THE SPATIAL INTEGRATION AND PRICING EFFICIENCY OF THE PRIVATE SECTOR GRAIN TRADE IN BANGLADESH :

The Long-distance Foodgrain Traders' Survey

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EXECUTIVE SUMMARY

Recent Government liberalization policy towards private sector grain trading opens many questions regarding the role of market in the foodgrain sector. Under the broad framework of the study on private sector grain trade in Bangladesh, the traders' survey which aimed at exploring functioning of wholesale markets and problems faced by the wholesalers involved in long-distance foodgrain trading was conducted among 106 traders (76 for rice and 30 for wheat) in 14 markets spread throughout Bangladesh.

The markets selected covering all the regions of Bangladesh showed that each of the markets had some comparative locational advantages or disadvantages with respect to foodgrain trading (either supplying or receiving of foodgrain), and transport and communication facilities for trading with other distant markets. In each of the markets although there were good number of wholesalers, the number of long-distance wholesalers were relatively few. However, the markets were found more or less competitive with the exceptions of the wholesale rice markets of Jessore and Naogaon where respectively monopolistic and oligopolistic competition prevailed. Market characteristics also showed that concentration of rice mills in and around the rice supplying markets of the North and North-west regions was very high compared to rice receiving markets in the Central and Southern regions. Again, on the basis of volume of rice trade, Dhaka was found to be the largest consuming market while Naogaon was found to be the largest supplying market. In the case of wheat, Chittagong was found to be the largest wholesale market. In all the markets several bank branches along with telephone services were available. Further, in each of the markets there were traders' association for protecting their common interest.

Traders characteristics showed that traders in the rice supplying markets are mostly pure wholesalers while in the terminal / receiving markets they are mostly wholesalers cum commission agents. The wheat traders are also mostly wholesalers cum commission agents. Further, majority of the traders (65 %) in the rice supplying markets of the North and North-west regions owned rice mills while in the receiving markets only 13 % of the wholesalers owned rice mills. In the case of wheat, about one-fifth of the long-distance traders owned flour mills. The analysis also showed that the foodgrain traders had to depend mainly on own fund. Other sources of working capital in order of importance were banks, friends and relatives, and 'Beparies'. However, none of the traders borrowed money from money lenders.

With respect to trading practices, it was found that rice traders were more specialized (traded mostly rice only) than wheat traders. Again, the rice wholesalers cum millers purchase both paddy (for milling) as well as rice for trading with distant markets. The wheat wholesalers cum millers also purchase wheat for direct trading in addition to wheat purchased for making flour and sell the flour in packets. Further, the analysis showed that about a quarter of the wheat wholesalers procure wheat from leakage of Public Foodgrain Distribution System. It was also found that lot of varieties with different grades of rice are traded. However, markets located in different regions had different types of specialization with respect to rice varieties and grades. There were also variations in the varieties of domestic and imported wheat traded.

Analysis with respect to trading practices also showed that purchase order to the long-distance traders was done mainly over telephone and the time laps between ordering and receiving foodgrain in most of the cases was less than a week. Most of the transactions were made through TT and full amount was not usually made at the time of buying / selling of foodgrain. About one-third of the rice wholesalers receive the amount due at the end of the season while rest receive within 2/3 weeks. In the case of wheat, the payment of the amount due is more quicker and the

instance of paying the amount due at the end of the season is rare. The analysis also indicated that although the long-distance traders have low tendency of hoarding foodgrain for long time, they fell shortage of warehouse space in the peak periods of buying / selling of foodgrain.

Findings in relation to trade flows showed that major trade flows of rice are from the Northern region towards Central and Southern regions. However, some of the receiving markets were also found to act as transhipment points. Trade flows in different markets were also found to be not continuous as it varied seasonally (*Aman* and *Boro / Aus* seasons). It was found that the peak periods of rice trading matched with harvesting periods of *Aman* and *Boro / Aus* paddy. Therefore, the analysis indicated that the trade flows of rice from surplus to deficit markets are neither always uni-directional nor continuous throughout the year which negates the theory of radial market.

In the case of domestic wheat, major trade flows were from the Northern and South-west regions to the Central and South-east regions. In the case of imported wheat, two-way flows were observed : from South-east region (specifically Chittagong) to North-west region and vice-versa. Seasonal complementarity in trading of domestic and imported wheat trading among the markets located in Northern and South-east regions were also observed.

Findings in relation to transfer cost for long-distance foodgrain trading showed that transfer cost which consists of transportation cost, handling cost and traders' margin varies widely among different market pairs. Transport cost varies mainly due to distance of the markets and mode of transportation. Truck was found to be the main mode of transport for transporting foodgrain in almost all the markets with the exceptions of Chandpur and Bhairab Bazar where river and rail transports respectively were more dominant than road transport (truck). In the cases where alternative modes were used, it was found that transport cost by rail or river was lower than that of truck. However, handling costs of transporting by rail or river were found to be considerably higher (compared to trucks) due to payments of various types of legal and illegal fees.

Further, a regression analysis showed that trucking costs significantly depend on distance of markets, number of bags loaded per truck and existence of ferry crossings on the route. However, trucking cost per quintal was found to decrease with the increase of distance. It was also found that most of the rice traders' margin in relation to total transfer cost varied within the range of 15 to 25 % while for wheat it varied within the range of 8 to 17 %. However, traders' margin at Dhaka rice market was found to be comparatively higher (38 %) than other markets which may be due to high establishment costs of the Dhaka traders on the one hand, and higher purchasing capacity of the consumers on the other hand.

Among the various problems faced by the long-distance foodgrain traders, transport related problems were found to be the most important. In the case of trucks which is the main mode of transportation, most common problem is sudden strikes called by the transport businessmen (for increasing transport fare in the peak season of rice trading) or by the transport labour unions (on various issues). Traffic jam at the major ferry crossings (particularly at the Aricha-Nagarbari Ghats) causes high trucking cost as well as delay in delivery of foodgrain in the Central and Southern regions from the North-west region. Further, as a result of emerging new 'Chars' in Jamuna river, more time is consumed for transporting foodgrain by boats. In the Southern region particularly in Barisal, as a result of drying up of 'Khals' transportation by boats has become difficult which has caused reduced supply of rice in the markets. In the case of rail, traders mentioned a number of problems for which they avoid transporting by rail although the freight rate is cheaper than trucks. Besides, excessive delay in transporting by rail, danger of foodgrain

damage by rain water due to bad condition of railway wagons and stealing of rice from the bags have been reported by the traders. Further, traffic jam is not only a problem for long-distance foodgrain transportation, it is also a serious problem for some terminal markets like Dhaka Babubazar- Badamtoli market. As a result of severe traffic jam on the access road, trucks loaded with rice can not reach the market. It also discourages 'Paikers' to enter into the market which causes less rice sale.

Among other problems, traders reported that in recent years less rice / wheat is sold and profit margin is also low. This has happened as a result of greater competition in the market as the number of traders has been increased in recent years. Although this is a problem from the traders' point of view, greater competition in the market due to ease of new entry in the market has benefited the foodgrain consumers. Further, problems related to excess import of foodgrain are not likely to continue in future.

The traders also reported that political instability along with frequent strikes and 'Hortals' in recent years are affecting their business seriously. They also complained about the payments of various types of illegal fees to the 'Chanabazs', transport 'Dalals' (brokers), railway staff as well as to the Police. Moreover, the traders mentioned that the transportation through river route has become more risky in recent years as the number of incidence like 'Loots' or plundering and 'Dacoity' have increased. Further, sometimes trucks loaded with foodgrain are missing.

In the light of the major findings of the study, some specific recommendations were made. The most important problem related to transport was found to be traffic jam at ferry *ghats*. In this respect, major ferry problem at the Aricha-Nagarbari Ghat is expected to be solved very shortly after the construction of Jamuna bridge. However, ferry problems at Aricha-Goalanda ghat, Paksey ferry ghat and in other places are yet to be solved which need attention from the Government authorities. Further, over loading of trucks which increases the probability of accidents, damage to the road condition as well as trucks itself, should be restricted. Immediate attention is also needed to improve the railway services particularly for those who are involved in very long distance trading of foodgrain. Re-excavation of dried up 'Khals' may also ease foodgrain transportation particularly for the traders in the Southern regions.

Extending direct telephone dialling facilities or telephone card facilities in all the major market locations, expansion of more institutional credit facilities for the traders and introduction of insurance facilities against missing of trucks, sinking of boats or mishaps in the case of river transportation may immensely help the long-distance foodgrain traders. Further, easy access to the information on national food demand-supply balance may help the importers in importing foodgrain.

Some physical facilities also need to be increased in some wholesale markets. For example, improvement of access roads to the major foodgrain wholesale markets and expansion of warehouse facilities in some market locations are needed. Government attention is also needed to protect Chandpur wholesale market from river erosion.

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GLOSSARY

Agrahayan	From mid November to mid December
Aman	Rice planted before or during monsoon and harvested in November or December.
Aratdar	A trader who may be a wholesaler and / or sells on commission basis.
Arats	Shops of Aratdar.
Asar	From mid June to mid July
Ashin	From mid September to mid October
Aus	Rice planted in March and April and harvested in July and August.
Baisak	From mid April to mid May
Bazar	Market.
Beparies	Full-time itinerant traders who buy from farmers or 'Faria' in local market and sell in secondary or terminal market.
Bokshis	Tips
Boro	Rice planted in December or January and harvested in April or May.
Chaitra	From mid March to mid April
Chalan	An invoice.
Chanda	Illegal Subscription.
Chandabaz	Person who collects illegal subscription
Dacoity	Robbery.
Dalals	Brokers.
Falgun	From mid February to mid March
Farias	Local full-time or part-time traders who traded primarily in the village market in small volume.
Ghat	River port.
Haor	Large low lying area.
Hortal	Dead lock of all movements of transport and commercial activities.
Jaista	From mid May to mid June
Katrik	From mid October to mid November
Khal	Canal
Kutials	Small scale rice processors who buy paddy and after getting it husked at the small rice mills sell (rice) in local markets.
Magh	From mid January to mid February
Maund	A local unit of weight equivalent to 37.32 kg. In fact, traders consider 40 Kg. as one maund
Mokams	Trading place.

Paiker	Retailer.
Pajam	A local high yielding variety of paddy grown in Aman season.
Polli rationing	Rationing in rural area.
Poush	From mid December to mid January
Rickshaw /Van	Semi-mechanised local transport used for carrying both man and goods.
Sadar	Head quarter.
Somity	Association.
Sravan	From mid July to mid August
Thana	Sub-district.
Tk.	Taka.
Union Parishad	A lowest administrative unit comprising a number of villages.
Vadra	From mid August to mid September

ABBREVIATIONS AND ACRONYMS

DD	Demand Draft.
DFID	Department for International Development
FFE	Food for Education.
FFW	Food for Work.
FM	Flour Mills.
GDP	Gross Domestic Product
OMS	Open Market Sale.
PFDS	Public Foodgrain Distribution System.
TT	Telegraphic Transfer.
VGD	Vulnerable Group Development.

CHAPTER - 1

INTRODUCTION

Agricultural sector which contributes about 35 % to the Gross Domestic Product (GDP) is the largest source of income, employment, saving and investment in the economy of Bangladesh. About 80% of the agricultural production originates in crop sector alone of which rice constitutes about 72% (B. B. S., 1994). If we take into account the trade and transportation of foodgrain, the foodgrain related sector would raise to one-third of GDP.

In spite of decreasing agriculture's share in GDP, the share of foodgrain or more particularly rice has increased over time due to the development of seed-fertilizer-irrigation technologies. Chowdhury (1992) reported that 35% of the rural household income came from rice cultivation. Moreover, 50% of household's expenditures are spent on cereals, and cereals supply 80% of calories to the average household food consumption in the country (B. B. S., 1995).

Foodgrain production has doubled and marketed quantities have increased by a factor of six since independence due to introduction of new technologies in Bangladesh agriculture. As a result, the regions which were traditionally deficit have become surplus in foodgrain production, especially in the areas where HYV *Boro* rice and HYV wheat have been introduced extensively. This has also caused major changes in the foodgrain marketing systems of Bangladesh. Moreover, liberalization policy adopted by the government in the recent past has added a new dimension in the private sector foodgrain marketing.

Numerous agents are involved in foodgrain marketing of Bangladesh. Of them, wholesaler cum *Aratdars* maintain a commanding position in the sense that about 80-90% of all rice that reaches the consumers passes through them. In the whole marketing chain, the long-distance wholesalers play an important role in transferring foodgrain from surplus to deficit areas and in determining prices in different markets. Market integration and pricing efficiency in the long-distance markets largely depend on the marketing practices of these traders. Again, price signals are mainly transmitted from wholesalers upward to the consumer and downward to the producers. Therefore, rather than looking into vertical integration and pricing efficiency among the various participants involved at different stages in the marketing chain, a survey specially among the long-distance foodgrain wholesalers was needed for examining spatial price integration and pricing efficiency.

It may be mentioned that all the previous studies in Bangladesh in this field looked into market integration on the basis of time series price data collected from secondary sources rather than examining transfer cost, trade flows, transportation system, etc. through collecting primary data. In order to complement and deepen the results of price analysis, in contrast to the previous studies, a survey among the long-distance wholesalers was undertaken for collecting primary data on trading practices, transfer cost, the directions and patterns of trade flows, seasonality of trade flows and the constraints faced by the long-distance foodgrain wholesalers.

1.1 Background of the Study

The research project entitled, "The Spatial Integration and Pricing Efficiency of the Private Sector Grain Trade in Bangladesh" has been undertaken in collaboration with the Institute of the Development Studies (IDS) at the University of Sussex, the Bangladesh Institute of Development Studies (BIDS) in Dhaka and the Bureau of Socio-economic Research and Training (BSERT) at the Bangladesh Agricultural University, Mymensingh. The study is funded by the Department of International Development (DFID), UK under its RNRSS Programme. The project activities have been organised in two phases lasting 10 and 8 months, respectively. This report covers the foodgrain trader survey component of the project's first phase.

The overall objectives of the study in the first phase are to :

a) investigate the efficiency and structure of the private sector grain trade in Bangladesh,
b) investigate the principal constraints faced by different categories of traders, and
c) identify the most effective means of addressing the bottlenecks and constraints in foodgrain marketing system.

The research methodology chosen consists of a combination of time series analysis of prices and a questionnaire sample survey of long-distance/ inter-district grain traders. Long-distance wholesalers in this study refer to those wholesalers who are involved in trading rice or wheat with distant markets which are located more than 40 to 50 kms apart. It is expected that other participants in the foodgrain marketing will also be interviewed later on during the second phase of this study.

1.2 Specific Objectives of the Survey

Under the broad framework of the whole study, the specific objectives of the survey among the long-distance foodgrain wholesalers were to :

a) investigate characteristics of foodgrain markets, traders and marketing operations.
b) examine trade flows, market linkages and seasonality of foodgrain trading.
c) estimate transfer costs of foodgrain for different market locations.
d) identify problems and constraints faced by the long-distance foodgrain traders and to indicate the most effective means to solve those problems and constraints .

1.3 Conduct of the Survey

The survey was conducted during the period from January to April, 1997. Fourteen long-distance wholesale rice markets located at different regions of Bangladesh were purposively selected for the present study. For selecting the markets, a number of factors were considered which were : foodgrain surplus and deficit regions, regional distribution of the markets, importance of the markets with respect to involvement in long distance trade, etc. Out of these 14 markets, 6 were also purposively selected for interviewing long-distance wheat traders. The traders' survey was conducted among 76 long-distance rice traders and 30 long-distance wheat traders who were selected randomly from these 14 markets. Detailed selection procedures of the markets as well as the traders have been discussed in Chapter 3.

The field research was conducted by the Principal Researcher (Dr. W. M. H. Jaim) in co-operation with a Co-researcher (Dr. S. A. Sabur) both located at the Bangladesh Agricultural University (BAU), Mymensingh. Two Research Officers (Mr. M. Shahinur Rahman and Mr. M. Saiful Islam) under close supervision of the Researchers at BAU collected the necessary field level data for this study. During the course of the study particularly, in selecting the markets and the traders; and designing and pre-testing of the questionnaires the team members at BAU were immensely benefited from valuable discussions with Dr. Bob Baulch of IDS, Sussex and Dr. Sajjad Zohir of BIDS, Dhaka. The Researchers were also benefited from discussions with Mr. Jayanta Das, IDS Research Officer and Mr. Naser Farid of Policy and Monitoring Unit.

1.4 Structure of the Report

Chapter 2 presents an overview of the foodgrain marketing system in Bangladesh. Chapter 3 describes the methodology for selecting markets and traders, and also describes the analytical techniques used for this study. Specific characteristics of the selected markets have been presented in Chapter 4. Chapter 5 presents traders' characteristics and trading practices. Chapter 6 shows trade flows of foodgrain and tries to examine seasonality of trading. Chapter 7 presents trader's margin and transfer costs of foodgrain for different markets using different modes of transportation. In Chapter 8 identifies the problems and constraints faced by the long-distance foodgrain traders. Chapter 9 concludes and discusses the policy implications of the study.

CHAPTER - 2

FOODGRAIN MARKETING SYSTEM IN BANGLADESH

Marketing plays an important role in modernising agriculture. Inadequate marketing facilities, imperfect market structure, inefficient marketing systems and inappropriate marketing policies hinder the process of modernisation and the acceleration of growth (Majiruddin , 1989). One of the reasons for the relatively slow growth in foodgrain production in Bangladesh is likely to be the lack of adequate and efficient marketing facilities at different levels. The farmers are also often deprived of a reasonable return for their investments in foodgrain production. Unless growers can be assured of a satisfactory level of return for their marketable surplus of foodgrain, all the efforts to achieve self sufficiency will be of little value. These and similar other issues lead to the need for an overall study of the foodgrain marketing system in Bangladesh.

The principal foodgrains in Bangladesh are rice and wheat. The foodgrain marketing operations are both under private and public management. The size of private sector foodgrain marketing is usually estimated as a proportion of total production marketed. The size of the market has grown rapidly over last twenty years due to the diffusion of Green Revolution technology in rice production. The marketed surplus of rice has increased from 34% in the second half of the 1970s to 49% in 1989 / 90 (Chowdhury,1992). The size of private sector marketing of rice therefore rose by a rate that is close to more than twice the growth rate of population during this period.

