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Assessment of the Channel of Rice Marketing: A case Study on Jessore District

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Abstract: *This study is based on data collected through a survey of 42 rice farmers and 21 middlemen carried out during November to December 2010 in Jhikargacha Upazila in the Jessore district of Bangladesh. In the surveyed area six types of middlemen and eighteen types of major marketing channels were identified. The study found that 33 (79%) farmers sold exclusively unhusked rice and only 9 (21%) farmers sold partially husked rice. The quantities of unhusked rice sold by farmer to village merchants, wholesalers of unhusked rice, stockists and husker were 6, 43, 15 and 22%, respectively. Although among all eighteen channels husked rice selling to retailers of husked rice was observed to be the best channel, only 6% of unhusked rice was converted to husked rice and sold through this channel. Husked rice sold through wholesalers of husked rice was also found to be the second best channel, but only 8% of unhusked rice was converted to husked rice and sold through this channel. The amount of returns, or farmers share, from rice selling were very a important factor for subsistence because it was one of the main sources of agricultural income for the farmers in the surveyed area. Therefore, the assessment of the best channel was necessary for them. Most of the farmers know that the selling of husked rice comparatively earns more money than the selling of unhusked rice, but they must sell the raw product after harvesting, due to economic and marketing problems. Farmers will not widely be able to use the best channel as long as these problems are unsolved.*

Introduction

During and after the green revolution, the rice production sector in Bangladesh gained much more importance than rice marketing. As a result, the yield rate surprisingly increased, but the return is still lower than for other crops[12]. The various reasons for

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lower income from rice marketing can be stated, including unhusked rice selling immediately after harvesting due to poor socio-economic conditions, lack of diversified use of the product, disorganized marketing structure, etc.

Among cereals, rice undoubtedly constitutes the largest and most important sector of Bangladesh agriculture. At present, rice covers 75 percent of the cultivated land and produces 74 percent of produce among all crops. Boro is now the single major cereal crop in the country according to its production volume. It represents more than fifty percent of total cereal production. Total boro production of 2007-2008 had been measured at 17.76 million metric tons as compared to 14.97 million metric tons in the year 2006-07, which was 18.69 percent higher[2].

Hayami et al.,[7] say, rice is the basic food staple for people in monsoon Asia, as well as the major source of income for farmers in the region. Jahan and Jaim[9] point out, the rural economy of Bangladesh mostly depends on the farmers' profitability, i.e., costs incurred and returns earned from rice production. The National Agricultural Policy (NAP) introduced by the Government of Bangladesh in 2010, emphasized fair prices of the farmers. It has emphasized the cooperative marketing of agricultural products, but cooperative marketing is rarely found here. Direct marketing has an important role in ascertaining a fair price, because it helps to avoid the middlemen, but it is hardly found in rice marketing. A study conducted by Rahman el al.,[12]; Mahmoud and Shively [11] found that Bangladesh has a comparative advantage in the production of high yielding rice; the marketing system is not suitable in terms of farmers' returns. Although farmers' returns can be increased by selling husked rice instead of unhusked rice, most of the farmers in the surveyed area sold exclusively unhusked rice. The amount of returns, or farmers share, from rice selling were very a important factor for subsistence because it was one of the main sources of agricultural income for the farmers in the surveyed area. Therefore, it is very important to assess the best channel in terms of returns. This paper wants to say, husked rice marketing can increase the farmers' share, and the marketing of husked rice to retailers of husked rice (RHR) is the best channel on the basis of farmers' returns.

Objectives of the study

In Bangladesh, all research regarding rice marketing conducted has emphasized the existing marketing problems, such as the abundance of middlemen, the long chain of distribution, the lack of information, the lack of infrastructural facilities, the small marketable surplus, the lack of storage facilities, the disorganized condition of the farmers, etc. No research has been found yet that indicates the best channel from the viewpoint of rice farmers' returns. In a general perspective, husked rice can earn more money than unhusked rice, but no systematic research has been conducted, not only in

Jessore district, but also in Bangladesh. In other words it can be said that a study of the comparative returns between unhusked rice and husked rice marketing has not been conducted yet. Most of the farmers in the surveyed area sold exclusively unhusked rice, due to having some economic and marketing problems. The limitations of the alternative ways of increasing income on the one hand, and having rice as one of the main sources of livelihood for farmers in the surveyed area on the other, necessitates searching for the best channel, and searching what kind of rice (either husked or unhusked), and how much money each channel can earn, is very important for making decisions for the selection of the best channel, for the subsistence of these farmers. Examining the reasons for selling unhusked rice instead of husked rice will be helpful for the government and non-government organizations to make policies for the betterment of farmers. However, the specific objectives of this paper are: (1) to identify the major marketing channels for the two types of rice; husked and unhusked; (2) to identify the best channel between the two categories of rice marketing considering the comparative returns; (3) to find out the existing problems and prospects for rice marketing; (4) on the basis of findings, to make recommendations.

Study site and methodology

A survey was conducted using the interview during November to December 2010 in two villages (Beneali and Syedpara) of Jhikargacha Upazila in the Jessore district of Bangladesh (Figure 1). The study two villages and around the area bear the common characteristics of Jessore district, comprised of different types of farmers producing rice as the main crop and different types of middlemen engaged in rice marketing. The selected two villages are 4 kilometers away from Jhikargacha Upazila headquarters. By observing the flow of rice, the various prevalent marketing channels were identified. In the study, 42 rice farmers were randomly selected as respondents. The survey also included a total of 21 middlemen; four Village Merchants (VM), five Wholesalers of Unhusked Rice (WUR), three Stockists (S), two Huskers (H), three Wholesalers of Husked Rice (WHR) and four Retailers of Husked Rice (RHR).

