widely advocated but could not be implemented due to many constraints (e.g. lack of accessible purchasing outlets, corruption, and quality issues). Obviously, improving the capability of the farmers including access to credit for holding stock and storage facilities is important for improving the functioning of the country's rice value chain.

Exchange relationships

The exchange relationships among the participants, in almost all cases, are based on buyer-seller interactions at each stage of the chain rather than across the entire chain. While many of the relationships have been built over the years, their domain is mostly transactional exchange rather than value creation. Such relationships do not create value jointly by the participants and hence are unlikely to enhance the competitive advantage of the chain.

The traditional value chain provides greater scope for the farmers to switch among different traders to get better prices but most small farmers are constrained to do so due to their credit and other dependencies on specific traders. Sometimes such dependence also stems from mutual trust and other relationships. On the other hand, as the supermarket chain delivers packaged and differentiated rice, their tendency is to develop closer interactions with

the nearest (upstream/downstream) exchange partners. At the same time, these relationships may reflect acute imbalances due to differences in the volume of business. In both the value chains, the large rice millers and commission agents usually play the most dominant role mainly driven by credit (especially given to meet urgent productive and non-productive needs) and other supportive dependencies of the small farmers and local traders on them.

At the downstream level, the relationships involve more trust, communication, and better mutual understanding among the nearest exchange partners, such as between millers and wholesalers and between wholesalers and retailers. These develop over a longer term and are characterized by significant mutual confidence over terms of exchange and regularity of delivery.

Efficiency of rice value chains

The overall efficiency of the rice value chain is determined by several factors, such as nature and efficiency of management of the relationships among the different chain participants, scope and degree of its utilization in creating value, and the nature of sharing of value across the chain participants. On the other hand, these factors are determined by several initial conditions including nature of relationships among different actors, degree of differentiation in the quality of marketed rice, competition among the chain participants, number of actors in each category of chain participants, and availability of alternatives in performing desired functions by the participants.



The findings from the analysis seem to suggest that the reliance on the market alone is not likely to lead to more efficiency in the rice value chain and enhance the competitiveness of the rice farmers. The government needs to adopt effective policies for ensuring fair prices to the growers through procurement and other means, for enhancing the staying power of the farmers by creating storage (e.g. community level through cooperative, private-public partnership and other mechanisms) facilities for paddy by the farmers, and encouraging farmers to enter into more collaborative vertical and horizontal partnerships to enhance capability and bargaining power.

Competitive advantage and rice value chain

One major weakness of the existing rice value chain in Bangladesh is that the farmers are mostly excluded from the value adding activities beyond the farm gate. The farmers remain dependent on the local traders (farias/beparies) as price takers in the local markets. The recent expansion of the supermarkets, however, has brought some qualitative changes in the rice market with rice becoming more graded and differentiated. This also requires more collaboration among the exchange partners to ensure the quality and other characteristics of the marketed rice through the supermarkets. In such circumstances, enhancing the quality of the value chain can play an expanded role in bringing competitive advantage, thereby contribute to food security. The existence of better and collaborative relationships among the chain participants is necessary for improving the rice value chain to supply branded and packaged rice creating market segmentation which can enhance total returns to the value chain along with better sharing among the participants.



Contributions to food security

The existing characteristics of the rice value chain in Bangladesh indicate that the value chains are not competitive and the values are distributed among the participants in an inequitable manner. With proper policies, the chain can be made more competitive with creation of higher value along with more equitable sharing of the value among the participants. Under the present situation, the rice millers appropriate the lion's share of the value along with wholesalers and larger traders in the downstream of the chain. In the upstream, the farmers remain the most disadvantaged.

The trend toward greater differentiation in rice varieties leads to closer interactions across the chain participants but such relationships, under the existing power structure, remain biased in favor of the strong partners with consequent adverse impact on the weak members, especially the farmers. This also leads to adverse consequences for overall food security, especially of the poor farmers and the weak participants in the chain. Obviously, any asymmetric dependence-based relationship within the rice value chain is not congenial to promoting welfare of the farmers and ensuring food security in the country.

5. Major Policy Implications

The analysis brings out the importance of restructuring the value chain as a tool of improving the competitiveness of

the rice market and ensuring a more equitable sharing of value across the chain participants. From the food security point of view, the application of the value chain approach can lead to positive developments that would contribute to sustainability of the rice production system and food security in Bangladesh. From such a perspective, the present government policy with respect to the rice sector seems to have a “narrow production focus” rather than an integrated “value chain focus” which is not conducive to improving the competitiveness and efficiency of the country’s rice market.

For reducing the distortions in the rice market, it is important to take into account the relationships among different participants in the rice value chain and their relative strengths and weaknesses for adopting better policies. Such an integrated and whole chain approach will enhance the effectiveness of the entire chain that will create a more value driven rice sector in Bangladesh.

Moreover, the emphasis on joint value creation can produce higher value as well as its more equitable sharing that benefits all chain members, especially the farmers. This will provide better incentives for the farmers to grow better quality rice having higher values that will not only raise the income levels of the farmers but also the competitiveness of the rice sector in Bangladesh. The rice supply and the rice market will be more stable contributing to improved food security.

While the private sector participants dominate the rice market so that the private sector will have to play the dominant role in the value chain transformation process, the government, on its part, needs to take effective measures to facilitate the entire transformation process. The initial efforts need to deal with creating awareness among the chain participants regarding the benefits that will accrue to all participants through improvement of the value chain. The government needs to adopt measures to encourage the participants to develop both horizontal and vertical collaborations covering the entire chain.

The adoption of competition policy and guidelines for the rice sector will contribute to more equal sharing of value. For enhancing and sustaining the benefits of an improved value chain, rice productivity needs to be continuously increased

through adoption of improved technology and other measures. The failure to provide fair prices to the farmers, low innovations and productivity, and market imperfections are the outcomes of unfair dependency relationships across the chain members and lack of their collective collaboration. The implementation of a value chain focus for the rice sector will improve the conditions of the chain participants as well as deliver rice having better quality and higher value to the rice consumers.

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