The growers sell their paddy to *Farias*, *Beparies*, *Kutials*, rural rice mills or government. Chowdhury (1992) found that the farmers sold 63% of their paddy at the farmgate, mainly to *Farias*. The rest was taken to the primary market and sold to either *Farias* or millers or paddy wholesalers. Of the quantity taken to the market, about 3% was sold to the government procurement centres. *Farias* sell their paddy to wholesalers or millers. *Beparies* sell most of their produce to the mills and small portion to the wholesalers. The paddy wholesalers virtually sell all the procured paddy to millers. Small scale processors of paddy predominant in the performance of rice marketing function. The largest flow of rice is from small mills selling to visiting *Pikers* who in turn supply virtually all their purchase through rice *Arats* in terminal market. The *Aratdar* cum wholesalers market more than 90% of their stock through retailers. The *Aratdar* cum wholesalers maintain a commanding presence in the rice market. About 80-90% of all rice that reaches to consumers passes through the premises of one or the other *Aratdars* (Chowdhury, 1992).

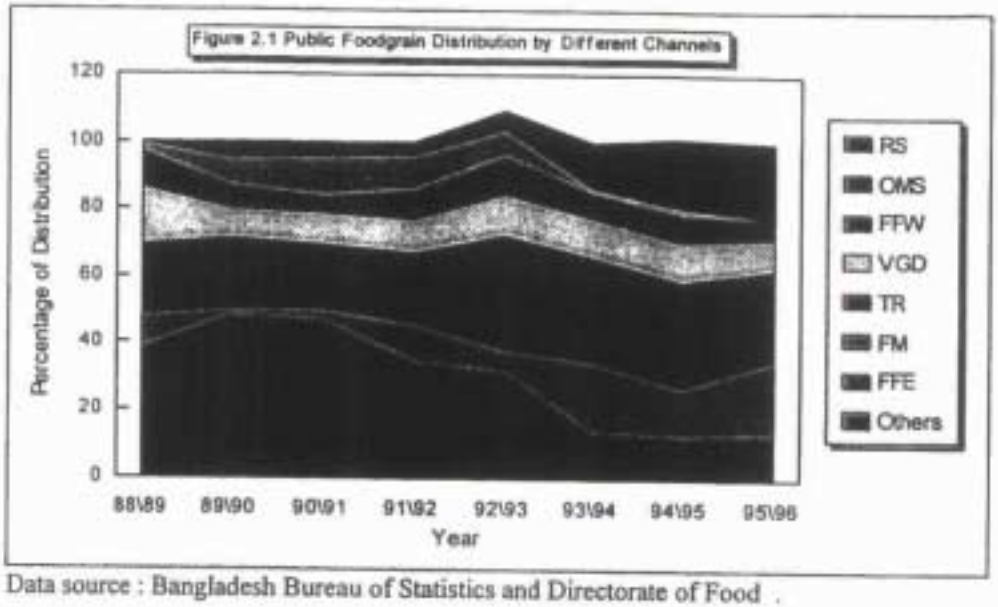
In Bangladesh, there are basically six tiers of marketing agents involved in domestic wheat marketing viz. the farmers, *Farias*, wholesalers, millers, flour wholesalers and retailers. The *Farias* buy solely from farmers and sell most of their products to wholesalers in the assembly markets. The wholesalers then assemble wheat for onward shipment mainly to other wholesalers in terminal markets. Domestic wheat marketing season is short, beginning from the middle of March through middle of June. The wholesalers of terminal market ultimately supply their wheat to the millers. Millers obtain wheat from three sources: domestic production , import and leakage from Public Foodgrain Distribution System. Wheat millers' functions are to buy wheat, process it into flour and associated by-products and sell the latter. The finished product of wheat in the form of flour is packed by the millers and marketed through flour wholesalers and retailers. The millers also market their unpacked flour through flour wholesalers who sell it to the retailers. Another system of foodgrain exchange has also been identified (Crow, 1989). It consists of the various systems of non-monetary foodgrain exchange, particularly, payments in kind for the use of land (through share cropping arrangement) and for the use of labour. Very little is known

about this system and its interaction with other systems. A rough estimate of share cropping suggests that one-sixth to one quarter of cultivated land in Bangladesh is under this system (Boyce, 1987). If a 50:50 output sharing system is taken to be prevalent, 8-13 percent of production may be exchanged under this system.

Many studies (Farruk, 1972, Islam et al, 1985, Chowdhury, 1992 & 1993) found intense competition, low trading margin and no major instance of vertical integration in the case of foodgrain marketing in Bangladesh. However, various case studies (Crow, 1989, and Crow & Murshid, 1990) showed that pre-harvest contact with producers, vertical integration among traders, trade tying loan, price fixing loan etc. prevailed in foodgrain marketing. This market structure reduces the price received (lower the prevailing market price) by the small farmers with the margin being shared by the *Farias*, the mill owners and large farmers.

The Public Foodgrain Distribution System (PFDS) which was introduced in Bengal in 1943 had the sole objective of guaranteeing a minimum quantity of foodgrain at controlled prices to urban consumers. Apart from this objective, PFDS, in the latter period, tried to address itself to the rural poor, financing infrastructural development and stabilising foodgrain prices. The distribution channels through which food is distributed to the public broadly fall into two groups: monetized channels and non-monetized channel. The monetized channels are managed by the Ministry of Food, while the non-monetized channels are under control of the Ministry of Relief and Rehabilitation. To run the PFDS, Government imports foodgrain from abroad as well as procure foodgrain from domestic production. Food Department purchases foodgrain through procurement centres at a price fixed by the government. The earlier practice of procuring from the farmers has been replaced by mill gate contracting that involve purchase from millers. This system was however abolished in 1992 and procurement through open tendering and directly from farmers was introduced (Zohir , 1995). Over the years the structure of flow from PFDS has changed sharply away from rationing system, test relief and Vulnerable Group Development (VGD) to Open Market Sales (OMS) and Food for Education (FFE) (Figure 2.1). The rationing system lost its share from 38.63% in 1988-89 to 13.09 in 1995-96. On the other hand FFE and OMS consolidated their share from nil and 9.93% to 13.26% and 22.51% respectively over the same period. A major policy decision with regard to PFDS was the abolition of " *Polli* Rationing " in April 1992.

For the last several years , the Government has adopted a policy of gradually moving away from a general rationing system toward a targeted food distribution system. This policy has left overall supply and price stabilisation to the market forces. The Government has also sought the participation of the private sector in this regard. The traders who had denied foodgrain import earlier, are allowed since 1991-92 to import foodgrain on their own. Recent changes in Government policies towards privatization has changed the trend of internal procurement, distribution through PFDS, public import and private import of foodgrain as can be seen in Table 2.1. This shows that procurement of rice at present is at a low level as it was before (but compared to 1989/90 to 1991/92 it has decreased), public import has decreased, distribution through PFDS has also declined, private import on the other hand has increased sharply in recent years (since 1993/94). The movement towards liberalisation and privatization open many questions regarding the role of market in the foodgrain sector. This demands further study to examine the performance of private sector under the new environment of privatisation. Major studies on foodgrain marketing system in Bangladesh before liberalization of privatization policy was undertaken by Choudhury (1992 and 1993). In fact no major studies of foodgrain marketing system in Bangladesh have been undertaken in the post-liberalization period with respect to foodgrain marketing.



Data source : Bangladesh Bureau of Statistics and Directorate of Food .

RS= Rationing System
OMS = Open Market Sale
FFW = Food For Work
VGD = Vulnerable Group Development
TR = Test Relief
FM = Flour Mill
FFE = Food For Education

Table -2.1 Foodgrain Procurement, Public Import, Private Import and Distribution through PFDS Over the Years

(In '000 mt.)

Year	Procurement	Public Imports	Private Imports	Distribution through PFDS
1980/81	1017	1076	0	1546
1981/82	303	1255	0	2067
1982/83	192	1844	0	1935
1983/84	266	2056	0	2051
1984/85	349	2593	0	2562
1985/86	349	1200	0	1540
1986/87	188	1767	0	2121
1987/88	375	2917	0	2503
1988/89	416	2136	0	2958
1989/90	960	1533	0	2164
1990/91	783	1577	0	2372
1991/92	1016	1563	0	2345
1992/93	233	828	355	1073
1993/94	166	654	312	1376
1994/95	277	1555	1013	1573
1995/96	660	1577	850	1795

Data source : Bangladesh Bureau of Statistics and Directorate of Food .

CHAPTER -3

METHODOLOGY

In this chapter the procedures followed in the selection of the markets and the traders involved in long-distance foodgrain trading have been discussed. Further, the main aspects covered in the questionnaire, conduct of the field survey, method of data entry and analytical techniques used in analysing data have also been discussed.

3.1 Selection of the Markets

Selection of the markets for the present study considered a number of aspects such as areas with surplus or deficit in foodgrain production, geographical / regional distribution of the markets, involvement of the wholesalers in long-distance rice / wheat trading and above all, the markets from which weekly price information is collected by the Department of Agricultural Marketing (DAM) of the Government of Bangladesh. DAM collects and reports weekly price of rice and wheat from 70 markets across the country. Keeping in mind the above considerations for market selection, out of these 70 markets at first 25 markets were initially selected for long-distance foodgrain traders' survey. Again, out of these 25 markets, the markets which were initially considered for the traders' survey of both rice and wheat were : Dinajpur, Rangpur, Bogra, Thakurgaon, Pabna, Jessore, Jhinaida, Khulna, Chittagong, Dhaka, Narayanganj; the markets which were selected only for rice traders' survey were : Rajshahi, Naogaon, Mymensingh, Sherpur, Jamalpur, Tangail/Ghatail, Barisal, Faridpur, Chandpur, Sylhet, Habiganj / Chunarighat, Bhairab Bazar / Ashugonj, Choumohoni and the market which was considered only for wheat traders' survey was Kushtia. However, the final selection out of these 25 markets was based upon the following criterion :

1. Whether a market performs as an important nodal point in wholesale rice / wheat marketing network of the country ? The term nodal point here refers to whether a market procures grains from some procurement markets and sell it to other wholesale or terminal markets.

2. Whether a market is one of the principal markets for domestic foodgrain trade ?

3. Whether the markets to be selected are spatially separated (not very close to each other) so that long-distance trading practices can be examined ?

4. Whether the DAM collects weekly price from the market and whether the data set is complete for the period from 1987/88 to 1996/97 financial year (which was considered for price analysis).

Out of the 25 initially selected markets, only 14 rice markets which satisfied all the above four criterion were selected. For conducting long-distance wheat traders' survey, a sub-set of six of these locations which satisfied first three criterion were selected. It may be mentioned that out of these 6 markets, complete price data for 2 markets (Chittagong and Jessore) were not available for which these 2 markets were not considered for price analysis; however, traders' survey was conducted and data were analysed. The 14 rice markets and 6 wheat markets which were finally selected for long-distance traders' survey can be seen in Table 3.1.

Table 3.1 Selected Markets for Rice and Wheat Traders' Survey

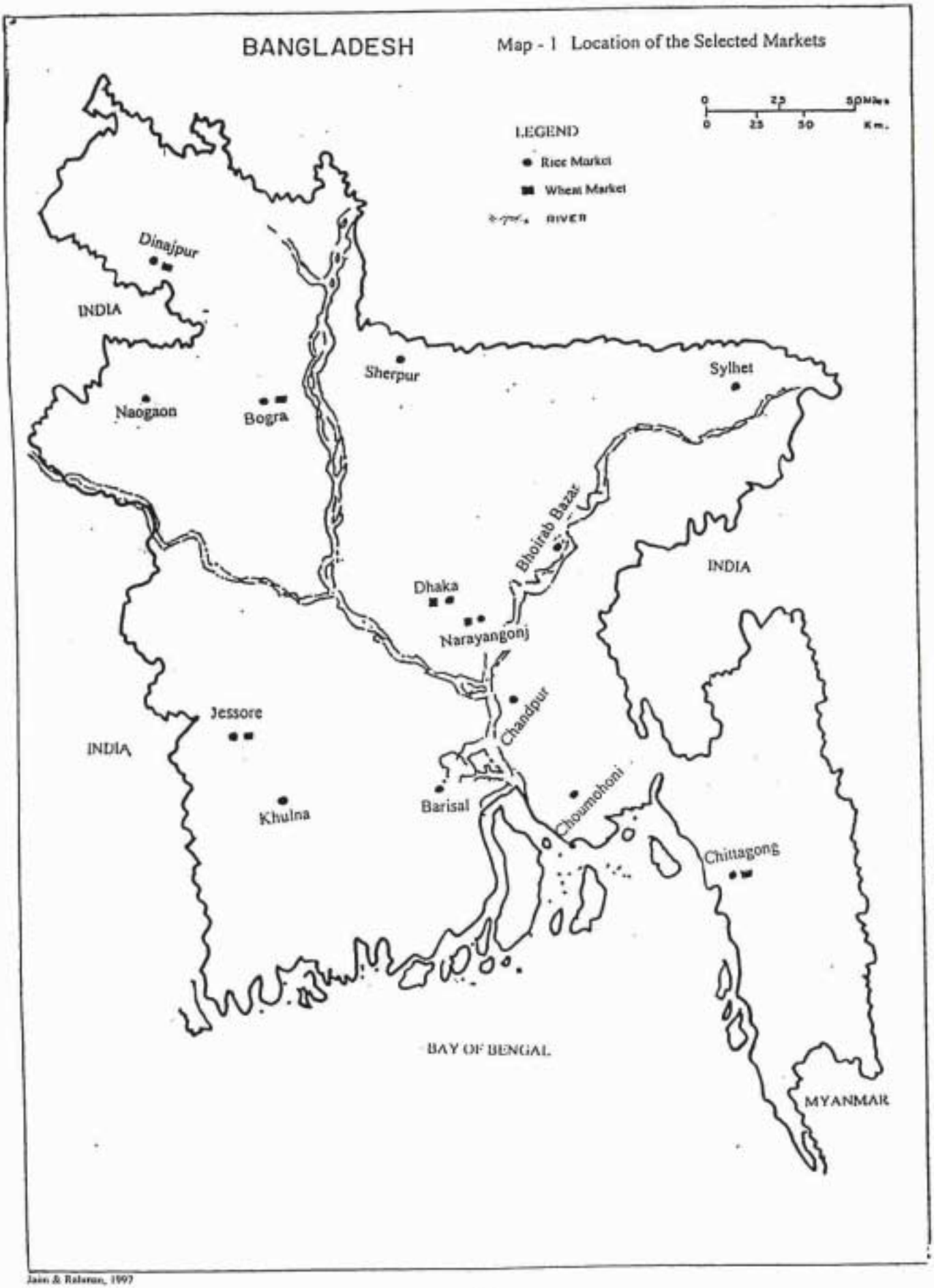
Rice Markets	Wheat Markets
1. Barisal	1. Bogra
2. Bhairab Bazar (Kishoregonj District)	2. Chittagong
3. Dupchachia (Bogra District)	3. Dhaka
4. Chandpur	4. Dinajpur
5. Chittagong	5. Jessore
6. Choumohoni (Noakhali District)	6. Narayangonj
7. Dhaka	
8. Dinajpur	
9. Jessore	
10. Khulna	
11. Naogaon	
12. Narayangonj	
13. Sherpur	
14. Sylhet	

It may be mentioned here that all the markets for wheat traders' survey were located at the district *sadar* (headquarters), while for rice all the markets except Bogra and Bhairab Bazar were at district headquarters. The selected market for Bogra district was Dupchachia market which is actually located at the Dupchachia thana headquarters, about 20 km. away from district headquarters of Bogra. This is in fact the biggest long-distance rice trading centre of Bogra district where large number of rice mills are located. However, the name of the Dupchachia market / thana, is not familiar to all; therefore for better understanding about the market location, instead of Dupchachia the name Bogra has been mentioned in this report. It may be mentioned that there was no long-distance rice wholesalers at the district headquarters of Bogra.

Bhairab Bazar, on the other hand, is about 60 km away from the district headquarters, Kishoregonj. Bhairab Bazar which is actually a river port and quite a big wholesale market not only for foodgrain but also for various other commodities, was selected specifically because of its importance as a transhipment point. It may also be mentioned that the market Choumohoni which belongs to the municipality area of Begumgonj is only 8 km. away from the Noakhali district *sadar* named Maijdee court. The locations of the selected markets for traders' survey of rice and wheat can be seen in Map 1.

3.2 Selection of the Traders

For selecting traders it was decided earlier that from each market locations, 5 rice traders and 5 wheat traders involved in long-distance trading are to be selected for interview. Additionally, 10 % of the millers (rice and wheat)-cum-wholesalers up to maximum of 5 would be interviewed. This includes any miller-cum-wholesalers already selected from the list of the total wholesalers.



Jain & Rahman, 1997

As a first step for selecting traders, complete list of the traders involved in long distance trade of rice and wheat were collected for each of the selected markets from the Chairman / Secretary of the traders' association or from the millers (rice) association. In some cases key traders were also consulted in preparing list of the long-distance traders. Then names of the pure commission agents were deleted and those who own rice / flour mills were marked. Then for each market, the expected number (as mentioned above) of traders were selected randomly from the final list.

Table 3.2 Sampling of Rice Traders

Name of District / Market	Number of total long-distance Wholesalers	Wholesaler-cum - miller	Total number of sample selected	Number of wholesaler -cum-miller within the sample
Barisal	25	0	5	0
Bhairab Bazar	23	2	5	0
Bogra	17	15	5	4
Chandpur	34	0	5	0
Chaumohoni	31	1	5	0
Chittagong	44	7	5	1
Dhaka	328*	3	15	1
Dinajpur	21	8	5	2
Jessore	1	1	1	1
Khulna	36	9	5	2
Naogaon	20	8	5	3
Narayangonj	37	2	5	0
Sherpur	0	145	5	5
Sylhet	15	1	5	1
Total	**632**	**202**	**76**	**20**

*Total number of long distance wholesale traders in Badamtoli / Babubazar market was 225; out of which list of 172 was available. In Mohammadpur market, total number of wholesalers was 103. Therefore, actual number of wholesale traders was 328, out of which 275 (172 + 103) were considered for sampling.