The study was confined to data collection for the year 2010 in the period of boro selling, which started from mid-April and continued up to mid-October. The study categorizes the rice into two types: unhusked rice (paddy) and husked rice (finished product of paddy). Unhusked rice and husked rice are called respectively *dhan* and *chal* in Bengali language.

In the study, the distribution of land and income of the farmers are expressed in percentage value. Descriptive statistics have been used for the calculation of rice output and sale, proportion of rice sold to middleman, rice price and marketing cost of farmer,

rice prices and marketing cost of middleman, marketing margin and profit of middleman. For the calculation of marketing cost of farmer and middleman, family and hired labor had been considered in the applicable cases. The net returns of farmer in each channel were considered the farmer's share on consumer price and by-product value. To ascertain the attitudes for marketing phenomenon stated the problems and prospects of rice marketing, the questionnaire also contained a number of attitudinal statements which the farmers were asked to indicate the extent to which they agreed or disagreed with. The adopted five-point Likert scale is: 1 = Strongly disagree, 2 = Disagree, 3 = No opinion/neutral, 4 = Agree, 5 = Strongly agree, those are also expressed in descriptive statistical method.

Socio-economic conditions and production structure

Bangladesh is one of the most densely populated countries on earth, and rapid population growth and a tradition of bequeathing land to all heirs has led to the fragmentation of holdings. Individual farming activities among all categories of farmers for purchasing inputs, accumulation of production elements and cultivation practice were the principal characteristic of Bangladesh agriculture. Due to the lack of own fund for cultivation, rural farmers not only borrow money from informal sources but also cultivate small parcel of land although this types of farmers have available agricultural labor[13]. To obtain money to meet immediate debts and livelihood, many farmers are obliged to sell their produce as soon as it is harvested thus reduces their potentiality to keep their product for the future market and to protect seeking alternative channels instead of conventional channels. The ownership of agricultural land remains one of the most difficult problems in the countryside in Bangladesh. In most villages, a few families control enough land to live comfortably, while a large percentage of families have either no land or not enough to support them. The disparity between the richest and poorest villagers appears to be widening over time.

Inheritance, purchase, and sale have left the land of many families subdivided into a number of separate plots located in different areas of the villages. The average cultivated farm size in Bangladesh is 1.26 acres in 2008[3]. 'Basic Information on Agriculture Sample Survey of Bangladesh-2005' conducted by Bangladesh Bureau of Statistics [4] finds that 10.66% of farm households in rural areas are absolutely landless. These types of households cultivate other's land by tenant agreement. Sharecropping is the most common form of tenancy agreement. Insecure land tenure not only acts as a constraint to investment, but also deprives farmers of access to formal credit, inputs and other institutional services required for improved agricultural practices. As a result, farmers are often forced to continue traditional agricultural practices[6]. The ready availability of large

numbers of poor laborers and the fragmented character of many landholdings has perpetuated a labor-intensive style of agriculture and unequal tenancy relations.

Credit market

The recent global food crisis on account of natural calamities, increased demand for food, use of crops to produce bio-fuel in the developed countries and protectionist policy adopted by the food exporting countries highlights the urgency of increasing domestic food production and attaining food security through increased investment in this sector and, timely and adequate supply of agricultural inputs including agricultural credit. Keeping in view, the importance of credit for ensuring sustainable growth in the agriculture sector, annual program based indicative disbursement targets of credit by the lending banks are designed. Yearly targets of disbursement are set by the banks themselves taking into consideration expected demand for credit for the year, previous years' disbursement and the availability of fund[1].

In recent time, agricultural and rural finance program seems to have boosted up as the private commercial banks began to participate along with the State-owned Commercial Banks. The private and foreign banks came forward in distributing agricultural credit through their branch network in collaboration with NGOs, in addition to the regular agricultural credit disbursement by state owned banks and organizations. In FY08 the local commercial banks disbursed Taka 15.6billion while the foreign banks disbursed Taka 8.5 billion of agricultural credit. However, state-owned Commercial Banks and specialized banks still played a dominant role for the growth of agriculture and rural economy with disbursement of Taka 61.67 billion. Grameen Bank and large NGOs (BRAC, ASA, PROSHIKA) play significant role through their micro credit programs to boost up the rural economy in the country.

The credit programs of these NGOs are conducted mainly for non farm activities and to some extent for agriculture with the objective of crops diversification especially vegetables and cash crops but not for rice cultivation. The small and medium farmers who contribute significantly to rice production are passed by both the banking institutions and the NGOs.[8;14]. At present, rural financial markets in Bangladesh are fragmented and inadequate. There are very limited savings services available in rural areas and the wealthy have relatively better access to cheap credit.

Rice marketing in the area

The selected two villages are very close to the village market; Beneali bazaar. The villages are also connected to Gadkhali bazaar and Jhikargacha Upazila headquarters by a