It can be seen from the Table 3.2 that in the case of rice traders, except Dhaka and Jessore, 5 traders were randomly selected for interview from all the selected market locations. In Jessore, there was only one long-distance rice trader for which there was no other alternative than to select him. In the case of Dhaka, it was found that there were more than 300 long-distance rice traders, in contrast, maximum number of traders was only 44 in other markets. Therefore, for Dhaka, it was decided to interview 15 rice traders instead of 5. The table also shows that in Sherpur, there was no pure long-distance rice wholesalers; instead the millers were involved in long-distance trading. Therefore, all the traders selected for Sherpur were in the category of wholesalers-cum-millers. Number of wholesalers-cum- millers included within the sample for other markets can also be seen from the Table. Thus, the total number of sample for rice traders' survey stood at 76, out of which 20 were wholesalers-cum-millers. For wheat, 30 long-distance traders were selected randomly and out of them 6 were wholesalers-cum- millers (Table 3.3).

Table- 3.3 Sampling of Wheat Traders

Name of District / Market	Number of total long-distance Wholesalers	Wholesaler-cum - miller	Total number of sample selected	No. of wholesaler - cum-miller within the sample
Bogra	10	2	5	1
Chittagong	22	6	5	2
Dhaka	11	1	5	1
Dinajpur	18	1	5	0
Jessore	7	2	5	2
Narayangonj	17	1	5	0
Total	**85**	**13**	**30**	**6**

3.3 Designing Questionnaire, Collection of Data, Data Entry and Analysis of Data

Keeping in mind the research objectives, separate questionnaires were developed for both rice and wheat which were pre-tested before finalization. The questionnaires covered mainly the following aspects :

a) identification of the markets and traders;
b) commodities traded;
c) sources of supply and destination of sale of foodgrain;
d) varieties and grades of foodgrain traded;
e) periods of maximum procurement and sale of foodgrain;
f) transport cost;
g) handling cost;
h) profit margin;
i) order and price fixation procedures;
j) storage facilities;
k) sources of finance;
l) problems and constraints.

Besides, the structured questionnaire used for the survey, additional data on each of the selected market were also collected through observation and through discussions with the key informants (i.e. Chairman / Secretary of Market Association / Millers Association, traders with long experience, etc.) involved in rice and wheat trading. The District Marketing Officers were also consulted while collecting data, although often the information provided by them were not up to the level of expectation.

Field survey was conducted during the period from January to April, 1997. During the course of data collection, data entry in computer also continued following code books designed for analysis from the survey data. For both data entry and data analysis, the Statistical Package for Social Sciences (SPSS) programme (version 6) was used. For analytical purpose, simple descriptive statistics, regression analysis as well as graphing and mapping methods were used.

CHAPTER - 4

SALIENT FEATURES OF THE SELECTED MARKETS

The markets selected for this study are located in different regions of Bangladesh. Most of these markets located in different regions have also some special characteristics with respect to foodgrain marketing operations. Therefore, to set the context, characteristics of the markets located in different regions have been briefly described in this chapter.

4.1 Regional Distribution of the Selected Markets

While selecting markets due consideration was given to cover all the regions / divisions of Bangladesh as can be seen in Table 4.1. According to the market locations, the selected markets are situated in 5 regions (Table 4.1) covering all the 6 administrative divisions. Location of a market / district has itself have some comparative advantages / disadvantages in terms of marketing of foodgrain. Therefore, the market locations in different regions and their natural advantages in communicating with other long-distance markets have been briefly described in the following sections :

4.1.1 Market Locations in the North-west Region and Communication Facilities :

Dinajpur, Bogra and Naogaon Markets

The North-western district of Dinajpur is famous for agricultural production particularly, rice. Dinajpur, is also one of the most important wheat growing areas in Bangladesh. The only Wheat Research Centre in Bangladesh is located in Dinajpur. The rice and wheat wholesale markets of Dinajpur are located in the Dinajpur town which are well linked with other districts by road. Truck is the usual mode of transportation for sending foodgrain to distant markets. Sometimes trucks are used up to Nagarbari Ghat and then engine operated boats / launches are used for transporting wheat to Narayangonj. In a few cases, traders also use rail for transporting rice.

The small district Bogra located at the centre of the North-west region of Bangladesh is important in terms of production of rice as well as other agricultural commodities. Since there is no long-distance wholesale rice market in Bogra municipality area, the market located at the Dupchachia *thana* was selected for traders' survey. The rice wholesale market of Dupchachia is located about 20 kms away from the Bogra town by the side of the Bogra-Shantahar road. However, unlike rice wholesale market, the long-distance wheat wholesale market of Bogra is located in the municipality area on the both sides of the Bogra - Dhaka highway. Both the rice and wheat wholesale markets of Bogra are well linked with the long-distance markets by good road communication. Sometimes rail is also used for transporting foodgrain to distant markets.

Naogaon is one of the largest long-distance wholesale rice markets in Bangladesh. The wholesale rice trading market of Naogaon is located on the bank of the river known as Little Jamuna. The river is flowing through the middle of Naogaon *Sadar* dividing the town into two parts namely Main Naogaon and Par-Naogaon. The location of the Naogaon wholesale market close to the main road as well as on the bank of the river have created an excellent opportunity for the traders of this market to use both road and river routes for transportation of rice as well as other commodities. Sometimes, rail is also used for transporting rice from Naogaon.

Table 4.1 Regional Distribution of the Selected Markets

Region	Districts / Selected Markets	Division
North-west	Dinajpur Naogaon Bogra	Rajshahi
North & North-east	Sherpur Sylhet	Dhaka Sylhet
Central	Dhaka Narayangonj Bhairab Bazar	Dhaka
South & South-west	Barisal Khulna Jessore	Barisal Khulna
South-east	Chittagong Chandpur Choumohoni	Chittagong

4.1.2 Market Locations in the North and North-east Region and Communication Facilities:

Sherpur and Sylhet Markets

Sherpur, which was once part of greater Mymensingh district is located about 60 Kilometres north of Mymensingh town. Like other districts of Bangladesh, Sherpur is involved in long distance wholesale rice trading. However, in Sherpur, there is no pure wholesaler who is involved in long distance wholesale trading of rice. The rice mill owners are involved in long distance wholesale trading. Therefore, they may be called wholesalers cum millers. There are also a few traders who do not own mill but rent mills from others. They purchase paddy, husk it in the rented mills and sell rice in the long-distance markets through '*Beparies*'. This is the special characteristics of wholesale rice trading of Sherpur market. Truck is the only mode for transporting rice from Sherpur to the distant markets.

Sylhet is located on the North-east part of Bangladesh. The river Surma is flowing across the Sylhet town. The wholesale markets of Sylhet are located at the heart of the town by the side of the river Surma. However, truck is used as the main mode of transportation for carrying rice to Sylhet from long-distance markets. Sometimes rail is also used particularly in the case of transporting rice from Dinajpur and some other markets of Northern districts.

4.1.3 Market Locations in the Central Region and Communication Facilities :

Dhaka, Narayangonj and Bhairab Bazar Markets

Dhaka the capital city, is the largest terminal market for foodgrain in Bangladesh. More than 8 million people live in this city and the number is increasing alarmingly day by day. As a result, the demand for foodgrain of the city dwellers is increasing rapidly. Out of the 3 selected rice wholesale markets of Dhaka, Babubazar- Badamtoli which is really one extended market is located in a densely populated busy commercial area of old Dhaka on the bank of the river Burigonga. The access to the market by road using any mode of transportation is very difficult. On the other hand, Mohammadpur Bazar has a very good access road. Wheat wholesale market of Dhaka (Maulovibazar) is also located in old Dhaka; the access to this market is also difficult.

The modes of transportation for carrying foodgrain from distant places to Dhaka are truck, boat and rail. However, truck is the main mode of transportation. In few cases, both trucks and boats are used consequently. The mode of transport varies from area to area as well as from one season to the other. Sometimes rail is used for transporting rice from Thakurgoan and Dinajpur.

Narayangonj, one of the largest river ports of Bangladesh, is situated on the bank of the river Shitalakkha. The district town is only 15 km. away from Dhaka city and it is playing an important role in business and commerce of Bangladesh. The rice and wheat wholesale market of Narayangonj is known as Nitaigonj Bazar located by the side of the highway and close to the truck terminal. The traders usually use trucks for transporting foodgrain from distant markets. Trawlers are also used when imported wheat is procured from Chittagong. Sometimes the traders use both trucks and boats while bringing wheat from North Bengal.

Bhairab one of the most important *thanas* of Kishorjonj district is located 56 km away from Kishorgonj town. Bhairab known as Bhairab Bazar is located on the western side of the river Meghna where the rivers Brahmaputra and Meghna meet together. Ashugonj under Brahmanbaria district is situated on the other side of the river. The *bazar* (river port market) acts as a terminal market. Various types of goods are brought from different markets to Bhairab Bazar and are sent to different markets by engine operated boats and cargoes.

Unlike other districts, the main mode of transporting rice from distant markets such as Lalmonirhat, Kurigram, Dinajpur, Bogra is rail. Truck is the second choice as the mode of transportation. In the case of transporting rice from Bhairab Bazar to the places like Sylhet, Hobigonj, Munshigonj and some areas of Brahmanbaria; the traders use engine operated boats.

4.1.4 Market Locations in the South and South-west Region and Communication Facilities :

Barisal, Khulna and Jessore Markets

Rice wholesale market of Barisal is located in the main town. The Southern district, Barisal is called the district of rivers and canals. However, as a result of improvement of road communication system, long-distance trade particularly with the Northern region of Bangladesh takes place by road. Engine operated boats and trawlers are used when trading takes place with the local or nearby district markets like Patuakhali (Khepupara), Pirojpur, Borguna, Bhola etc.

The divisional town Khulna is located on the Southern part of Bangladesh on the cost of the Bay of Bengal. The importance of Khulna as a commercial city is due to the fact that the country's second largest sea port, Mongla is situated in this district. The rice wholesale market of Khulna town is situated on the bank of the river Rupsha. Previously, Khulna was a transhipment point. But now its position has been changed due to improvement in road communication. Few years back, Barisal and Chandpur used to buy rice from Khulna; but now these two districts bring rice directly from North Bengal. Truck is the only mode for transporting rice from the markets of North Bengal. In contrast, engine operated boats are used to transport rice from Khulna to the distant rice markets which are located in the Southern part of Bangladesh.

Jessore is located in the South-west part of Bangladesh and linked with West Bengal of India through road communication via Benapole of the district. Rice importers of Jessore import rice from India through Benapole border by road and through Dorshona border (in Kushtia district) by rail. Besides rice, Jessore is one of the most important wheat growing areas of Bangladesh. Both rice and wheat wholesale markets of Jessore are situated in the middle of the town. Truck is the main mode for transporting foodgrain. Sometimes, trucks as well engine operated boats are used in the case of transporting wheat from Jessore to Narayangonj and Chittagong.

4.1.5 Market Locations in the South-east Region and Communication Facilities:

Chittagong, Chandpur and Choumohoni Markets

Chittagong is the second largest city of Bangladesh. The hilly city of Chittagong is situated on the bank of the river Kornofuli. It has grown up as the most important commercial city of Bangladesh particularly because of its geographical location. The largest sea port of Bangladesh on the coast of the Bay of Bengal is situated in Chittagong.

There are two rice and wheat wholesale markets in Chittagong named Chaktai and Pahartoli. The Chaktai market is situated in the middle of the town on the bank of the canal Chaktai. The Pahartoli market is situated by the side of the Dhaka-Chittagong high way, 8 km. away from the main town, Chittagong. Truck is used as the principal mode of transportation. Sometimes rail is also used. Trawlers are also used particularly for sending imported wheat to Narayangonj.

Chandpur is situated on the bank of the river Meghna. It is one of the most important commercial areas of Bangladesh. Commodities of various types (i.e. rice, paddy, wheat, flour, sugar, molasses, etc.) are traded in Chandpur *Sadar* market. Among these commodities; rice, the staple food of Bangladesh, is the major one which covers a significant portion of the wholesale trade of the district.

The river Dakatia, a branch of the Meghna has divided the Chandpur rice wholesale market into two parts. Engine operated boat is the only means of transportation to and from Chandpur wholesale rice markets. Sometimes trucks are used up to certain points then boats are used for transporting rice from distant markets to Chandpur. For example, trucks are used for transporting rice from Naogaon to Nagarbari *Ghat*, then engine operated boats are used from Nagarbari *ghat* to Chandpur. However, during *Boro* season, only boat is used in the case of transporting rice from Naogaon to Chandpur.

The municipality area of Begumgonj *thana* under Noakhali district is known as Choumohani. It is only 8 km away from the district *Sadar* named Maijdee Court. There are two long-distance rice wholesale markets in Choumohoni. Out of these two markets, Dakkin Bazar was the principal market before 1946. This market has been razed by river erosion and the Moheshgonj Bazar has now become the principal market. The two wholesale rice markets of Choumohoni are situated on the Choumohani-Feni road. Truck is the principal mode of transportation. Rail is also used for transporting rice to Choumohani..

4.2 General Characteristics of the Markets by Regions

The markets located in different regions had different characteristics. Some were located in surplus foodgrain production areas while others were located in deficit areas; in some areas number of long-distance traders were few while in other areas the number was quite large; in some areas markets were competitive while in other areas these were not competitive; in some areas there were heavy concentration of rice mills while in other areas the concentration was sparse; in some areas the volume of transactions was quite large while in other areas it was not so large. Trade flows of foodgrain as well as pricing efficiency are likely to be influenced by the variations of these factors. Therefore, in the following sections some general characteristics of the selected markets in relation to market structure have been discussed.

4.2.1 Markets Located in Foodgrain Surplus and Deficit Regions

Dinajpur, Bogra and Naogaon in the North-west region and Sherpur in the Northern part of Bangladesh have large surplus in rice production. Rapid expansion of groundwater irrigation facilities in the North and North-western regions has facilitated to add High Yielding Variety (HYV) *Boro* crop in addition to traditional non-irrigated *Aman* crop. Further, vast area of the Barind Tract in the North-western region of Bangladesh is now under irrigation (where HYV *Boro* is being produced) particularly through introduction of Deep Tubewell irrigation facilities by the Barind Integrated Area Development Project (BIADP). Production of rice throughout the year has made this area surplus in rice production.

Among the rest 10 market locations, the South-west district of Jessore is almost self-sufficient in foodgrain production while the neighbouring district Khulna has seasonal deficit (in *Boro* season). Seasonal deficit (in *Aman* season) also prevails in Bhairab Bazar located in the Central region.

Among the major deficit market locations, Barisal once upon a time was known as the foodgrain reservoir of Bangladesh. But now, this surplus area has gradually been turned into a deficit area. Modern HYV rice technology particularly HYV Boro has not been properly diffused in this area which seems to have turned this area deficit in rice production. Two other metropolitan deficit market locations, Chittagong and Sylhet are situated in the hilly area. Only 32 % of the total land of Chittagong and 38 % of total land of Sylhet are suitable for agricultural production compared to 63% in Dinajpur, 64% in Bogra and 71% in Jessore districts (Graphsman, 1993). However, although in the low lying '*Haor*' areas of Sylhet HYV *Boro* is produced by using Low Lift Pumps, the production is not sufficient in terms of the demand (for foodgrain) of the district.

Table 4.2 General Characteristics of the Selected Markets by Regions

Markets by Region	Foodgrain condition in the respective district of the selected markets		No. of Long-distance Wholesale Markets for		No. of Long-distance Traders for		Type of Competition Prevailed in the Markets	No. of Rice Mills in the Respective		Volume of Trade (in m. ton) per Day in the Peak Season of		
	Surplus	Deficit	Rice	Wheat	Rice	Wheat		Thana	District	Aman	Boro /Aus	Wheat
North-west Reg: Dinajpur	Large Surplus		7	5	21	18	Competitive	279	1022	655	524	262
Bogra (Dupchachia)	Large surplus		1	1	17	10	Competitive	182	749	393	419	65
Naogaon	Large surplus		1	na	20	na	Oligopolistic	158	469	918	612 4*	na
North & North-east Reg: Sherpur	Large surplus		20**	na	145	na	Competitive	182	308	293	163	na
Sylhet		Large Deficit	3	na	15	na	Competitive	34	38	280	655	na
Central Reg. : Dhaka		Largest Deficit	3	1	328	11	Competitive	na	na	2356	2618	39
Narayangonj		Deficit	1	1	38	17	Competitive	na	104	138	138	124 10***
Bhairab Bazar		Seasonal Deficit	1	na	23	na	Competitive	3	50	125 100*	na	na
South & South-west Region : Barisal		Large Deficit	1	na	25	na	Competitive	na	na	82	180	na
Khulna		Seasonal Deficit	1	na	36	na	Competitive	44	204	300 10*	430 30*	na
Jessore	Almost self sufficient		1	1	1	7	Monopolistic	100	293	8 per week	8 per week	41
South-east Reg: Chittagong		Large Deficit	2	2	44	22	Competitive	na	55	916	655	612
Chandpur		Large Deficit	2	na	34	na	Competitive	1	1	20*	30*	na
Choumohoni		Large Deficit	1	na	32	na	Competitive	3	15	258	172	na

Sources : Field survey, 1997; figures for number of rice mills were collected from the Directorate of Food.

Notes: **indicates number of rice mill concentrated areas in Sherpur.

*indicates number of boats with rice loaded / unloaded.

*** indicates number of trawlers with wheat loaded / unloaded

na = not applicable / not available

The other deficit market locations are Dhaka, Narayangonj, Chandpur and Choumohoni where scope for agricultural production is limited. Dhaka, the capital city of Bangladesh is the largest foodgrain consuming market.

4.2.2 Number of Long-distance Wholesale Markets and Traders

All the wholesale markets are not involved in long-distance trading of foodgrain. The number of wholesale markets in each of the selected market locations can be seen in Table 4.2. It can be observed from the table that the number of wholesale markets in Sherpur is quite large compared to other market locations. In the case of Sherpur, since there was no pure wholesalers; the number of wholesale markets as shown in the table actually represents the mill concentration areas from where rice is transported to long-distance markets. Again, in Dhaka, there were several long-distance wholesale markets, among which 3 most important markets were selected for the traders' survey.

All the wholesale traders are also not involved in long-distance foodgrain trade. For example, in Chittagong out of 120 wholesalers 44, in Khulna out of 166 wholesalers 36 and in Bhairab Bazar out of 150 wholesalers only 23 were involved in long-distance rice trading. However, exceptions may also be observed in the cases of Dhaka and Sherpur. In Dhaka, since all the traders in the 3 selected markets were involved in long-distance trading of rice, the number of long-distance traders was quite large (328) compared to other markets as can be seen from Table 4.2. In Sherpur, number of wholesalers cum millers was also quite large (145). Except Jessore, in other 12 market locations, the number of long-distance rice traders varied between 15 to 44. In Jessore there was only one long-distance rice trader.