paved road. There are big rice markets in Jhikargacha Upazial headquarters, and secondly at the Gadkhali bazaar. Two types of rice are sold by wholesaling and retailing at Gadkhali bazaar and at Jhikargacha Upazila headquarters market. The price of rice did not widely vary for a given period between the big and small market. Most of the farmers in the surveyed village sold their product in the village market. A great number of middlemen are found in the area. The farmers carried their products either to the village market or to the big market by head load, cycle, van and cart. Before selling their products the farmers kept the products at their houses, or at stores of local businessmen. To keep the products at their houses, the methods used by most of the farmers were of an indigenous type (such as storage in woven-split bamboo, bamboo baskets, jars and pitchers, mud-walled "golas" and golas made of bamboo and wood, jute bags, plastic drums, etc.). In the entire Upazila, 32729 farm households were cultivating different types of crops on 57729 acres of land. There was only one cold storage named 'Razanigonda Cold Storage Ltd' at Gadkhali bazaar which was mainly used for potato, wheat and pulse storage. In the area, there were many private-owned husking machines found. Besides these, many *chatals* (Rice processing industries) were found in the area, where any farmer can convert their rice from unhusked (paddy) into husked rice, by spending a certain amount of money. *Chatals* took unhusked rice from farmers, boiled, dried, and turned it into husked rice and returned it to the farmer. Although the agricultural products price, including rice, was broadcast by Radio Bangladesh Khulna every evening, as well as a weekly and monthly bulletin are being published by the Department of Agricultural Marketing (DAM), the farmers were not familiar with that information. To stabilize the market price, to create safety stock for unavoidable circumstances in the future, as well as to ensure a fair price for goods, the government has started buying unhusked rice from farmers. Under this policy, the government procures the unhusked rice directly from the farmers for making the unhusked rice into husked form and selling them through OMS (Open Market Selling) to the public. The government gets husked rice from the *chatals* in exchange for unhusked rice, or by mutual contract. In Jhikargacha Upazila headquarters, there was only one government-buying centre of rice.

Results and discussion

Land distribution and agricultural income: In the surveyed areas, only males were engaged in farming activities and no group farming/farmers' association was found either in farming or in marketing activities. Most of the farmers are cultivating small parcels of land. According to the table 1, 10% of farmers were cultivating one acre or less acre whereas 12% of them were using 4.1 acres or above. The farmers in the surveyed village pursue a broad range of activities to earn their livelihoods. Different members in the same households are engaged in various different activities over time and across seasons.

The yearly total agricultural income earned has been classified into 17 categories: income from rice, wheat, jute, potato, papaya, vegetables, fruits, pulse, spices, forest, fisheries, livestock, poultry, agricultural labor, agricultural assets rental, irrigation (water selling) and other. Twenty six percent of farmers were earning Tk. 40000 or less whereas 12% of them were earning Tk. 100001 or above. The Income of Tk. 20000 or less, 20001 – 40000, 40001 – 60000, 60001 – 80000, and 80001 or above by rice selling was accounted for by 14, 43, 26, 10 and 7% of farmers, respectively. The income of Tk. 10000 or less, 10001 – 20000, 20001 – 30000, 30001 – 40000, and 40001 or above by only boro rice selling was accounted for by 10, 33, 24, 14 and 19% of farmers, respectively.

Farmers' living standard: The standard of living is the capacity of people to spend for food, housing, clothing, education, medicine and the other amenities of life. When people can spend adequately on food, housing, clothing, education, etc., and lead a comfortable life, it can be said that their standard of living is high[12]. Medical facilities and external hygienic factors also influence on the standard of living. The standard of living of farmers here were evaluated in terms of housing and toilet conditions (Whether it was bad or good), household amenities (availably of radio, television, refrigerator, micro wave oven and rice cooker), the availability of an electrical power supply, sewerage facilities, medical facilities, non school-going children and average dependency ratio. Houses built with mud, bamboo, straw and tile were considered as bad. To measure the housing conditions as to whether it was good or bad, only living rooms were considered. Brick built houses were considered as good. To consider the toilet conditions, brick built sanitary toilets were considered as good.

Considering the above-mentioned criteria, in surveyed village, houses are built from natural building materials: mud, bamboo, straw and tile, those numbered 52% of farmers. In order to judge the living conditions of farmers, it was necessary to consider the various household utility items used. Farmers that had no radio, television, refrigerator, micro wave oven and rice cooker were accounted for at 34, 24, 92, 97 and 100%, respectively. There was no hygienic and good conditioned toilet among 59% of farmers. Farmers having no electricity were accounted for at 22%. Actually, electricity is not only expensive but also unavailable in rural areas. Almost all the farm households are away from sewerage facilities. Medical facilities in Bangladesh are very inadequate to provide minimum basic treatment for its population. The study found that in the surveyed area, 30% of the households had no adequate medical facilities, and non-school going children were found in 19% of farmers.

The dependency ratio is calculated as the ratio of the number of family members not in the labor force (whether young or old) to those in the labor force in the household. This ratio allows one to measure the burden weighing on members of the labor force within

the household. It might be expressed that a high dependency ratio will be associated with greater poverty. The average dependency ratio in the surveyed area was 213%.

Rice output and sale: Table 2 shows rice output and sale in 2010 in the surveyed villages. The mean output of boro rice of the 42 farmers was 3497 kilograms. Eight farmers used tenant land and for that they paid 870 kilograms of rice to the landowners. Rice is the staple food, followed by the wheat. However, all 42 farmers consumed 794 kilograms of rice. The mean value of donation, loss and seeds & other purpose are 102, 99 and 63 kilograms respectively. Here, the other purposes that were included with seeds could be described as a contribution by the farmer to the poor relatives. A great portion of the produced rice was sold by the farmers (2390 kilograms), which was 68% of all produce.

Marketing channel and middleman: In rice marketing, the marketing channels are the chain of middlemen through which rice moves from farmers to consumers. The marketing channels of rice in the surveyed areas are shown in Figure 2. On the basis of the Figure 2, the study indicates the eighteen marketing channels stated in Table 3 where channel from 1 to 16 were used by the farmers for selling unhusked rice and channel 17 and 18 were used for selling husked rice. According to the figure, there were six types of middlemen involved in the marketing channel in selling unhusked rice and husked rice in the surveyed areas: village merchant, wholesalers of unhusked rice, stockiest, husker, wholesalers of husked rice, and retailers of husked rice. In the local language, the wholesalers of unhusked rice and wholesalers of husked rice are called *dhan-er-arathdar* and *chal-er-arathdar*, respectively. The village merchants were observed in purchasing unhusked rice from farmers directly, selling it to three types of middlemen: stockists, huskers and wholesalers of unhusked rice. The wholesalers of unhusked rice purchased the rice from two sources: farmers and village merchants, and sold it to huskers and stockists. The stockists purchased the unhusked rice from farmers, village merchants and wholesaler of unhusked rice. They sold the product to huskers. The huskers purchased the unhusked rice from farmers, stockists, village merchants, and wholesalers of unhusked rice. They turned the unhusked into husked rice and sold it to two types of middlemen: wholesalers of husked rice and retailers of husked rice. Wholesalers of husked rice bought the rice from huskers and farmers and sold it to retailers of husked rice. Retailers of husked rice in the marketing chain purchased the husked rice from huskers, farmers and wholesalers of husked rice and sold it to final consumers.

Proportion of rice sold to middleman: No farmer in the surveyed villages exclusively sold all of his products to one type of middleman. For example, the farmer who sold 100 kilograms of unhusked rice to village merchants yesterday, he has sold 200 kilograms of unhusked rice to wholesalers of unhusked rice today. Table 4 shows, among 42 farmers

9, 23, 11, 11, 6 and 4 of them respectively sold their rice to village merchants, wholesalers of unhusked rice, stockist, husker, wholesalers of husked rice and retailers of husked rice. Thirty three (79%) farmers sold exclusively unhusked rice; only 9 (21%) farmers sold both husked and unhusked rice. The quantity of unhusked rice sold to village merchant, wholesaler of unhusked rice, stockists, and husker were 6, 43, 15 and 22%, respectively. Husking the unhusked rice and selling them to the wholesalers and retailers of husked rice accounted for 8 and 6% in total rice sold, respectively.

Rice prices and marketing cost of farmer: In the channels, when the farmers sold 100 kilograms of unhusked rice to huskers, it was turned into 67 kilograms of husked rice. When the farmers husked their own product, for each 100 kilograms of unhusked rice, they also got the same amount of husked rice (67 kilograms). The prices of rice vary widely for different qualities. Most of the farmers cultivated moderate fine boro rice (BRRI 28), therefore, for the sake of simplification, the study calculation is limited to the case of moderate fine rice, which was sold to different types of middlemen at different prices. Table 5 shows that when the farmers sold their rice to four types of middlemen, they got four different prices, i.e. Tk. 1777, 1880, 1834 and 1844 and from village merchant, wholesaler of unhusked rice, stockist, and husker, respectively. When the same farmers sold the husked rice, the price would be higher than for unhusked rice. Selling the husked rice, the farmers got two different prices from two different middlemen i.e. Tk. 2542 and 2687 from the wholesalers of husked rice and the retailers of husked rice, respectively. The table shows that the marketing cost of farmer was the highest (Tk. 325) when they sold husked rice to retailers of husked rice followed by the wholesalers of husked rice (Tk. 288). It reveals that the marketing cost of husked rice was comparatively higher than unhusked rice, and the selling price of husked rice was also comparatively higher than unhusked rice. The reason for the higher marketing cost for husked rice was the increasing cost of processing.

Rice prices and marketing cost of middleman: The Table 6 shows that the selling prices of rice are varied according to the nature of rice to different types of middlemen. The village merchants sold the rice to the stockists, huskers and wholesalers of unhusked rice and received Tk. 1877, 1850 and 1841, respectively. The wholesalers of unhusked rice received the price Tk. 1975, and 1860 from huskers and stockists, respectively. Stockist, who sold unhusked rice, received Tk. 1980 from the huskers. Huskers in the channel husked the rice, and sold it at Tk. 2280 and 2331 to the wholesalers of husked rice and retailers of husked rice, respectively. Both the wholesalers of husked rice and retailers of husked rice, who were dealing with the husked rice as the nature of their business, received Tk 2617 and 2736 from the retailers of husked rice and consumer, respectively. According to the table the marketing costs of village merchants, wholesalers of unhusked rice, stockists, huskers, wholesalers of husked rice and retailers of husked rice were Tk.

43, 39, 55, 281, 52 and 50 respectively. The one of the important reasons for the highest marketing cost of husker was the processing cost of rice.

Marketing margin and profit of middleman: The Table 7 shows the marketing margin and profit of middleman. The study found that village merchants purchased the product only from farmers and sold them to three types of intermediaries. They got the highest amount of profit (Tk. 58) from stockis. Wholesalers of unhusked rice had the highest amount from huskers (Tk. 95) when they purchased the unhusked rice from village merchants and sold them. Stockists in the channel had the highest amount (Tk. 91) of profit when they purchased the product from the farmers and sold them to huskers. In most cases, huskers had the highest marketing margins than all other middlemen. Huskers got the highest amount (Tk. 199) of profit when they purchased the raw goods (unhusked rice i.e. paddy) from farmers, and after husking sold them to retailers of husked rice. Wholesalers of husked rice had the highest amount (Tk. 285) of profit when they purchased the husked rice from the huskers and sold them to retailers of husked rice. The retailers of husked rice got the highest amount of profit, accounted (Tk. 365), when they purchased the husked rice from huskers and sold them to consumers.