In the case of wheat, there were 5 long-distance wholesale markets in Dinajpur, 2 in Chittagong and only one in each of the rest 4 market locations of Bogra, Dhaka, Narayangonj and Jessore. The number of long-distance wheat traders varied between 7 to 22. In Dhaka, there are at present 11 long-distance wheat traders. A few years back, there were about 35 long-distance wheat wholesalers in the market (Maulovibazar) which has gradually been decreased. The traders reported that the major reason for this decrease is establishment of large flour mills which mostly purchase wheat directly from long distance markets rather than from local wholesalers and sell flour in packets. The small flour mills which used to buy wheat from the local traders are also now finding difficulties in competing with the large mills. Since the demand for wheat from the local traders has reduced, the number of wholesale traders in the Dhaka market has reduced.

4.2.3 Ease of New Entry in the Markets

Now there is no barrier for new entry in foodgrain trade. However, in the urban areas the traders need trade licence from the Municipality (Paurosava) for trading while for rural areas (at Thana level) they need trade licence from Union Parishad. Traders reported that it was not difficult to get trade licence from the Municipality or from the Union Parishad.

4.2.4 Type of Competition Prevailed in the Markets

Except Naogaon and Jessore, in all other selected wholesale markets more or less competitive market situation prevailed. In Naogaon, the market was a bit oligopolistic in nature where out of

20 long-distance traders, 4/5 big traders actually control market price of rice. There is also specific characteristics of Naogaon wholesale market compared to other markets of Bangladesh. The wholesalers of Naogaon are doing their business with a pre-determined profit margin which varies from Tk. 3 to Tk 6 per *maund*. The traders of distant wholesale markets place order over telephone to the wholesalers of Naogaon after knowing the prevailing market price and the profit margin of the Naogaon wholesalers.

In Jessore, there is only one wholesaler who is involved in long-distance rice trading. Therefore, long-distance rice trading of Jessore is controlled by a monopolist. According to that monopolist, the paramountcy over the whole rice trading in long-distance trade has been established by his own competence and efficiency. Political background and capital solvency helped him to supply rice at a lower price compared to others for which other traders could not compete with him. The monopolist in this market has also introduced a branded rice named as 'Swan rice' which is supplied to different distant markets.

4.2.5 Concentration of Rice Mills in the Market Locations

Heavy concentration of rice mills was observed in the rice surplus regions (North and North-west region) from where rice is transported to distant deficit regions. In the deficit regions the number of rice mills was very few particularly in Chandpur, Choumohoni, Sylhet, Chittagong and Bhairab Bazar (Table 4.2). On the other hand, the highest number of rice mills was found in Dinajpur (1022) followed by Bogra (749), Naogoan (469) and Sherpur (308). Only in Dinajpur *Sadar* there were 279 rice mills. The large volume of rice production along with establishment of large number of rice mills have made North and North-western region as the major rice supplying area in Bangladesh.

4.2.6 Volume of Foodgrain Trade in the Selected Markets

It was very difficult to estimate size of each of the selected wholesale markets in terms of foodgrain transactions. Therefore, an indirect method was used to have a rough idea about the size of the markets. As a proxy to the size of the markets, information was collected on number of trucks / railway wagon / boats / launches / trawlers, etc. loaded or unloaded per day in the selected markets during the peak seasons of rice and wheat. On the basis of number of bags loaded per truck / per railway wagon and weight per bag; per day volume of business in the peak seasons of rice (Aman and Boro/Aus) and wheat was estimated for different markets (Table 4.2). However, in the case of river transport, such estimate in volume was not possible since capacity of river transports (i.e. boats, launches, trawlers) varied widely and sometimes passengers as well as goods are transported at the same time. Therefore, for river transports, per day total number of boats, launches, trawlers, etc. loaded / unloaded in the peak seasons of rice and wheat has been shown in the table while for road and rail transports, total volume of foodgrain traded (in metric tons) has been shown in Table 4.2.

The table indicates that Naogaon was the largest rice supplying market followed by Dinajpur, Bogra and Sherpur. On the other hand, the largest consuming / terminal market was found to be Dhaka followed by Chittagong, Sylhet and Khulna. In terms of long-distance trading total volume of rice traded was the lowest in the case of Jessore (only 8 tons per week). It was stated earlier that Jessore is almost self-sufficient in rice production.

In the case of wheat, Chittagong was found to be the largest long-distance wholesale market followed by Dinajpur and Narayangonj (Table 4.2). The sizes of long-distance wheat wholesale markets located in Bogra, Dhaka and Jessore were more or less of equal. These were also relatively smaller compared to Chittagong, Dinajpur and Narayangonj markets.

4.2.7 Support Services Available in the Markets

In all the market locations several Bank Branches were available. Telephone facilities were also available in all the markets. However, in Dupchachia market of Bogra although telephone facilities were available, long-distance direct dialling system was absent. Telex and Fax facilities were also available in the major wholesale markets like Dhaka, Chittagong, Narayangonj, Sylhet, Khulna, etc. However, for domestic trading, the wholesalers did not use Fax or Telex facilities.

4.2.8 Informal Traders' Associations in the Markets

In each of the 14 market locations there were traders' associations. The main aim of the traders' association was to protect their common interest. Misunderstandings among the traders related to transactions such as delay in payment, amount of payment fixed, etc. are minimized by the help of the association. Problems related to missing of trucks, rent related problems with the Municipality or matters related to low enforcing authority are also dealt by the association.

4.3 Conclusions

The analysis in this chapter indicated that all the selected markets had some characteristics which were some what different from each others. Most of the long-distance foodgrain wholesale markets are situated at the district or thana head quarters and located either by the side of a highway or on the bank of a river. Further, the markets are well linked with other long-distance markets mostly by road and the usual road transport is truck. However, there are some exceptions, for example, rail is the main mode of transportation in the case of trading with Bhairab Bazar while engine operated boat is the main mode of transportation in the case of Chandpur. In some cases more than one mode is used in transporting foodgrain in the distant markets; however, the comparative advantage of the alternative modes varies with seasons.

Out of the 14 selected markets, Dinajpur, Naogoan, Bogra and Sherpur markets (in the North-west and Northern regions of Bangladesh) are located in the surplus foodgrain production area while except Jessore (in the South-west region) which is more or lees self sufficient, all the markets (in the South and Central regions) are located in the foodgrain deficit area. In all the places, the number of long-distance wholesale markets as well as number of traders involved in long-distance foodgrain trade were relatively few although there were good number of wholesale markets and quite a large number of wholesalers in each of these markets. Markets were found to be more or less competitive in all the places except in Jessore and Naogoan. In the case of Jessore, monopolistic control and in Naogaon, oligopolistic competition was prevailing.

Rice mills were found to be concentrated in and around the rice supplying markets of the North and North-west regions of Bangladesh while there were only a few rice mills in the respective locations of the consuming markets.

The markets were of different sizes as revealed from the peak season arrivals / departures of transports to and from the markets. On the basis of volume of trade, among the 14 selected markets, Naogaon was found to be the largest rice supplying market while Dhaka was found to be the largest consuming market. In the case of wheat, Chittagong was found to be the largest long-distance wholesale market.

In all the markets there were several bank branches. Telephone services were also available in all the markets although direct dialling system was not available in Dupchachia Bazar of Bogra. In all the markets there were also traders' association to protect their common interest as well as to minimise any problem which may arise during the course of normal business activities.

CHAPTER -5

TRADERS' CHARACTERISTICS AND TRADING PRACTICES

Among different participants in the whole marketing chain of foodgrain, the wholesalers who are involved in long-distance trading have some special characteristics. Their trading practices are also somewhat different from other traders in the marketing chain. There are also regional variations in the market structures. Therefore, in this chapter, characteristics of the long-distance foodgrain wholesalers and their trading practices have been analysed in the light of regional variations in market structures.

5.1 General Characteristics of the Foodgrain Traders by Markets and by Regions

In this section traders characteristics in relation to type of foodgrain business, type of ownership in the business, duration of involvement in the business, ownership of rice or flour mills, ownership of transport, funding sources in the business, access to telephone facilities by the traders, etc. have been analysed. Four markets located in Dinajpur, Bogra, Naogaon and Sherpur were the main suppliers of rice while the rest 10 markets were the main receivers of rice (consuming / terminal markets). Characteristics of the rice traders in the supplying and receiving markets are likely to be different. Therefore, for examining characteristics of the traders, besides regional classifications, the markets have been grouped into suppliers and receivers of rice. The markets located in the North and North-western part of Bangladesh (Dinajpur, Bogra, Naogaon and Sherpur) which are the main suppliers of rice have been identified as one group and the rest of the 10 markets which are located in the North-east, Central and Southern regions have been identified as another group. For wheat, such grouping was not possible since classification of markets on the basis of suppliers and receiver was not possible, and the number of total markets was also few.

5.1.1 Type of Wholesale Business by the Rice and Wheat Traders

Type of wholesale business of the long-distance traders in the North and North-west regions was found to be quite different than that of the traders located in the North-east, Central and Southern regions. The traders in the North and North-west regions who were the main suppliers of rice to other regions were mostly pure wholesalers. About 70 % of them were pure wholesalers and the rest 30 % were wholesalers cum commission agents (Table 5.1). On the other hand, just reverse situation was observed in the case of other 10 selected wholesale markets located in the North-east, Central and Southern regions which were basically consuming / terminal markets of rice. In this case, with the exception of a few traders in Narayangonj and Choumohoni, all the traders were wholesalers cum commission agents. As a result, in this regions only 5 % of the traders were found to be pure wholesalers while the rest 95 % were found to be wholesalers cum commission agents. However, considering all the 14 markets it was found that 22 % were pure wholesalers while 78 % were wholesalers cum commission agents (Table 5.1). The analysis clearly indicated that the rice traders on the supplying side are mostly pure wholesalers while those on the receiving end were mostly wholesalers cum commission agents. In the case of wheat most of the traders (70 %) were found to be wholesalers cum commission agents.

Table 5.1 Type of Foodgrain Wholesalers by Markets and by Regions

Region	Market	Type of rice wholesaler (in %)		Type of wheat wholesaler (in %)	
		Pure wholesaler	Wholesaler cum commission agent	Pure wholesaler	Wholesaler cum commission agent
NW	Dinajpur	60	40	60	40
	Bogra	60	40	0	100
	Naogaon	60	40		
N	Sherpur	100	0		
Regional Sub-total		**70**	**30**		
NE	Sylhet	0	100		
Central	Dhaka	0	100	40	60
	Narayangonj	40	60	20	80
	Bhairab Bazar	0	100		
S & SW	Barisal	0	100		
	Khulna	0	100		
	Jessore	0	100	40	60
SE	Chittagong	0	100	20	80
	Chandpur	0	100		
	Choumohoni	20	80		
Regional Sub-total		**5**	**95**		
Total for all Markets		**22**	**78**	**30**	**70**

Source : Field survey, 1997.
Note : Shaded area indicates analysis for wheat not applicable

5.1.2 Type of Ownership of Foodgrain Wholesale Business

About half of the rice wholesalers enjoyed sole ownership of their business; with family ownership and joint ownership constituted the other half (Table 5.2). Again, rice wholesale business under single ownership and family ownership constituted about 77 % compared to 23 % under joint ownership which indicated that importance of joint ownership (partnership) was less. There was no significant regional variations in both the supplying and consuming markets with respect to type of ownership of the rice wholesale business. In the case of Jessore, where there was only one trader, the business was under single ownership.

However, in the case of wheat, joint ownership was found to be dominant (47 % of the traders) followed by single ownership (40 %). Importance of family ownership in this case was found to be negligible (13 % of the traders).

Table 5.2 Type of Ownership of Foodgrain Wholesale Business by Markets and by Regions

Region	Market	Ownership of Rice Wholesale Business (in %)			Ownership of Wheat Wholesale Business (in %)		
		Single ownership	Family ownership	Joint ownership	Single ownership	Family ownership	Joint ownership
NW	Dinajpur	20	60	20	100	0	0
	Bogra	60	20	20	20	0	80
	Naogaon	60	20	20			
N	Sherpur	40	20	40			
Regional Sub-total		**50**	**30**	**20**			
NE	Sylhet	80	20	0			
Central	Dhaka	33	27	40	60	0	40
	Narayangonj	20	80	20	0	40	60
	Bhairab Bazar	60	0	40			
S & SW	Barisal	60	20	20			
	Khulna	40	20	40			
	Jessore	100	0	0	20	20	60
SE	Chittagong	40	60	0	40	20	40
	Chandpur	80	0	20			
	Choumohoni	80	0	20			
Regional Sub-total		**52**	**25**	**23**			
Total for All Markets		**51**	**26**	**23**	**40**	**13**	**47**

Source : Field survey, 1997.
Note : Shaded area indicates analysis for wheat is not applicable

5.1.3 Duration of Involvement in Foodgrain Wholesale Business and Number of Permanent Staff

About 59 % of the rice traders were involved in long-distance wholesale business for more than 10 years. The percentage of new comers (within 5 years) in the business was found to be 20 % which is quite encouraging. However, it varied widely among different market locations ranging from 0 to 100 %. Within the last 5 years, there was no addition in the number of long-distance rice wholesale traders in the markets of Bogra, Sherpur and Chittagong while the only monopolist in Jessore market started his business during this period. Further, it can be seen from the Table 5.3 that most of the traders (70 %) in the supplying markets of North and North-western regions are involved in long-distance trading of rice for more than 10 years. The corresponding percentage for the region of consuming markets was found to be 56 %. This indicated that most of the rice traders have inherited the business.

In the case of wheat, half of the traders were found to be involved in long-distance wheat trading for more than 10 years while about a quarter (27 %) of them have started business in recent years (within 5 years). New entry in the long-distance wholesale trading in recent years was found to be the highest (60 %) in the case of Dinajpur while there was no new entry in Jessore wholesale market (Table 5.3).

Table 5.3 Duration of Involvement in Wholesale Business in Rice or Wheat by Markets and by Regions

Region	Market	No. of Years Involved in Rice Wholesale Business (% of Wholesalers)			No. of Years Involved in Wheat Wholesale Business (% of Wholesalers)		
		PTO 5	6 - 10	Above 10	PTO 5	6 - 10	Above 10
NW	Dinajpur	20	20	60	60	0	40
	Bogra	0	20	80	20	0	80
	Naogaon	20	20	60			
N	Sherpur	0	20	80			
Regional Sub-total		**10**	**20**	**70**			
NE	Sylhet	20	0	80			
Central	Dhaka	13	33	54	40	40	20
	Narayangonj	60	20	20	20	40	40
	Bhairab Bazar	20	40	40			
S & SW	Barisal	20	20	60			
	Khulna	20	20	60			
	Jessore	100	0	0	0	20	80
SE	Chittagong	0	20	80	20	40	40
	Chandpur	20	0	80			
	Choumohoni	40	20	40			
Regional Sub-total		**23**	**21**	**56**			
Total for All Markets		**20**	**21**	**59**	**27**	**23**	**50**

Source : Field survey, 1997.
Note : Shaded area indicates analysis for wheat not applicable.

The number of permanent staff on the average were found to be 3 for rice traders and 2 for wheat traders. However, 9 % of the rice traders and 33 % of the wheat traders did not employ any permanent staff. The Table 5.4 showed that rice traders in almost all the markets had permanent staff. In the case of wheat, some traders in Dhaka and Narayangonj did not have any permanent staff. The importance of permanent staff in the case of wheat was found to be less (compared to rice) which may be due to seasonal nature of wheat trading and less volume of trade.

5.1.4 Ownership of Mills (Rice and Flour) and Trucks by the Wholesalers

Considering all the 14 selected markets, it was found that about one-fourth (26 %) of the rice wholesalers owned rice mills (Table 5.5). However, there were large variations across the markets and regions. About 65 % of the traders in the North and North-east regions owned rice mills while only 13 % of the traders in the North-east, Central and Southern regions owned rice mills. It was found that there was no rice mill owners in 50 % of the markets located in the North-east, Central and Southern regions while there were at least 40% of the traders in the North and North-east region had rice mill. This clearly indicated that concentration of rice mills in the rice supplying regions is much higher than that of rice consuming regions.

Table 5.4 Number of Permanent Staff Per Wholesaler by Markets and by Regions

Region	Market	Permanent Staff of Rice Wholesalers		Permanent Staff of Rice Wholesalers	
		Average number	% of wholesalers without permanent staff	Average number	% of wholesalers without permanent staff
NW	Dinajpur	2	0	1	0
	Bogra	2	20	2	20
	Naogaon	5	0		
N	Sherpur	6	0		
Regional Sub-total		**4**	**5**		
NE	Sylhet	2	0		
Central	Dhaka	5	6	0	80
	Narayangonj	1	40	1	80
	Bhairab Bazar	2	0		
S & SW	Barisal	4	0		
	Khulna	2	20		
	Jessore	5	0	1	20
SE	Chittagong	2	0	7	0
	Chandpur	1	20		
	Choumohoni	2	20		
Regional Sub-total		**3**	**11**		
Total for All Markets		**3**	**9**	**2**	**33**

Source : Field survey, 1997.