Farmers' returns and best channel: Table 8 shows that the farmers' gross returns of the different channels were almost same from channel 1 to 16. This result must be stated as a reason for selling unhusked rice. For selling unhusked rice to any type of middleman, the price received and the money spent for marketing by farmers were not varying widely at a given time. The price of rice was certainly influenced by the nature of rice whether it was husked or unhusked. The best channel in terms of the gross returns for the farmer based on the consumer price was 18, where the share was 86%, followed by the second best channel 17, which indicated the farmer's share of consumer's price was 81%. The study revealed that if the farmers sold the husked rice to wholesalers of husked rice (WHR) and retailers of husked rice (RHR), their net returns would be 81% of consumer price plus Tk. 175, and 86% of consumer price plus Tk. 175, respectively. By selling unhusked rice, the farmers got lesser share of consumer's price on the one hand and lost the by-product value Tk. 175 on the other which figured in the channel 1 to 16. Therefore, Table 8 shows the best channel for the farmer was channel, 18 followed by channel 17. The table reveals that higher marketing cost begets higher returns of the farmers.

Farmers' attitudes towards marketing: The phenomena included in Table 9, exchange, physical and facilitating were adaptations of the marketing functions used by Cramer and Jensen[5]; Kohls and Uhl[10]. The general phenomena and under its statements were adapted in accordance with the practical situation in the surveyed areas. These stated phenomena reveal the problems and prospects of rice marketing in the area. The table

shows the highest (4.83) mean value, listed under 'Husked rice can comparatively earn more money than husked rice', which indicates that almost all farmers knows the comparative benefit of selling of husked rice although some believed that it was a bit difficult. The second highest (4.64) mean value is listed under 'Have available husking facilities.' Sold the unhusked rice for paying my debt' is found to be the third highest (4.57). The farmers agreed that there were available transportation facilities to carry the product to local market which mean value was 4.48. Due to not having available alternative resources for livelihood, farmers needed to meet the daily expenses by selling the product in unhusked form immediately after harvesting expressed mean value 4.45. It can be said that for husking (processing) the unhusked rice and selling, it would take a few more days than selling unhusked rice as it was but farmers had no way to wait for a few days. Moreover, many of the farmers had oral agreements with the money lenders to sell them the unhusked rice immediately after harvesting. Mean value 1.74, regarding the storage, indicates that farmers had not adequate storage facilities. This must be stated as one of the main reasons for not selling the husked rice. Due to not having the available storage facilities, the farmers were feared of theft and infestation of the product on the one hand and worried about the quality deterioration on the other. This situation influenced the farmers to sell unhusked rice immediately after harvesting. Most of the farmers in the study area were also strongly agreed that:

- They had not any permanent place in the market for selling the product.
- They had not available institutional credit facilities.
- They had not any farmers' market to sell the product.
- There was not available farmers' association.

Due to not having either the permanent place in the market for selling the husked rice or farmers' market in the area, the farmers had a serious uncertainty about selling. These also must be stated as the important reasons for not selling husked rice. Farmers' association has a great role to realize the farmers' right but it was completely absent in the area. Due to not having sufficient institutional loan, farmers had to purchase the agricultural inputs on credit from local input trades and mitigating the current expenses for cultivation, they borrowed money from the informal sources. Therefore, they were bound to mitigate the debts and to pay back the money to the concerned persons immediately after harvesting by selling unhusked rice. It is surprising that when the farmers were asked whether they had sold their product to the government buying center, all respondents replied 'no'. That figured in the table with a mean value of 1.00, although many of the respondents agreed that 'government prices are higher than middlemen'.

Finings of the study

Farmers' returns depended upon the nature of the rice, whether it was husked or unhusked, and upon the buyer. Among the eighteen marketing channels, 'F – RHR – C' (channel 18) was found to be the best, followed by the 'F – WHR – RHR – C' (channel 17), but only 6 and 8% of unhusked rice was converted to husked rice and sold through these channels, respectively. The amounts of returns or farmers share from rice selling was a very important factor for subsistence, because it was one of the main sources of agricultural income of the farmers in the surveyed area. Therefore, the assessment of the best channel and using of the channel was necessary for them. Most of the farmers knew the benefit of husked rice selling over unhusked rice, and some other facilities such as labour, transportation, husking and information facilities were available but they had to sell the unhusked rice after harvesting, due to five main problems: (1) resource constraints to maintain their livelihood during a delay; (2) the need to pay back the money that is borrowed for production; (3) Oral agreements with the money lenders to sell the raw product to them after harvesting (4) absence of farmers' market and (5) the lack of storage facilities.

Conclusion

Two types of rice marketing, and the problems and prospects associated with them in the Jessore district have been stated in the study. The study indicates that the reasons were not only marketing problems, but also economic problems from selling the unhusked rice instead of husked rice. Farmers will not widely be able to use the best channel as long as these problems remain unsolved. The poor standard of living of the farmers revealed by the study can be improved by selecting the best channel for them. For example, the best channel ascertains the best prices which influence the total income of the farmers, and total income ultimately influences the standard of living. To reduce the tendency of selling the raw product (unhusked rice i.e. paddy), the government of Bangladesh and NGOs (Non-Government Organization) should take more initiatives to protect rural farmers by giving them loans on the basis of production, to establish farmers' markets where every farmer can easily access, to create community storage facilities and to create the community cohesion based on farmers leadership. The availability of husking, labour, information and transportation facilities at the rural level, and the opportunity to sell husked rice to retailers of husked rice in the local market, surely help farmers to earn more money, than is possible in current common marketing practices. In conclusion, the study emphasizes the benefits of husked rice (*chal*) marketing to retailers of husked rice (RHR) instead of unhusked rice (*dhan*), which indicates the best marketing channel in the area.

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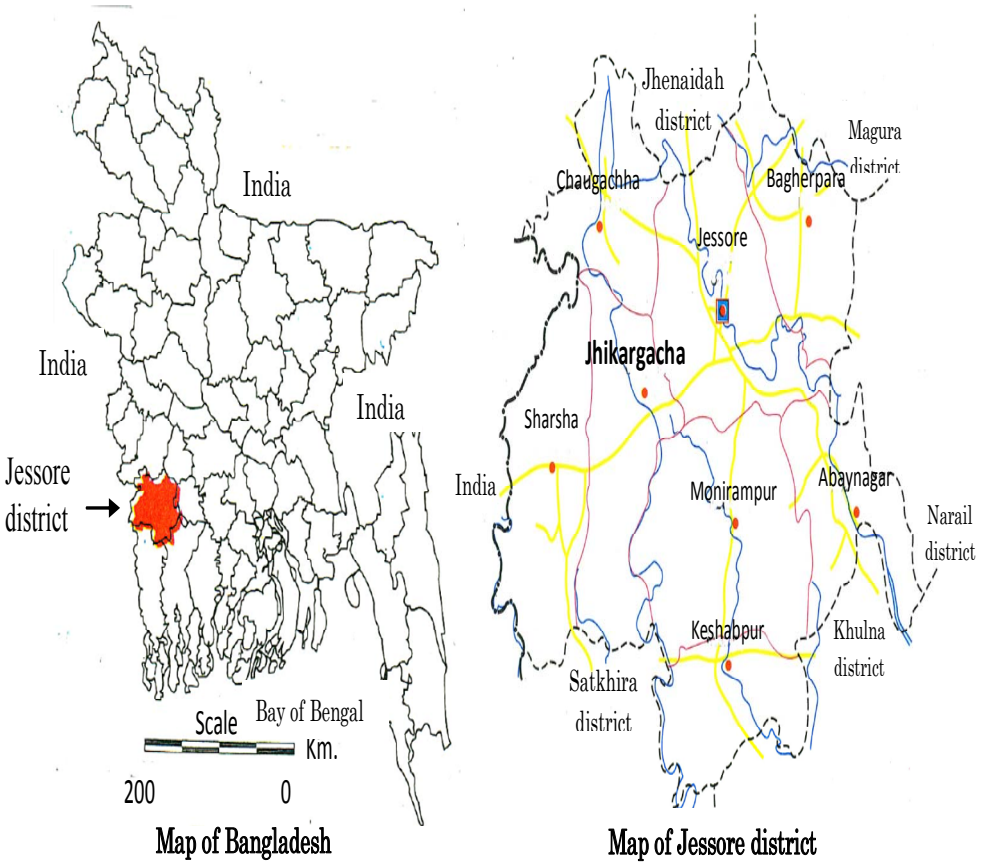
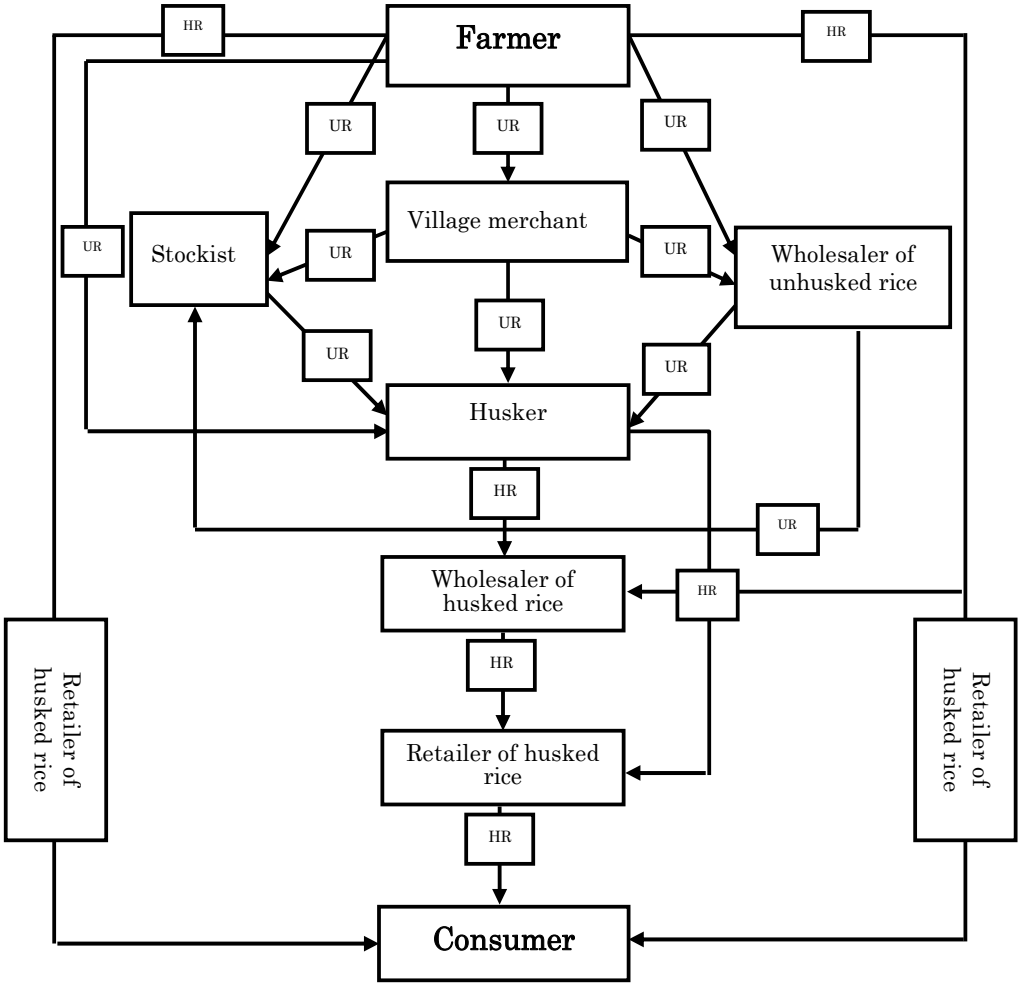


Figure 1. Location of the study site



Source: Field survey, 2010

Figure 2. Rice marketing channel in the surveyed area

Source: Field survey, 2010

Figure 2. Rice marketing channel in the surveyed area
UR – Unhusked rice, HR – Husked rice.