Table 5.5 Owners of Mills (Rice and Flour) and Trucks by Markets and by Regions

Region	Market	% of Wholesalers Owned		% of Wholesalers Owned Trucks	
		Rice mills	Flour mills	Rice wholesalers	Wheat wholesalers
NW	Dinajpur	40	0	0	0
	Bogra	80	20	20	60
	Naogaon	40		80	
N	Sherpur	100		0	
Regional Sub-total		**65**		**25**	
NE	Sylhet	40		20	
Central	Dhaka	7	20	0	0
	Narayangonj	0	40	0	0
	Bhairab Bazar	0		0	
S & SW	Barisal	0		0	
	Khulna	40		0	
	Jessore	100*	40	100*	0
SE	Chittagong	20	40	0	40
	Chandpur	0		0	
	Choumohoni	0		0	
Regional Sub-total		**13**		**3**	
Total for All Markets		**26**	**20**	**9**	**17**

Source : Field survey, 1997.
*Only one trader in Jessore

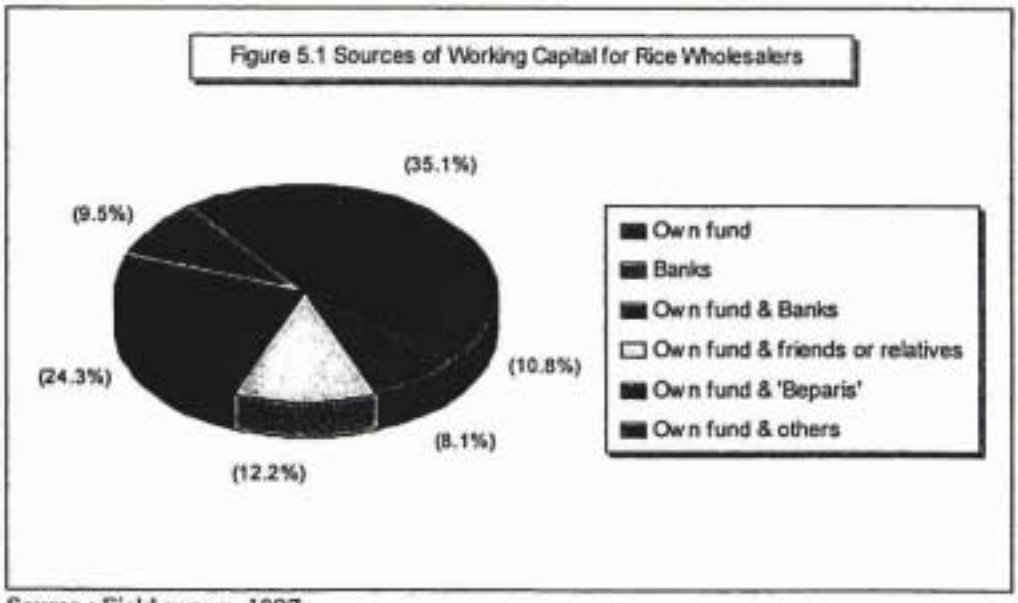
In the case of wheat it was found that about one-fifth of the long-distance wheat wholesalers owned flour mills. In Dinajpur, none of the traders owned flour mills.

On the average 9 % of the long-distance rice wholesalers owned trucks (Table 5.5). The percentage of truck owners in the rice supplying markets of the North and North-east regions was also found higher (25 %) than the traders in the North-east, Central and Southern regions (3 %). Except Sylhet and Jessore, none of the traders in the North-east, Central and Southern regions owned trucks.

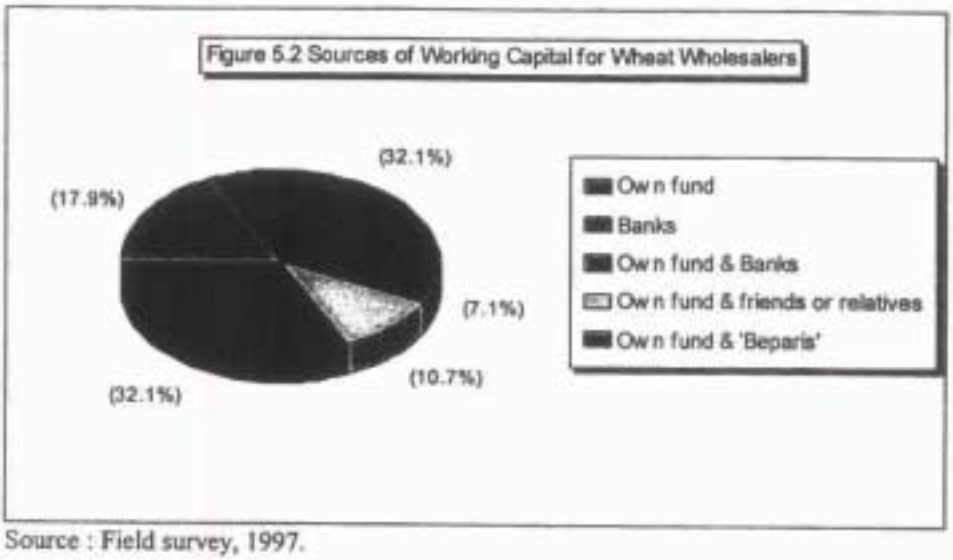
5.1.5 Sources of Fund for the Rice and Wheat Wholesalers

Capital is the most important factor for running wholesale trading of foodgrain. Among the different sources of working capital, both the rice and wheat traders were found to be mostly dependent on own funds (Figure 5.1 and 5.2). Slightly more than one-third (35 %) of the rice wholesalers reported that own fund was the only source for their business. The same situation was revealed in the case of wheat traders. Own fund was the only source for about 32 % of the wheat wholesalers. Next to own fund, banks played the most significant role in providing credit to the foodgrain traders. In the case of rice, for about 10 % of the wholesalers bank was the only source of fund while sources of fund for another 24 % of the wholesalers were both own fund and banks.

In the case of wheat, the only source of fund for about 18 % wholesalers was banks while for about 32 % of them, the sources were on own fund as well as banks. In addition to own fund; friends and relatives, other wholesalers as well as 'Beparies' also provided some funds for the wholesale trading of rice and wheat; but their roles were less important as can be seen from the Figures 5.12 and 5.13. None of the trader surveyed borrowed money from money lenders who charge very high interest rates. Most of the traders (88 % of the rice wholesalers and 90 % of the wheat wholesalers) reported that their business was constrained by the availability of capital.



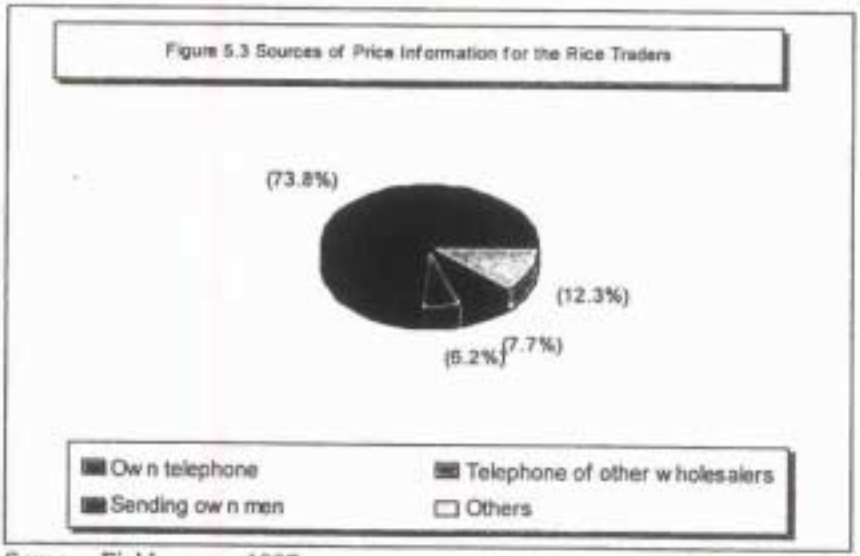
Source : Field survey, 1997.



Source : Field survey, 1997.

5.1.6 Access to Telephone Facilities and Methods of Collecting Price Information by the Wholesalers

Most of the foodgrain traders had their own telephone for communicating with the distant traders. About 74 % of the traders received price information through using their own telephone and 6 % through using other traders' telephone (Fig. 5.3). In a few cases (8 %), they also collected price information through sending their employees to other markets. About 12 % wholesalers reported that they collected information through wholesalers of other markets as well as through a combination of the methods mentioned above. In the case of wheat, almost all the traders (96 %) collected price information over telephone. Therefore, traders almost instantly get price information as and when they need to know. This has been possible particularly due to improvement in telephone facilities in recent years.

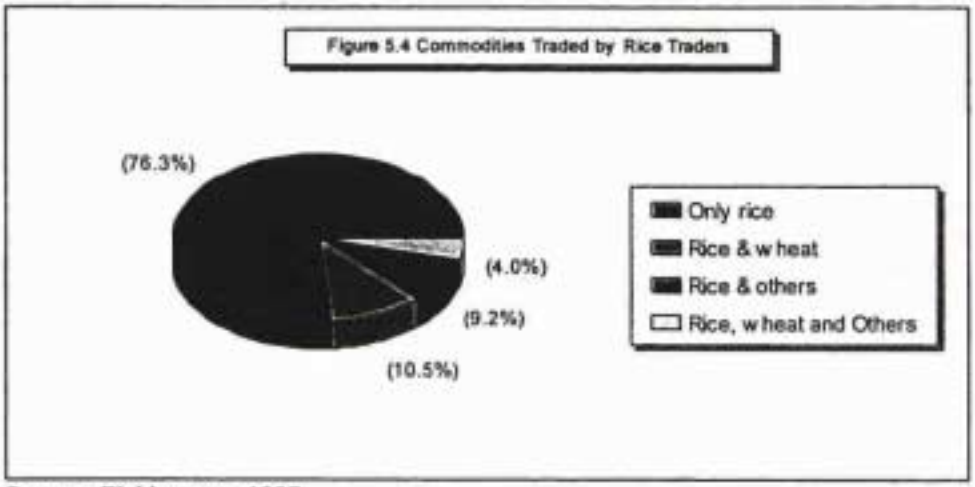


Source : Field survey, 1997.

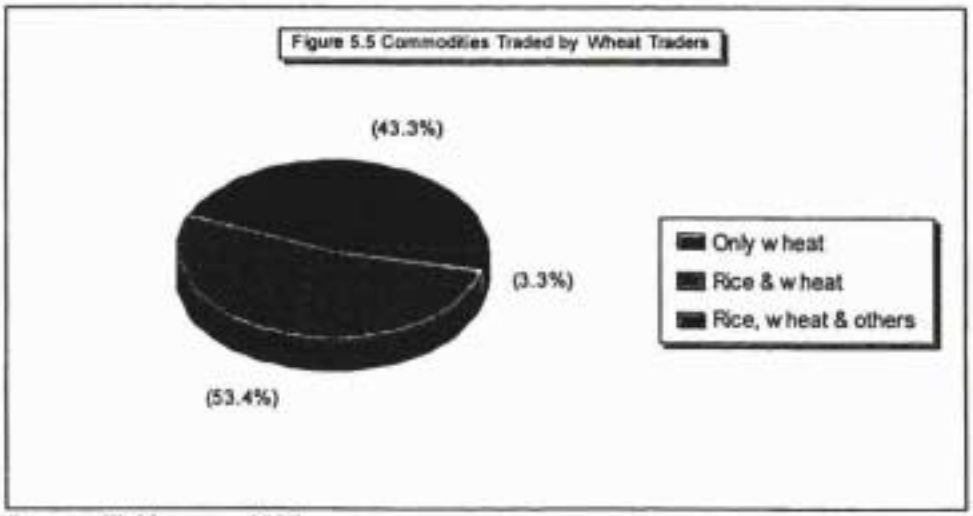
5.2 Trading Practices

5.2.1 Commodities Traded by the Wholesalers

About 76 % of the long-distance wholesalers of rice traded only rice while about 11 % traded both rice and wheat. Rice and other commodities were traded by about 9 % traders; and rice, wheat and other commodities were traded by only 4 % traders (Figure 5.4). Other commodities traded by the wholesalers of rice were nuts and oilseeds in Bhairab Bazar, pulses in Dinajpur, spices in Sylhet, rice bran in Jessore and fertiliser in Naogaon. Contrary to this, less than half of the wheat traders (43 %) traded only wheat and about 97 % of them traded either only wheat or a combination of rice and wheat (Fig. 5.5). Only about 3 % traded other commodities (stationaries) besides foodgrain. The analysis indicates that unlike rice traders, wheat traders are involved in trading other types of commodities particularly rice since wheat trading is mostly seasonal. This also indicates that rice traders are more specialised than wheat traders.



Source : Field survey, 1997.



Source : Field survey, 1997.

5.2.2 Procurement of Paddy by the Wholesalers cum Millers

The wholesalers cum millers who are involved in the long-distance rice trade buy paddy for husking in their mills and sale as rice. They also purchase rice for direct trading in the long-distance markets. It was found that out of total sale of rice by the wholesalers cum millers, about 47 % came from paddy which they purchased for husking in their mills. The rest 53 % was directly purchased for selling in distant markets.

Again, about 90 % of the wholesalers cum millers procured HYV paddy in addition to other local varieties like local coarse, local fine (*Aman*) and Pajam (Table 5.6). Only 10 % of them procured just local varieties.

Table-5.6 Type of Paddy Procured by the Wholesalers cum Millers

Type of Paddy Procured by the Wholesaler cum Millers	% Distribution of the Wholesaler cum Millers (N = 20)
HYV, Local coarse, Local fine (Aman) and Pajam	50
HYV, Local coarse and Local fine	10
HYV, Local fine and Pajam	30
Local coarse, Local fine and Pajam	10
ALL	100

Source : Field survey, 1997.

5.2.3 Procurement of Wheat by the Traders

In the case of wheat wholesalers cum millers, it was found that about 48 % of the purchased wheat was sold as flour. The rest 52 % was purchased for direct trading. Further, it was found that all the wheat wholesalers traded domestic wheat. In addition to domestic wheat, 73 % of the traders also traded imported wheat (Table 5.7). Again, about 27 % of the wholesalers procured wheat from domestic, imported and from the leakage of PFDS.

Under PFDS, wheat which is supposed to be distributed among the distressed poor through Food for Works Programme (FWP). The *Union Parishad* Chairman and the concerned persons sell the wheat to the labour leaders. The labour leaders then sell it to the wheat traders or to the flour mills. The wheat under FWP is usually distributed at the end of a week. The poor workers who live hand to mouth sell their due share to the labour leaders in exchange of cash money at low price. Sometimes the concerned persons sell directly to the wheat traders without any media. This is one of the major sources of wheat procurement by the traders which is completely illegal.

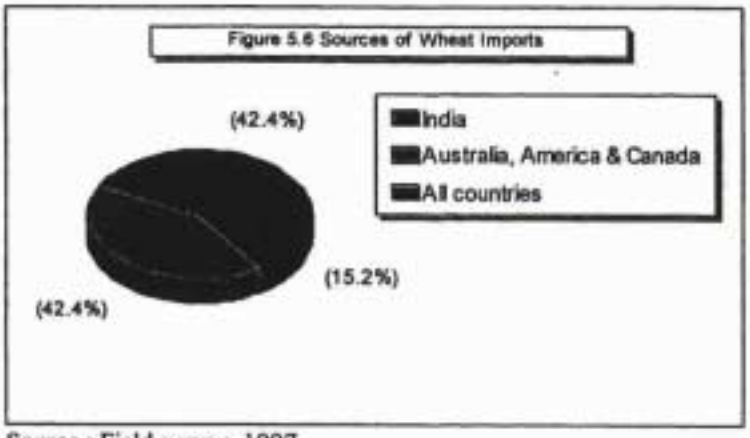
Table 5.7 Sources of Wheat Procurement

Traders' Sources of Wheat Procurement	% Distribution of the Wheat Traders (N=30)
Domestic	100
Domestic and Imported	73
Domestic, Imported and Leakage from PFDS	27

Source : Field survey, 1997.

5.2.4 Sources of Wheat Imports

According to the traders, wheat is imported from India, Australia, America and Canada. It was found that about 42 % of the wholesalers traded only Indian wheat. Another 42 % of the wholesalers traded wheat imported from Australia, America and Canada. The rest 16 % of the traders traded wheat imported from all these four countries (Figure 5.6). Therefore, most of the traders deal in either Indian or North American / Australian wheat.



Source : Field survey, 1997.

5.3 Foodgrain Traded by Varieties and Grades

5.3.1 Rice Traded by Varieties and Grades

Rice is not a homogeneous commodity, so the price of milled rice varies according to variety and grade. In both *Aman* and *Boro / Aus* seasons quite a large number of rice varieties are traded in the wholesale markets of Bangladesh. The Department of Agricultural Marketing (DAM) distinguishes between three different grades of rice : Fine, Medium and Coarse. Although it is very difficult for any one to identify the exact variety with grade, the wholesalers have almost common idea about the varieties and grades of rice traded. The names of some local varieties are also not familiar to some one who is not involved in rice trading. Therefore, depending on the responses from the wholesale traders, the names of the varieties with grades (i.e. fine, medium and coarse) are presented in Table 5.8.

It can be observed from the table that different wholesale markets have some differences in terms of varieties and grades of rice traded. For example, in Dhaka markets, various varieties of fine rice (i.e. Pajam, Naizarshail, Katari Bogh, etc.) are mostly traded in *Aman* season while in the *Boro / Aus* season, various other varieties of coarse rice (i.e. BR-11 and Balam) are traded. On the contrary, fine rice varieties in *Aman* season are not traded in Barisal, Bhairab Bazar and Choumohoni. Again, from Sherpur, various types of coarse varieties (i.e. BR-16, Br-8, etc.) are traded in *Boro / Aus* season while from Dinajpur, fine quality of *Aman* rice is traded. Therefore, markets located in different regions have different types of specialization with respect to varieties and grades of rice as can be seen from the Table 5.8.

Table 5.8 Rice Traded by Varieties and Grades for Different Markets

Markets	Seasons	Grades		
		Fine	Medium	Coarse
Barisal	Aman	-	Sorna	BR-11, Kazal Shail
	Boro / Aus	IR-50 Minicate	BR-16 Chandina	BR-8 BR-14 China
Bhairab Bazar	Aman	-	Sorna BR-20	BR-11 BR-8
	Boro / Aus	-	-	BR-14
Bogra	Aman	Pajam	Sorna	BR-11
	Boro / Aus	-	Prijat Chandina Mala	BR-8 China
Chandpur	Aman	Pajam	Sorna	BR-11 Kazal Shail
	Boro / Aus	-	Parijat China	BR-8 IR-8 China
Choumohoni	Aman	-	Sorna	BR-11 BR-16
	Boro / Aus	Pajam	Parijat	IR-8 BR-8
Chittagong	Aman	Pajam Katari Bogh	Sorna	BR-11 BR-4
	Boro / Aus	Pajam	Parijat Sorna Mala	IR-8 BR-10 BR-8 China
Dhaka	Aman	Pajam Naizar Shail Katari Bogh Dudkhani	Sorna Parijat	BR-11 Balam
	Boro / Aus	Pajam	Parijat Chandina BR-10	BR-8 IR-8 China BR-14 BR-16
Dinajpur	Aman	Pajam Katari Bogh	Sorna	BR-11 Shapahar
	Boro / Aus	-	Parijat	China BR-8
Jessore	Aman	Pajam	Sorna Balam	BR-11
	Boro / Aus	Minicate	IR-50	BR-10 IR-8 BR-14
Khulna	Aman	Pajam	Sorna	BR-11 IR-8
	Boro / Aus	Minicate	Ratna	BR-8 Type China BR-14 IR-8
Nangaon	Aman	Pajam	Sorna	BR-11
	Boro / Aus	IR-50	Parijat Mala BR-10	BR-8 China IR-8
Narayanganj	Aman	Pajam Katari Bogh Naizar Shail	Sorna Parijat	BR-11
	Boro / Aus	-	Sorna Lata Biplab	-
Sherpur	Aman	Pajam	Birni	BR-11
	Boro / Aus	Pajam	Lata Biplab,	BR-16 'Type' BR-8 BR-14
Sylhet	Aman	Pajam	Sorna	BR-11
	Boro / Aus	Pajam	-	BR-8 IR-8

Source : Field Survey, 1997

On a national basis, in *Aman* season the most common fine varieties traded were Pajam, Katari Bogh and Naizarshail; the most common medium varieties were Sorna and Parijat; the most common coarse variety was BR-11. On the other hand, in the case of Boro / Aus season, the most common fine varieties traded were Pajam and Minicate; the most common medium varieties were Chandina and Mala and the most common coarse varieties were BR-8, China and IR-8.