Table 1. Land distribution and income of farmer.

Parameters	N	% of N
Agricultural land		
Acre: ≤ 1	4	10
Acre: 1.1– 2	9	21
Acre: 2.1– 3	17	40
Acre: 3.1– 4	7	17
Acre: ≥ 4.1	5	12
Agricultural income		
Tk.: ≤ 40000	11	26
Tk.: 40001– 60000	16	38
Tk.: 60001– 80000	9	21
Tk.: 80001– 100000	1	2
Tk.: ≥ 100001	5	12
Income of rice		
Tk.: ≤ 20000	6	14
Tk.: 20001– 40000	18	43
Tk.: 40001– 60000	11	26
Tk.: 60001– 80000	4	10
Tk.: ≥ 80001	3	7
Income of *boro* rice		
Tk.: ≤ 10000	4	10
Tk.: 10001– 20000	14	33
Tk.: 20001– 30000	10	24
Tk.: 30001– 40000	6	14
Tk.: ≥ 40001	8	19

Source: Field survey, 2010

N – Number of farmer, Total farmer – 42, Mix cropping was found in the area. Income of rice contained three types of rice; *Aus, Aman* and *Boro*. US $ 1 = Tk. 70.40.

Table 2. Rice output and sale (kg).

Parameters	N	Mean	Std. Dev.
Output	42	3497	1407
Share to landowner	8	870	172
Consumption	42	794	484
Donation	9	102	41
Loss	38	99	60
Seeds and other	9	63	38
Sale	42	2390	1176

Source: Field survey, 2010, Total farmer – 42.

Table 3. Types of marketing channels.

Type	Channel
1	F – H – WHR – RHR – C
2	F – H – RHR – C
3	F – S – H – WHR – RHR – C
4	F – S – H – RHR – C
5	F – VM – S – H – WHR – RHR – C
6	F – VM – S – H – RHR – C
7	F – VM – H – WHR – RHR – C
8	F – VM – H – RHR – C
9	F – VM – WUR – H – WHR – RHR – C
10	F – VM – WUR – H – RHR – C
11	F – VM – WUR – S – H – WHR – RHR – C
12	F – VM – WUR – S – H – RHR – C
13	F – WUR – H – WHR – RHR – C
14	F – WUR – H – RHR – C
15	F – WUR – S – H – WHR – RHR – C
16	F – WUR – S – H – RHR – C
17	F – WHR – RHR – C
18	F – RHR – C

Source: Field survey, 2010.

F – Farmer, H – Husker, WHR – Wholesaler of husked rice, RHR – Retailer of husked rice, C – Consumer, S – Stockist, VM – Village merchant, WUR – Wholesaler of unhusked rice.

Table 4. Proportion of rice sold to middleman (Kg).

Intermediary	N	Mean	Std. Dev.
Village merchant	9	666	268
Wholesaler of unhusked rice	23	1895	1089
Stockist	11	1440	793
Husker	11	2016	800
Wholesaler of husked rice	6	1332	734
Retailer of husked rice	4	1444	534

Table 5. Rice prices and marketing costs of farmer (unhusked 100 kg; husked 67 kg).

Seller	Buyer	Place of sale	Price (Tk.)		Marketing cost (Tk.)	
			Mean	Mean	Mean	Std. Dev.
Farmer	* VM	FH	1777	111	23	10
	* WUR	LM	1880	157	35	13
	* S	LM	1834	97	43	7
	* H	HC	1844	154	41	8
	** WHR	LM	2542	58	288	15
	** RHR	LM	2687	65	325	24

Source: Field survey, 2010.

* Indicates dealing with unhusked rice, ** Indicates dealing with husked rice. FH – Farmer's House, LM – Local Market, HC – Husking Centre.

Table 6. Rice prices and marketing costs of middleman (unhusked 100 kg; husked 67 kg).

Seller	Buyer	Place of sale	Price (Tk.)		Marketing cost (Tk.)	
			Mean	Std. Dev.	Mean	Std. Dev.
Village merchant	* S	LM	1877	17	43	10
	* H	HC	1850	35	43	10
	* WUR	LM	1841	21	43	10
Wholesaler of unhusked rice	* H	LM	1975	37	39	11
	* S	LM	1860	49	39	11
Stockist	* H	LM	1980	20	55	5
Husker	** WHR	HC	2280	28	281	19
	** RHR	HC	2331	30	281	19
Wholesaler of husked rice	** RHR	LM	2617	15	52	6
Retailer of husked rice	** C	LM	2736	17	50	7

Source: Field survey, 2010.

Seller	Marketing chain		Margin (Tk.)		Profit (Tk.)	
			Mean	Std. Dev.	Mean	Std. Dev.
Village merchant	F – S		17	Village merchant	F – S	100
	F – H		35		F – H	73
	F – WUR		21		F – WUR	64
Wholesaler of unhusked rice	VM – H		37	95	46	Wholesaler of unhusked rice
	VM – S		53	– 20	47	
	F – H		37	56	46	
	F – S		49	– 59	47	
Stockist	* H	LM	1980	20	55	5
Husker	** WHR	HC	2280	28	281	19
	** RHR	HC	2331	30	281	19
Wholesaler of husked rice	** RHR	LM	2617	15	52	6
Retailer of husked rice	** C	LM	2736	17	50	7

Table 7. Marketing margin and profit of middleman (unhusked 100 kg; husked 67 kg).

Seller	Marketing chain	Margin (Tk.)		Profit (Tk.)	
		Mean	Std. Dev.	Mean	Std. Dev.
Village merchant	F – S	100	17	58	23
	F – H	73	35	31	43
	F – WUR	64	21	21	15
Wholesaler of unhusked rice	VM – H	134	37	95	46
	VM – S	4	53	– 20	47
	F – H	95	37	56	46
	F – S	– 20	49	– 59	47
Stockist	F – H	146	20	91	22
	VM – H	103	20	48	22
	WUR – H	123	25	69	28

Husker	F – WHR	436	28	148	9
	F – RHR	487	30	199	11
	S – WHR	300	28	12	9
	S – RHR	351	30	63	11
	VM – WHR	430	28	142	9
	VM – RHR	481	30	193	11
	WUR – WHR	305	28	17	9
	WUR – RHR	356	30	68	11
Wholesaler of husked rice	H – RHR	337	15	285	10
	F – RHR	75	15	23	10
Retailer of husked rice	WHR – C	119	17	70	18
	H – C	405	17	365	18
	F – C	49	17	– 25	18

Source: Field survey, 2010.

Margin = Profit + Cost of marketing.

Table 8. Farmers' returns.

Marketing channel	Mkt. cost of M (%)	Profi t of M (%)	Mar gin of M (%)	By-pro. value of M (Tk)	Gross returns of F (%)	Mkt. Cost of F (%)	By-pro. value of F (Tk)	Net returns of F
Channel 1	21	27	48	175	52	2	-	50% – Tk. 175
Channel 2	18	30	48	175	52	2	-	50% – Tk. 175
Channel 3	24	25	49	175	51	2	-	49% – Tk. 175
Channel 4	21	28	49	175	51	2	-	49% – Tk. 175
Channel 5	28	26	54	175	46	1	-	45% – Tk. 175
Channel 6	25	29	54	175	46	1	-	45% – Tk. 175
Channel 7	24	30	54	175	46	1	-	45% – Tk. 175
Channel 8	21	33	54	175	46	1	-	45% – Tk. 175
Channel 9	27	27	54	175	46	1	-	45% – Tk. 175
Channel 10	24	30	54	175	46	1	-	45% – Tk. 175
Channel 11	30	23	53	175	47	1	-	46% – Tk. 175
Channel 12	27	26	53	175	47	1	-	46% – Tk. 175
Channel 13	23	23	46	175	54	1	-	53% – Tk. 175
Channel 14	20	26	46	175	54	1	-	53% – Tk. 175
Channel 15	26	20	46	175	54	1	-	53% – Tk. 175
Channel 16	23	23	46	175	54	1	-	53% – Tk. 175
Channel 17	4	4	8	–	92	11	175	81% + Tk. 175
Channel 18	2	-	2	–	98	12	175	86% + Tk. 175

Source: Field survey, 2010.

Mkt. – Marketing, M – Middleman, By-pro – By-product, F – Farmer

Marketing margin of middleman = Marketing cost of middleman + Profit of middleman, Gross returns of farmer = 100% – % of Marketing margin of middleman, Margin of middleman and gross returns of farmer are considered on the basis of consumer price. Net returns of farmer = (Gross returns of farmer – Marketing cost of farmer) ± By–product value. 24 – 26 kg of by-product (husk/bran) was produced from 100 kg of unhusked rice whose mean selling value was Tk. 175.

Table 9. Farmer's attitudes towards marketing.

Statements	N	Mean	Std. Dev.
Exchange phenomenon:			
1. Selling the unhusked rice for maintaining livelihood.	42	4.45	0.77
2. Selling the unhusked rice for paying my debt.	42	4.57	0.80
3. Have oral agreement with the money lender to sell the unhusked rice.	42	3.38	1.31
4. Husked rice can comparatively earn more money than husked rice.	42	4.83	0.44
5. Husked rice selling is comparatively difficult than unhusked rice.	42	3.93	1.05
Physical phenomenon:			
1. Have available storage faculties before marketing.	42	1.74	0.59
2. Have available transportation facilities to carry the product to market.	42	4.48	0.67
3. Have available husking facilities.	42	4.64	0.58
4. Have permanent place in the market for selling the product	42	1.60	0.59
Facilitating phenomenon:			
1. Have sufficient information on local market.	42	4.19	0.55
2. Market information is gathered by me.	42	4.10	0.53
3. Have farmers' market to sell the product.	42	1.29	0.46
4. Have available farmers' association.	42	1.05	0.22

5. Farmers' have bargaining power with the middlemen.	42	2.33	0.98
6. Have available manpower facilities.	42	3.36	0.79
7. Have institutional credit facilities	42	1.40	0.70
General phenomenon:			
1. Price fluctuation is found irrespective of the nature of rice.	42	4.40	0.70
2. Selling the product to any type of middleman.	42	2.60	1.17
3. Selling price is fixed by mutual understanding with middleman.	42	2.69	1.09
4. Have stable price from middlemen.	42	2.17	0.82
5. Selling the product to government buying center.	27a	1.00	-
6. Government price is higher than middlemen price.	27a	3.78	0.85
7. Have available information about government buying centre	27a	2.14	0.72

Source: Field survey, 2010.

[a]15 farmers among 42 could not answer regarding selling the product to govt. buying center due to not having sufficient knowledge on government buying center.