5.3.2 Most Important Wheat Varieties Traded : Domestic and Imported Wheat

Four varieties of wheat were found to be traded in the markets. These are *White Soft, White Hard, Red Soft* and *Red Hard.* According to the traders' opinion, on the basis of quality, *Red Hard* variety ranks first followed by *White Hard, Red Soft* and *White Soft.* Table 5.9 shows that for both the domestic and imported wheat *White Hard* is the most commonly traded variety. This variety accounted for about 69 % domestically produced wheat and 29 % of the imported wheat traded. It may be mentioned that the *White Hard* variety (and also *Red Hard*) is mainly used to produce fine flour which is known as *Moyda.* The other domestic varieties traded are of minor importance. In the case of imported wheat, the *White Hard, Red Soft* and *Hard* varieties are also commonly traded.

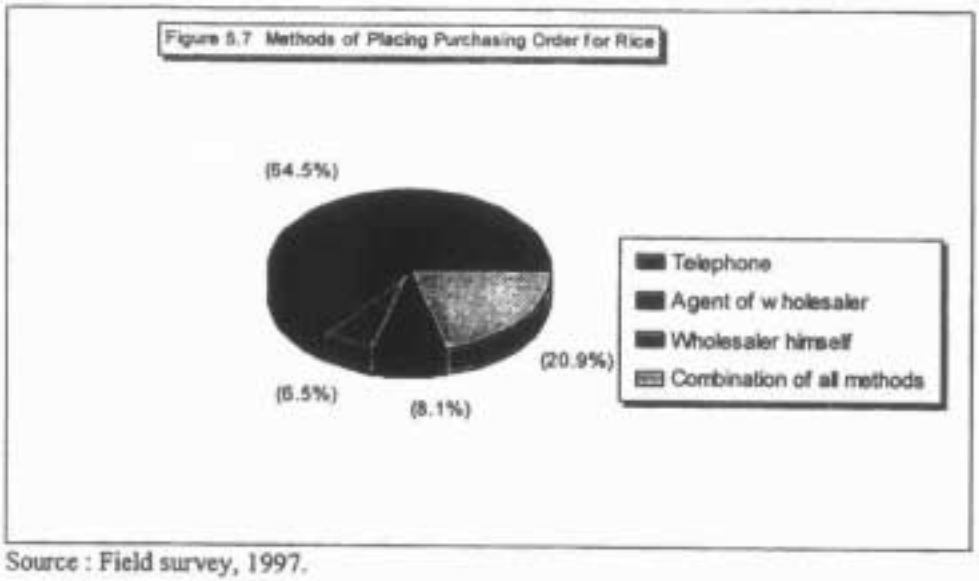
Table 5.9 Domestic and Imported Wheat Traded by Variety

Wheat Variety	Domestic Wheat Traded (% of wholesalers)	Imported Wheat Traded (% of wholesalers)
White Soft	5.7	21.4
White Hard	69.3	28.6
White Soft and White Hard	6.8	-
White Hard and Red Soft	4.5	-
White Hard and Red Hard	3.4	21.4
White Hard, Red Soft and Red Hard	1.1	14.3
All Varieties	9.1	14.3
Total	100.0	100.0

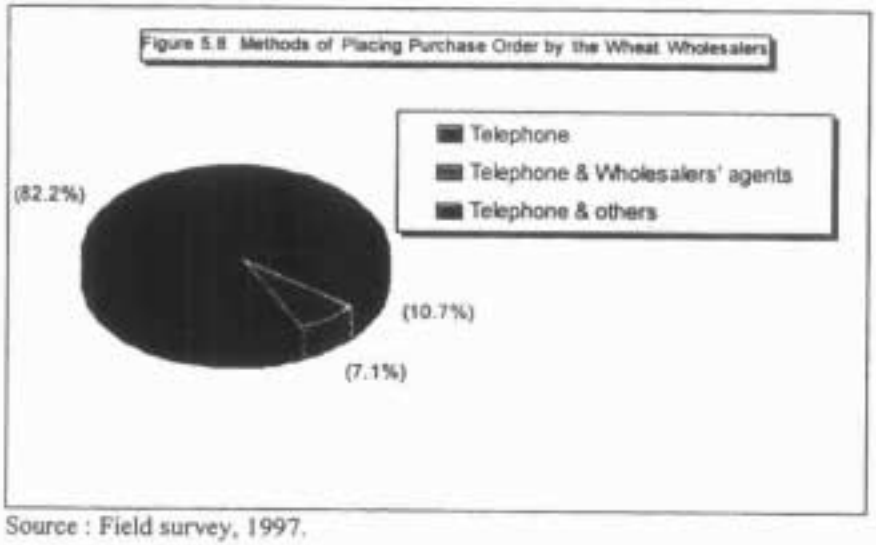
Source : Field survey, 1997.

5.4 Order Procedure and Delivery Time

Telephone is the main media of placing purchase orders by the long distance foodgrain traders. In the case of rice, about 65 % of the wholesalers place purchase order over telephone, in the case of wheat the corresponding percentage is about 82 %. Sometimes, purchase order is also given by the wholesalers themselves or by their agents but their importance is less as can be seen from the Figures 5.6 and 5.7. Purchase order through telephone as well as through other methods constituted about 21 % in the case of rice and about 11 % in the case of wheat traders (Figures 5.7 and 5.8).



Source : Field survey, 1997.

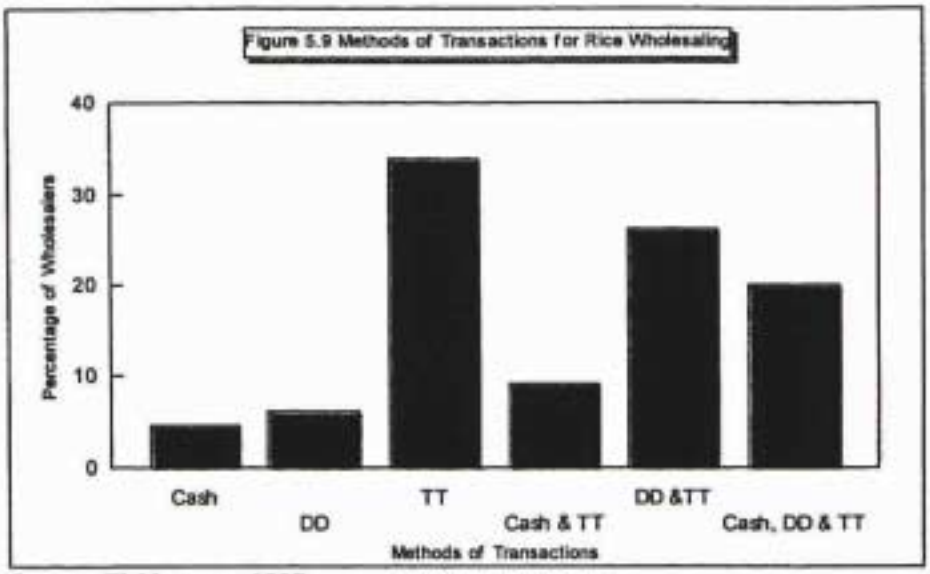


Source : Field survey, 1997.

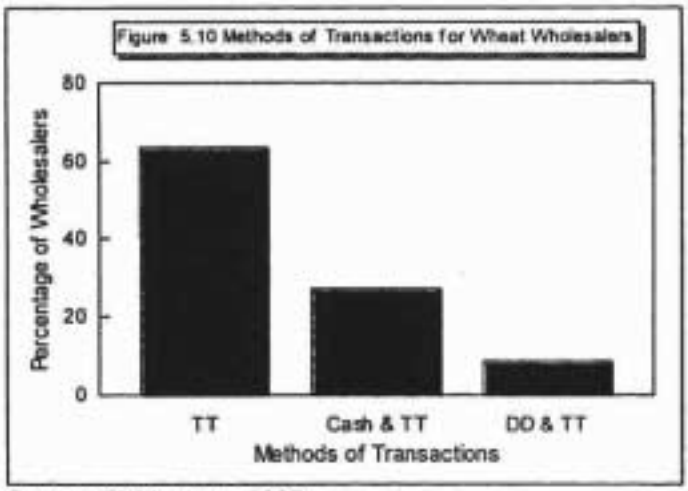
Time taken to receive foodgrain after placing an order with a distant wholesaler depends on mode of transportation. It was found that the longest time up to 45 days was needed to receive rice using railway services. On the average, time laps between ordering and getting delivery of rice was about 6 days. On the other hand, wheat traders reported that on the average it takes about 3 days to receive wheat after placing order to long distance traders.

5.5 Methods and Timing of Payment

Telegraphic Transfer (TT) through Banks is the main method of payment for both rice and wheat wholesalers involved in long distance trading. In the case of rice, about one-third of the traders reported that all payments were made using TT (Figure 5.9). In the case of wheat, about two-third of the wholesalers used only TT (Figure 5.10) for payments. The use of cash as well as Demand Draft (DD) played minor role in the transactions, as the use of cash is risky and



Source : Field survey, 1997.



Source : Field survey, 1997.

payments through demand drafts take time. Some traders also reported that in addition to TT payments were made through using DD as well as through cash payments (Figures 5.9 and 5.10).

At the time of buying and selling of rice full payment is not usually made. The analysis showed that about 62 % of the total amount was paid at the time of rice purchase. However, only 14 % of the traders paid full amount at the time of buying rice (Table 5.10). The rest 86 % traders paid the amount due either at the end of the season or after a few days. It was found that about one-third (31%) of the traders paid the rest of the amount at the end of the season while the others took on the average about 11 days to pay the rest of the amount.

Again, 57 % of the total amount was received at the time of rice selling. Only 6 % of the traders received full amount at the time of sale. About 39 % of the traders received the amount due at the

end of the season and those who received earlier, it took about 21 days. There was basically no regional variations with respect to period of payment for buying and selling of rice. The analysis showed that about one-third of the traders involved in buying and selling of rice pay / receive the amount due at the end of the season. However, majority of them pay / receive the amount due within two to three weeks. Such time lapse may be due to payment of the full amount after getting delivery of rice from the distant markets or may be due to time taken to receive money through TT or DD.

Table 5.10 Time Taken to Receive / to Pay Money for Buying and Selling of Rice by Markets and Regions

(% of Traders)

Region	Market	Period of Payment for Rice Buying			Period of Payment for Rice Selling		
		100 % paid at the time of purchase	Amount due paid at the end of the season	Number of days required to pay the amount due	100 % received at the time of sale	Amount due received at the end of the season	Number of days required to receive the amount due
NW	Dinajpur	0	20	11	0	20	15
	Bogra	0	80	11	0	60	30
	Naogaon	0	40	13	0	80	NR
N	Sherpur	40	40	10	40	60	na
Regional Sub-total		**10**	**45**	**11**	**10**	**55**	**23**
NE	Sylhet	0	40	7	0	20	7
Central	Dhaka	0	0	9	7	47	14
	Narayangonj	20	0	10	20	0	15
	Bhairab Bazar	20	20	19	0	20	25
S & SW	Barisal	0	80	11	0	100	na
	Khulna	20	40	5	0	40	14
	Jessore	100	0	na	0	NR	NR
SE	Chittagong	0	40	7	0	20	19
	Chandpur	0	40	17	0	20	25
	Choumohoni	0	0	17	20	20	45
Regional Sub-total		**16**	**26**	**11**	**5**	**32**	**19**
Total for All Markets		**14**	**31**	**11**	**6**	**39**	**21**

Source : Field survey, 1997.

In the case of wheat purchase, about 76 % of the total payment was made at the time of purchase. Further, about one-third of the traders paid the full amount at the time of purchase (Table 5.11). However, it took only about 9 days to pay the rest of the amount. Only 3 % of the traders paid the amount due at the end of the season.

On the other hand, in the case of wheat sale the traders reported that about 58 % of the total payment was received at the time of sale. Full amount was received from only 13 % of the traders (Table 5.11). Again, only 3 % of the traders received the amount due at the end of wheat season. The others required only 10 days to receive the amount due. Therefore, the transaction for wheat is more quicker than that of rice and seasonality behaviour of payment is less in the case of wheat.

Table 5.11 Time Taken to Receive / to Pay Money for Buying and Selling of Wheat by Markets

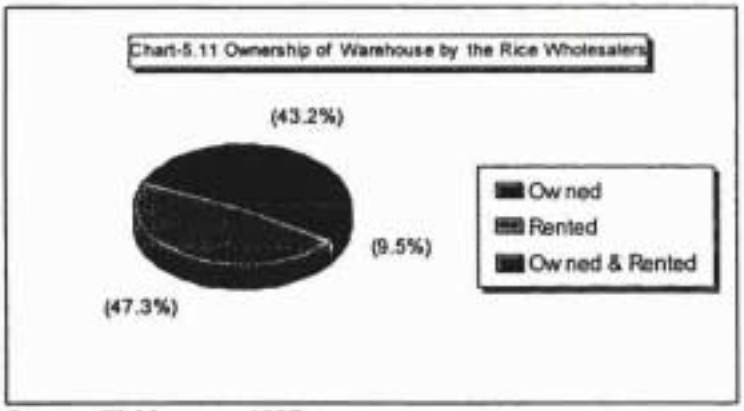
(% of Traders)

Market	Period of Payment for Wheat Buying			Period of Payment for Wheat Selling		
	100 % paid at the time of purchase	Amount due paid at the end of the season	Number of days required to pay the amount due	100 % received at the time of sale	Amount due received at the end of the season	Number of days required to receive the amount due
Dinajpur	80	0	7	20	0	7
Bogra	40	20	13	0	20	8
Dhaka	20	0	8	0	0	17
Narayangonj	40	0	12	40	0	10
Jessore	0	0	6	0	0	7
Chittagong	20	0	8	20	0	10
All	**33**	**3**	**9**	**13**	**3**	**10**

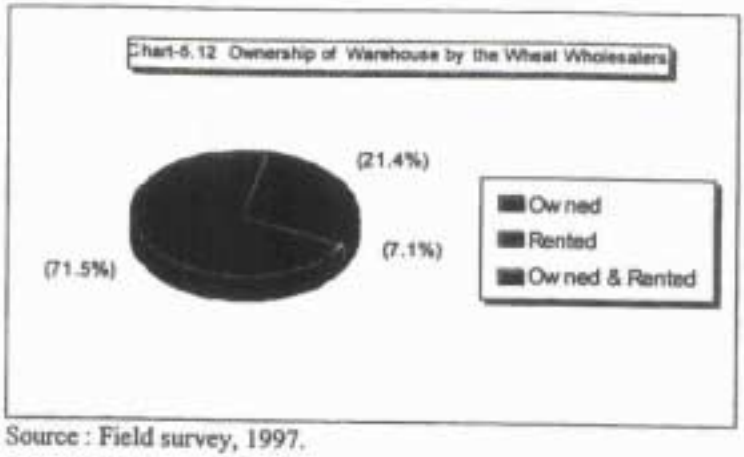
Source : Field survey, 1997.

5.6 Storage Facilities

Most of the long distance wholesale traders own as well as rent warehouse for storing foodgrain. In the case of rice, 43 % of the traders had own warehouse while 47 % had rented and the rest 10 % had both own and rented warehouse (Figure 5.11). In the case of wheat traders, about three-fourth (71 %) of the wholesalers had rented warehouse while only 21 % had own warehouse and the rest 7 % had both rented and own warehouse (Figure 5.12).



Source : Field survey, 1997.



Source : Field survey, 1997.

Although the number of own warehouses was found to be less than rented ones, the capacities of the own warehouses were higher than those of rented warehouses. More than half (55 %) of the rice wholesalers had rented warehouses with capacity up to 500 bags and only 17 % had warehouses with capacity of above 1000 bags (Table 5.12). Rented warehouses with capacities more than 3000 bags were available only in Sylhet and Chittagong. Compared to this, about one-third of the rice wholesalers had own warehouses with capacity of above 1000 bags and only about 41 % had warehouses with capacities up to 500 bags (Table 5.12). The analysis also indicated that own warehouse capacities in the supplying (rice) wholesale markets in the North and North-west regions were larger than those of other markets in the receiving regions. Further, it was found that the capacity of own warehouses varied from 300 bags to 10,000 bags, the average being 1615 bags with high standard deviation (s.d.) of 3276. For rented warehouses, the corresponding average was only 920 bags ranging from 100 bags to 4,000 bags (s.d. 1432).

On the other hand, most of the wheat wholesalers (about 70 %) had small warehouses with capacity of up to 500 bags (Table 5.13). The average capacity of own warehouses was found to be 2286 bags with minimum of 200 bags and maximum of 8,000 bags (s.d. 3276). In the case of rented warehouses, the average capacity was only 956 bags with minimum 100 bags and maximum 6,000 bags (s.d. 1432). Among all the selected markets, Chittagong traders had larger warehouses (both owned and rented) compared to other markets. It may be recalled that Chittagong market is the main supplier of imported wheat. The overall analysis indicated that compared to rented warehouses, the capacity of own warehouses was 1.75 times higher for rice traders and 2.39 times higher for wheat traders. However, in both the cases, the warehouse capacities varied widely among different market locations.

Warehouses were rented mostly from the local persons (88 % in the case of rice traders and 96 % in the case of wheat traders). Only 7 % of the warehouses were rented from other wholesalers in the case of rice and 4 % in the case of wheat wholesalers. The incidence of renting storage space from the rice millers and Ministry of Food Local Store Depots was found to be negligible (only 2.3 % for each). The warehouses were found to be located mostly in the markets from where the traders conducted their business. Only 5% of the rice wholesalers and 7 % of the wheat wholesalers had warehouses 1 to 3 kilometres away from their '*Araths*'.

Table 5.12 Capacity of Warehouses of the Rice Wholesalers

(% of Wholesalers)

Region	Markets	Wholesalers with Own Warehouse				Wholesalers with Rented Warehouse			
		Warehouse capacities (No. of bags)				Warehouse capacities (No. of bags)			
		Up to 500	500 - 1000	1000 - 3000	3000 & above	Up to 500	500 - 1000	1000 - 3000	3000 & above
NW	Dinajpur	50	0	50	0	50	0	50	0
	Bogra	34	33	33	0	100	0	0	0
	Naogoan	34	33	0	33	50	50	0	0
N	Sherpur	20	0	60	20	0	0	100	0
Regional Sub-total		**31**	**15**	**39**	**15**	**57**	**14**	**29**	**0**
NE	Sylhet	50	0	0	50	34	33	0	33
Central	Dhaka	50	38	12	0	57	29	14	0
	Narayangonj	0	0	0	0	60	40	0	0
	Bhairab Bazar	50	0	50	0	67	33	0	0
S &	Barisal	67	33	0	0	67	33	0	0
SW	Khulna	0	50	50	0	25	25	50	0
	Jessore	0	0	0	100	100	0	0	0
SE	Chittagong	33	67	0	0	34	33	0	33
	Chandpur	50	50	0	0	67	33	0	0
	Choumohoni	67	33	0	0	67	33	0	0
Regional Sub-total		**46**	**31**	**19**	**8**	**60**	**33**	**10**	**7**
Total for all Regions		**41**	**26**	**23**	**10**	**55**	**28**	**12**	**5**

Source : Field survey, 1997.

Table 5.13 Capacity of Warehouses of the Wheat Wholesalers

(% of Wholesalers)

Region	Markets	Wholesalers with Own Warehouse				Wholesalers with Rented Warehouse			
		Warehouse capacities (No. of bags)				Warehouse capacities (No. of bags)			
		Up to 500	500 - 1000	1000 - 3000	3000 & above	Up to 500	500 - 1000	1000 - 3000	3000 & above
NW	Dinajpur	100	0	0	0	100	0	0	0
	Bogra	100	0	0	0	100	0	0	0
Central	Dhaka	0	0	0	0	100	0	0	0
	Narayangonj	0	0	0	0	60	0	20	20
SW	Jessore	100	0	0	0	50	25	25	0
SE	Chittagong	0	0	0	100	25	25	25	25
Total for all Regions		**71**	**0**	**0**	**29**	**70**	**9**	**13**	**8**

Source : Field survey, 1997.

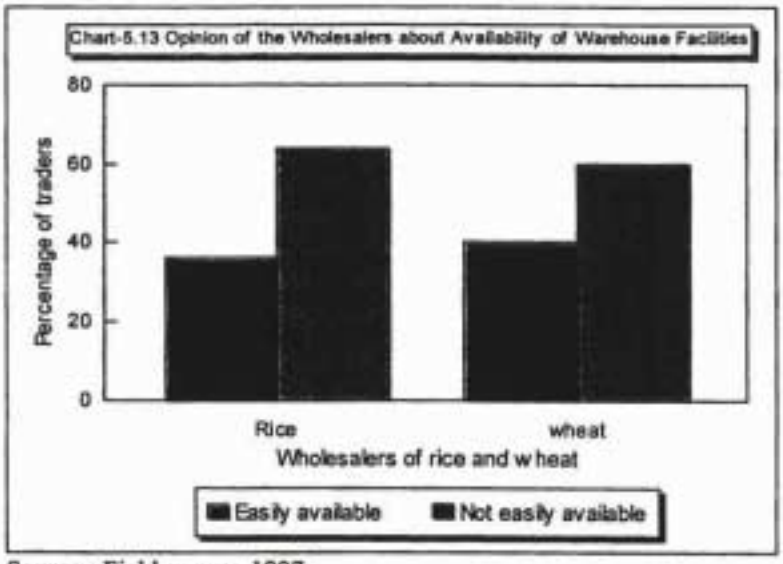
The wholesalers reported that they normally keep rice or wheat in their warehouses for less than a week (4 to 5 days) before selling. For both rice and wheat, on the average, maximum number of days stored before selling was found to be about one month (Table 5.14). In the case of rice maximum number of days stored before selling varied from 15 to 51 days for Barisal and Sylhet respectively. In the case of wheat, except Jessore, maximum number of days was less than one month. In Jessore it was about 3 months. The Table 5.14 shows that irrespective of almost all the markets in different regions, the duration of storage for both rice and wheat is very short. The traders are now interested to make more money through quick turnover rather than hoarding foodgrain for long time because seasonal price increase is uncertain. The temporary storing behaviour of the traders has also been reported in other studies (Chowdhury, 1992; Islam, et al. 1985 and IFPRI Market Survey, 1989/90).

Table 5.14 Number of Days Normally Stored and Maximum Number of Days Stored before Selling of Rice and Wheat

Region	Markets	Number of days normally stored before selling		Maximum number of days stored before selling	
		Rice	Wheat	Rice	Wheat
NW	Dinajpur	1	3	48	16
	Bogra	4	5	20	29
	Naogoan	5		30	
N	Sherpur	4		37	
Regional Sub-total		4		34	
NE	Sylhet	6		51	
Central	Dhaka	2	4	16	18
	Narayangonj	2	5	46	12
	Bhairab Bazar	8		31	
S &	Barisal	2		15	
SW	Khulna	4		25	
	Jessore	NR	4	NR	93
SE	Chittagong	6	4	21	18
	Chandpur	17		36	
	Choumohoni	2		30	
Regional Sub-total		5		27	
Total for all Regions		5	4	28*	31

Source : Field survey, 1997.
Notes : NR = No response
*Calculated excluding Jessore

Although, the long-distance wholesalers usually do not keep foodgrain in the warehouses for long time; temporary storing space is needed in the peak periods of foodgrain trading. For example, in *Aman* season, temporary storing space is needed during the period from mid December to mid February and in *Boro/Aus* season, the corresponding period is between mid June to mid August. In the case of domestic wheat, the period is between mid March to mid June when the traders need space for temporary storing. Since there is no specific period of peak trading of imported wheat the storing period in this case could not be identified. However, according to the opinion of most of the rice traders (64 % of the traders), warehouse facilities were not easily available in case of need (Figure 5.13). Majority of the wheat wholesalers (60 %) also reported about the difficulty of getting additional warehouse facilities in case of need (Figure 5.13).



Source : Field survey, 1997.

5.7 Conclusions

Traders characteristics with respect to market structure showed that the long-distance traders in the North and North-west region who are the main supplier of rice are mostly pure wholesalers while the traders in the receiving / terminal markets are mostly wholesalers cum commission agents. In the case of wheat most of the traders are wholesalers cum commission agents. Single ownership along with family ownership are dominating in the case of rice trading while in the case of wheat, joint ownership / partnership was dominant. Further, it was found that about 65 % of the traders in the rice supplying markets of the North and North-west regions owned rice mills while only 13 % of the traders in the receiving market owned rice mills. In the case of wheat, about one-fifth of the traders owned flour mills. Few traders, particularly in the rice supplying markets also owned trucks for transporting foodgrain to the distance markets.

Own fund was the only source of operating capital for about one-third of the foodgrain traders. The next sources were banks followed by friend and relatives as well as 'Beparies'. However, none of the traders borrowed from money lenders who usually charge a high interest rate. Most of the long-distance foodgrain traders had own telephone and those did not have (own telephone) had access to price information from other traders.

With respect to trading practices, it was found that rice traders were more specialized (i.e. most of whom traded only rice) than the wheat traders (i.e. most of whom traded wheat as well as rice). The rice wholesalers cum millers also purchase considerable amount of rice (in addition to paddy for milling) for direct long distance trading. The wheat wholesalers cum millers also purchase wheat for direct wheat trading. The analysis also showed that about a quarter of the wheat traders procure wheat from the leakage of Public Foodgrain Distribution System in addition to procuring domestic and imported wheat from other traders.

Lot of rice varieties with different grades are traded in different markets. However, markets located in different regions have different types of specialization with respect to varieties and grades. There are also variations in varieties of domestic and imported wheat. Among these

varieties, white hard is mostly traded which is used to produce fine flour ('Moyda'). Besides other factors, varieties and grades of foodgrain are likely to cause significant variations in foodgrain prices in different markets.

Purchase order to the long-distance traders is done mainly over telephone and time laps between ordering and receiving delivery in most of the cases is small (within a week), particularly due to quick transportation by trucks. Most of the transactions are made through TT. At the time of foodgrain trading full amount is not usually paid / received. About one-third of the rice traders receive the amount due at the end of season while the rest receive within 2/3 weeks. However, the payment is more quicker in the case of wheat and payment at the end of the season is rare in this case.

The analysis also showed that although the long-distance traders do not keep foodgrain in their warehouses for long time; they feel shortage of warehouse space in the peak period of trading of rice and wheat. The over all analysis in this chapter indicated that rice and wheat traders' characteristics as well as their marketing practices are somewhat different. Again, characteristics of the rice traders' as well as their marketing practices varied with respect to markets located in the rice supplying and receiving regions.

CHAPTER - 6

TRADE FLOWS OF FOODGRAIN

The direction of trade flows of foodgrain depends on the demand and supply balance, and upon transfer costs between surplus and deficit markets. In the case of wheat, the direction of the trade flows also depends on whether the grain is imported or produced locally. In Bangladesh is it often hypothesized that rice and wheat trade flows are uni-directional: that is from the surplus production areas to the deficit areas, or from the markets which import foodgrain to those markets which do not. In this context, the radial marketing model adopted by Ravallion (1986) states that rice from surplus production areas flows to the central consuming market of Dhaka from all directions. Further, in testing for spatial market integration, the 'Law of One Price' and Ravallion model assume that if markets are spatially integrated, price changes in one market will be transmitted on a one-for-one basis to other markets. In this case, trade flows between the markets must be continuous (Baulch, 1997). In order to assess the validity of these models, this chapter examines the pattern of trade flows of rice and wheat between different long-distance markets. The seasonality of the foodgrain trade is also investigated.

6.1 Trade Flows for Rice and Wheat : Analytical Framework

There are three rice growing seasons in Bangladesh : *Aman*, *Aus* and *Boro*. Among these three seasons, there is a considerable degree of overlap between the *Aus* and *Boro* seasons, and from the point of view of rice traders it is often difficult to distinguish between the two seasons. Therefore, to be more practical, the trader survey considered *Aus* and *Boro* seasons to be a single season. However, trade flows in the *Aman* and *Boro/Aus* seasons were observed to differ in many cases. Therefore, trade flows of rice for these two seasons have been presented separately.

In the case of wheat, there are two types of wheat : domestic (produced within the country) and imported. The direction of trade flows largely depends on whether the wheat is imported or domestic. Therefore, trade flows of domestic and imported wheat have been analysed separately.

Broadly speaking, there are two types of foodgrain markets: procurement markets and terminal markets. Procurement markets here refer to those markets from where rice is collected from local as well as neighbouring markets and are sent to distant markets. Major consumption and receiving centres have been termed terminal markets. Since Phase I of the study is concerned with the long-distance trade, procurement and sale of rice/wheat from all markets located within a radius of 20 to 30 kms (even if the market falls under another administrative district) have been considered as locally procured/sold. For example, long-distance wholesalers in Naogaon procure rice within Naogaon town as well as from neighbouring *thanas* like Mohadebpur, Badalghachi, Raninagar and Dhamurhat in Naogaon district and from Adamdighi *thana* in Bogra district. Rice procured from all these places have been considered as locally procured. Similarly, all neighbouring consuming foodgrain markets have been considered as locally consumed.

6.1.1 Directions of Trade Flows of Rice in *Aman* Season

Out of 14 selected markets; the wholesale markets located in Naogaon, Bogra, Dinajpur and Sherpur were found to be important procurement centres for rice in *Aman* season. Rice from these four markets was transported to all other 10 selected markets, as well as to other markets located in different districts of Bangladesh. Rice procured from the sending markets is mostly sold locally by the receiving markets; however, in some cases a portion of the procured rice is again sent to other long-distance markets. In that case the terminal markets also act as a transhipment market. For example, the wholesale markets of Dhaka receive rice in *Aman* season mostly from the districts of Naogaon, Bogra, Dinajpur, Sherpur and Mymensigh and again send a portion of that rice to the markets of Narayangonj, Norshindi, Noakhali, Barisal, Bagerhat and Borguna (Table 6.1). Besides Dhaka, such type of transhipment was also found for the markets of Bhairab Bazar, Chandpur, Khulna and Sylhet as can be seen in Table 6.1. The table further shows that the important rice supplying markets in *Aman* season are : Naogaon, Dinajpur, Rangpur, Bogra, Lalmonirhat, Natore and Gaibandha of North-west region, Sherpur and Mymensigh of the North and Central regions respectively, Patuakhali, Ashugonj and Satkhira of the Southern region.

On the other hand, Dhaka, Narayangonj, Norshindhi and Brahamanbaria in the Central region; Chittagong, Chandpur and Choumohoni in the South-east region; Noakhali, Feni, Barisal, Khulna and Jessore in the Southern region and Sylhet in the Eastern region are the most important consuming / terminal markets. The most important long-distance wholesale market linkages in *Aman* season can also be seen in Map 2. Inspection of the Map will reveal that major flows of rice in the *Aman* season are mostly from the Northern districts towards the Southern and the Central districts of Bangladesh.

6.1.2 Directions of Trade Flows of Rice in *Boro / Aus* Season

Although trade flows of rice in *Boro / Aus* season had close similarity with those of *Aman* season, there were some differences. For example, in *Aman* season although Bhairab Bazar procures rice from different markets of Northern districts; in *Boro* season it procures rice locally and a portion of that rice also flows to Sylhet. Bhairab Bazar actually procures *Boro* rice from Ashugonj rice mills which are located on the other side of the river Meghna.

The major procurement districts in *Boro / Aus* season were found to be Naogaon, Bogra, Dinajpur, Pabna and Natore in the North-west region; Jamalpur and Sherpur in the Northern region; and Ashugonj and Munshigonj in the Central region (Map 3). On the other hand, major consuming / receiving markets were found to be Dhaka, Narayangonj and Faridpur in the Central region; Barisal, Noakhali and Patuakhali in the Southern region; and Chittagong and Chandpur in the South-east region. Again, the receiving markets of Barisal, Bhairab Bazar, Chandpur, Dhaka, Jessore, Khulna and Sylhet were found to be transhipment points from where small amount of rice in the *Boro / Aus* season was again traded to other long-distance markets as can be seen from the Table 6.1. The major market linkages in *Boro / Aus* season can be seen in Map 3. Again, close observation in the Map revels that like *Aman* season, in the *Boro / Aus* season also, the main flows are from the Northern Districts towards the Southern and central districts.

Table 6.1 Trade Flows of Rice to and from the Selected Markets

Name of the Market	Aman Season		Boro / Aus Season	
	Source of Supply	Destination of Sale	Source of Supply	Destination of Sale
Barisal	Patuakhali* Natore* Pabna Bogra Barguna	Locally sold* Hatia	Pabna* Natore* Bogra* Kushtia Rangpur Thakurgaon	Locally sold* Noakhali* Patuakhali* Bhola Barguna
Bhairab Bazar	Lalmonirhat* Dinajpur* Bogra Kurigram Jessore	Locally sold* Brahambaria* Sylhet* Norshingdi Hobigonj Sunamgonj	Locally procured	Sylhet
Bogra	Locally Procured*	Dhaka* Norshingdi* Comilla Gazipur Tangail, Munshigonj	Locally procured*	Dhaka* Khulna Bagherhat Comilla Tangail Gazipur Munshigonj Norsingdi
Chandpur	Naogaon* Dinajpur* Munshigonj Khulna Rangpur Bogra.	Locally sold* Noakhali Lakshmipur	Noagoan* Munshigonj* Rangpur Dinajpur	Locally sold* Noakhali Lakshmipur
Chaumohani	Brahamanbaria (Ashugonj*) Rangpur* Tangail Dinajpur Naogaon Rajshahi	Locally sold*	Naogaon* B.Baria* Mymensingh Tangail Sherpur Rajshahi Habigonj	Locally sold*
Chittagong	Dinajpur* Sherpur* Naogaon* Bogra Rangpur B.Baria Pabna Khulna Gaibandha Joypurhat	Locally sold*	Dinajpur* Naogaon* Brahmanbaria*/ Ashugonj Sherpur Rangpur Pabna Khulna Bogra Joypurhat	Locally sold*

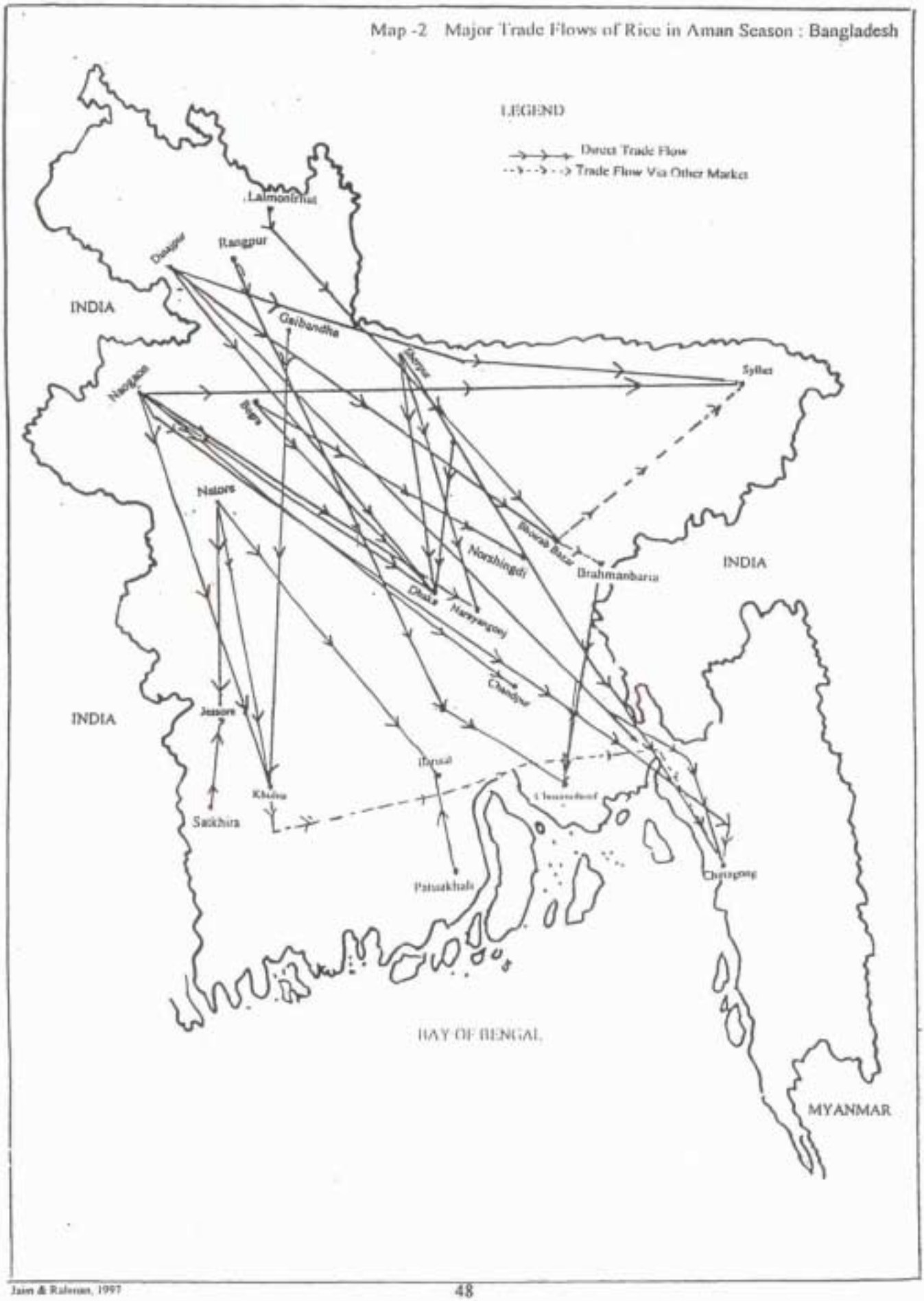
Name of the Market	Aman Season		Boro Season	
	Source of Supply	Destination of Sale	Source of Supply	Destination of Sale
Dhaka	Naogaon* Dinajpur* Mymensingh* Sherpur* Bogra Thakurgaon Natore Tangail Jamalpur Rajshahi Pabna Nawabgonj Panchagor	Locally sold* Narayangonj Norsingdi Noakhali Barisal Bagherhat Borguna	Naogaon* Mymensingh* Jamalpur* Natore* Pabna* Dinajpur Bogra Sherpur Thakurgaon Tangail Rajshahi Netrokona Sylhet Jessore	Locally sold* Barisal* Noakhali* Faridpur Narayangonj Norsingdi Bagerhat Borguna
Dinajpur	Locally procured*	Chittagong* Noakhali* Dhaka* Feni* Sylhet Pabna Chandpur Comilla	Locally Procured*	Chittagong* Dhaka* Noakhali* Bagerhat Borguna Feni Pabna Chandpur Sylhet Comilla
Jessore	Satkhira* Natore* Thakurgaon Bogra Naogaon	Locally sold*	Natore Bogra	Locally sold* Faridpur* Barisal Munshigonj
Khulna	Natore* Naogaon* Gaibandha* Dinajpur Pabna	Locally sold* Chittagong* Barisal Barguna Jhalokati Gopalgonj Chandpur Pirojpur	Natore Naogaon Gaibandha Chuadanga Rangpur Bogra Pabna	Locally sold* Barisal Barguna Jhalokati Pirojpur Faridpur Chittagong Chandpur
Naogaon	Locally procured*	Chittagong* Chandpur* Dhaka* Narshingdi Munshigonj Narayangonj Noakhali Sylhet	Locally procured*	Chittagong* Chandpur* Dhaka* Narshingdi Munshigonj Narayangonj Noakhali Sylhet Barisal

Name of the Market	Aman Season		Boro Season	
	Source of Supply	Destination of Sale	Source of Supply	Destination of Sale
Narayangonj	Sherpur* Naogaon* Dinajpur Rajshahi Natore	Locally sold*	Sherpur* Naogaon* Rajshahi Natore Dinajpur	Locally sold*
Sherpur	Locally procured*	Dhaka* Narayangonj* Noakhali	Locally procured*	Dhaka* Narayangonj* Noakhali Chittagong
Sylhet	Naogaon* B.Baria / Ashugonj Dinajpur* Chittagong, Rangpur	Locally sold* Noakhali Feni	Naogaon* Dinajpur* B.Baria / Ashugonj* Hobigonj	Locally sold* Chittagong

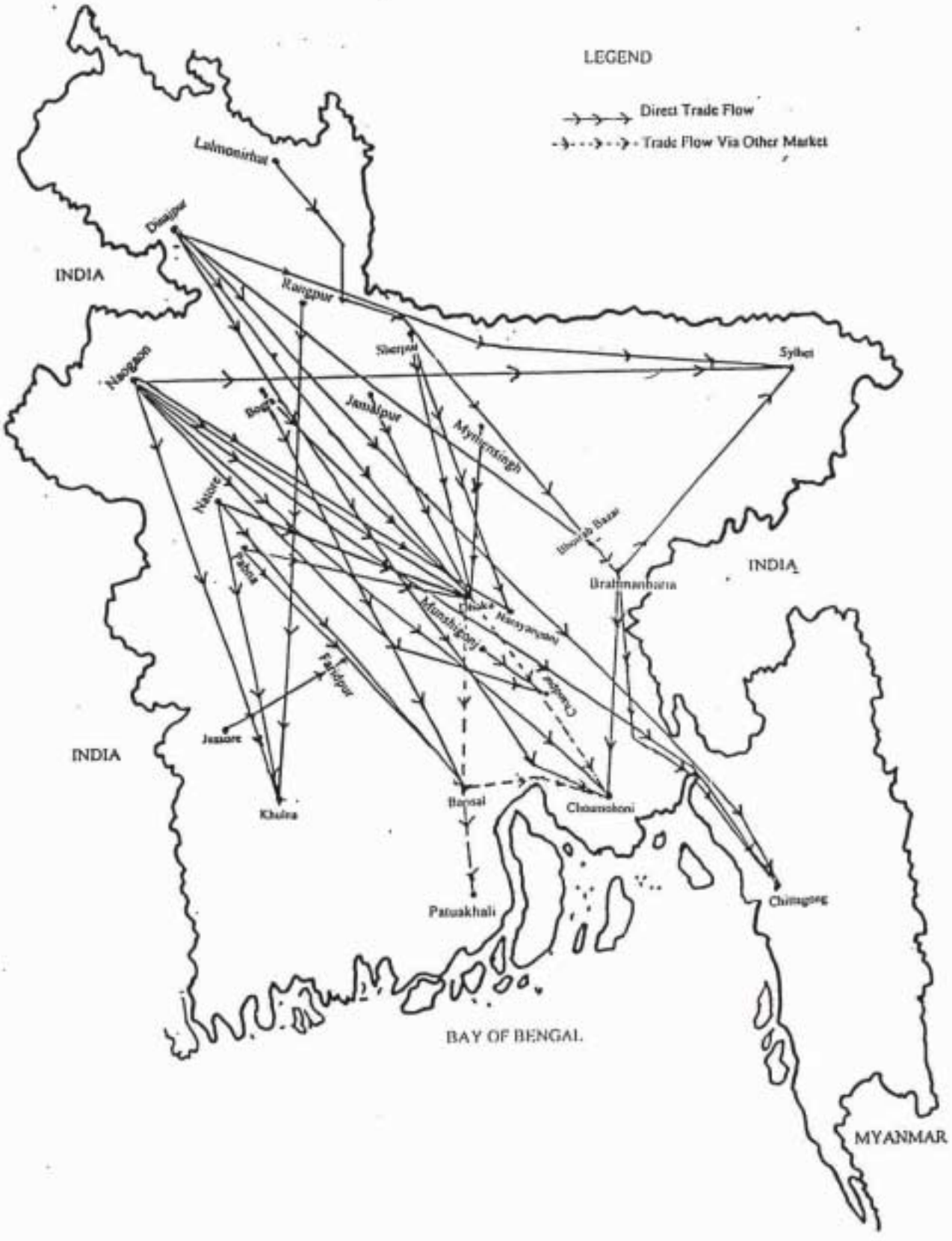
Source : Field survey, 1997

* Indicates most important markets.

Map -2 Major Trade Flows of Rice in Aman Season : Bangladesh



Map -3 Major Trade Flows of Rice in Boro / Aus Season : Bangladesh



Jaim & Rahman, 1997

6.1.3 Directions of Trade Flows of Rice from the Most Important Procurement Market

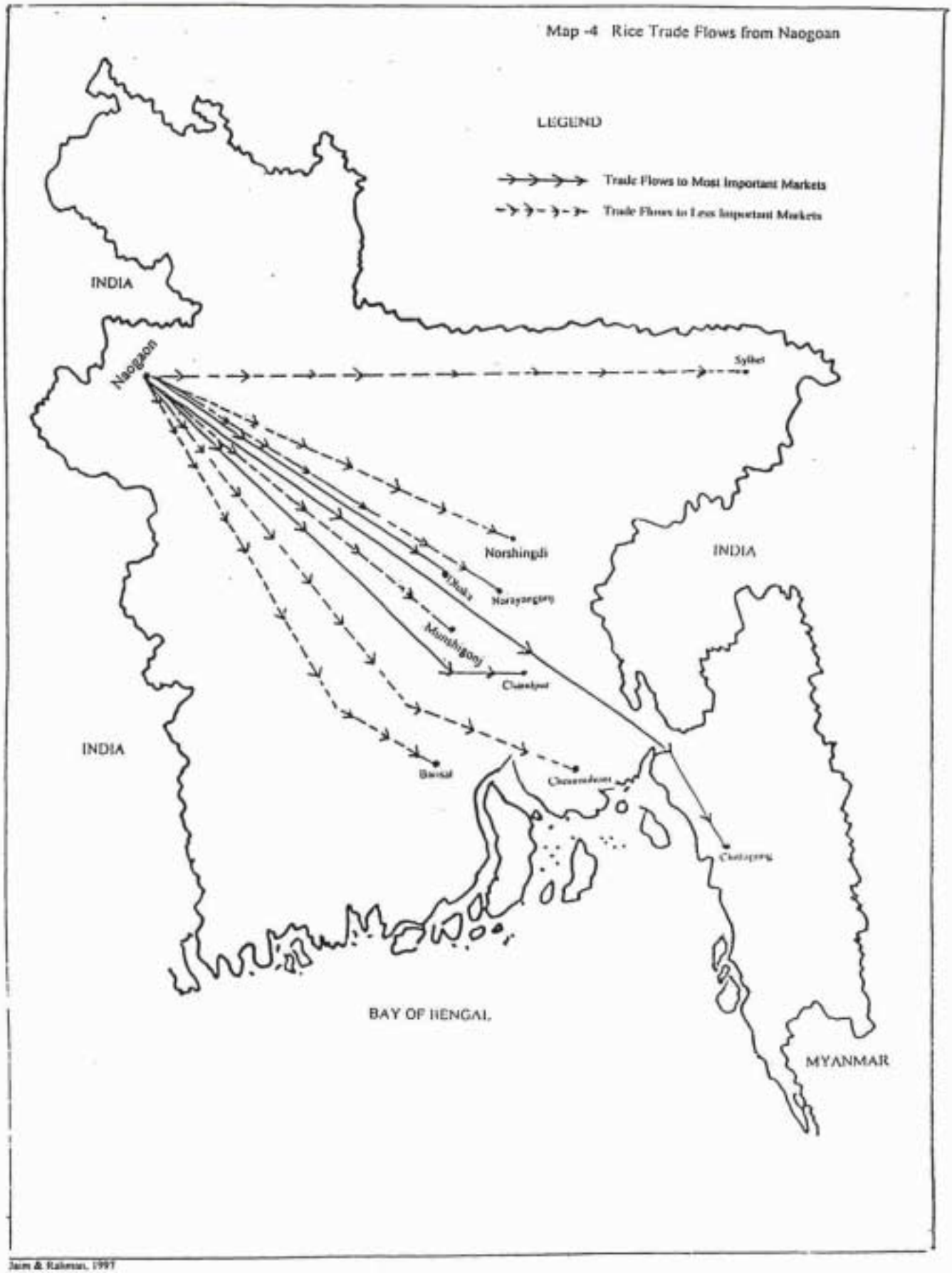
Among all the long-distance wholesale rice markets, Naogaon was found to be the most important procurement market and on the other hand, Dhaka was found to be the most important receiving / consuming market. To avoid complications of showing all the trade flows to and from different markets, only the major trade flows of rice have been shown in the Maps 2 and 3. To get a more detailed picture of the markets, trade flows of the most important procurement and receiving markets have been presented in the Maps 4 and 5.

It can be seen from the Map 4 that the most important markets which receive rice from the Northern district of Naogaon are Dhaka, Chittagong and Chandpur. The other long-distance markets like Barisal, Choumohoni, Munshigonj, Narayangonj Norshindi and Sylhet also receive rice from Naogaon, but these are of less important. It can be observed from the Map that the trade flows of rice from the North-west district of Naogaon are mainly towards the Central and South-east region of Bangladesh.

6.1.4 Directions of Trade Flows of Rice to and from the Most Important Receiving Market

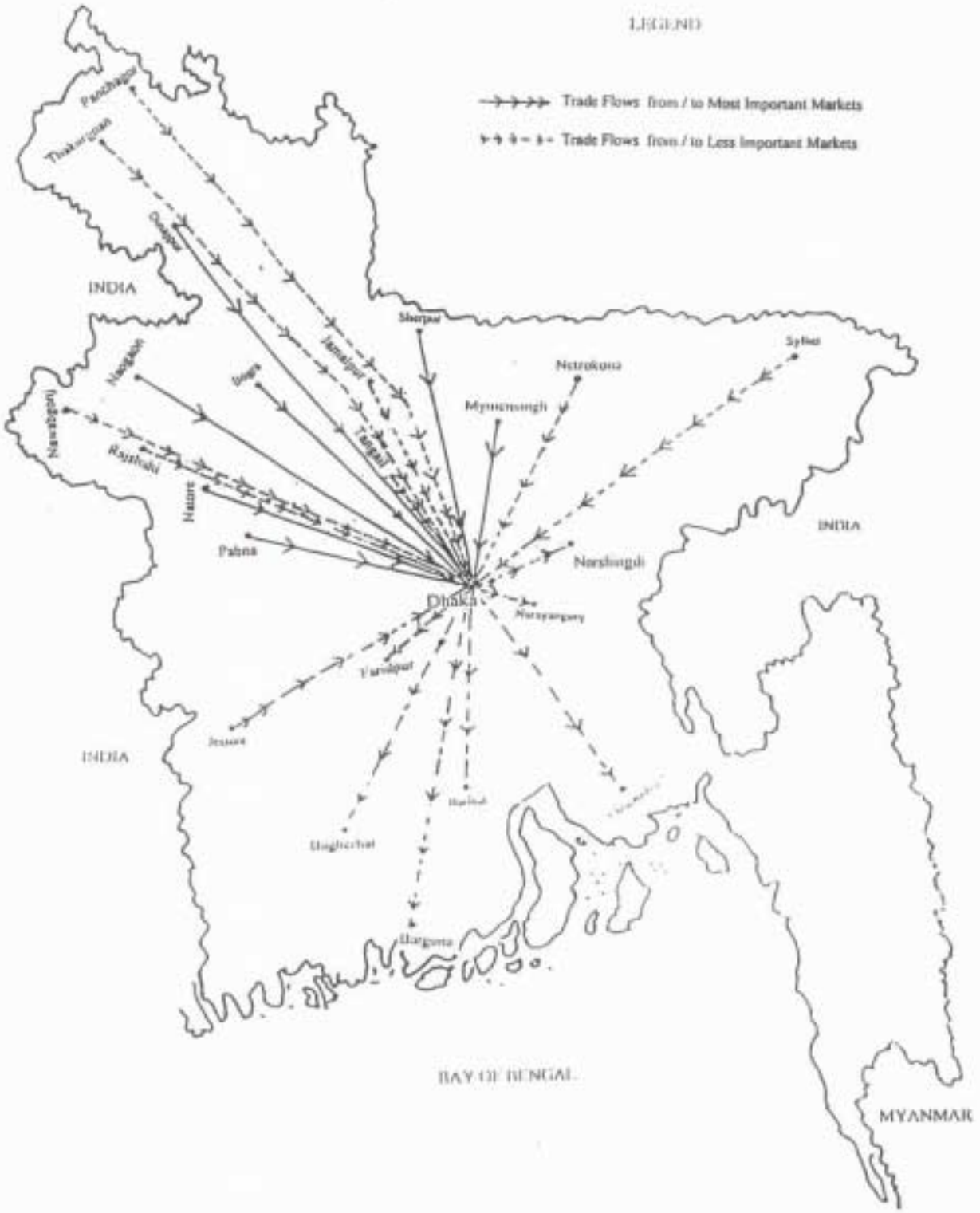
Compared to the most important rice procurement market, Naogaon a somewhat different picture can be observed in the case of Dhaka which is the most important receiving (terminal) market in Bangladesh. However, in this case also except Jessore in the South-west region, all the supplying markets are located in the Northern part of Bangladesh (Map 5). Dhaka markets receive rice mainly from Naogaon, Dinajpur, Bogra, Natore and Pabna of the North-west region; and Sherpur and Mymensingh of the Northern and North-central region respectively. The other less important markets from which Dhaka receives rice are Panchagor, Thakurgoan, Nawabgonj and Rajshahi of the North-west region; Tangail, Jamalpur and Mymensingh of the North-central region, Sherpur and Netrokona of the Northern region; Sylhet in the North-east region and also from Jessore in the South-west region.

Rice received at the Dhaka markets are mostly consumed locally. However, a portion of that rice also flows mainly to the Southern districts of Barisal and Noakhali (Choumohoni). The other Southern markets which also receive rice from Dhaka are Bagerhat, Barguna and Faridpur. The adjoining districts of Narayangonj and Norshindi located in the Central region also receive rice from Dhaka (Map 5). Therefore, Dhaka rice market is not only the biggest terminal market it is also a big transhipment point from which rice collected from different Northern districts is shifted to the Southern districts of Bangladesh.



Jaim & Rahman, 1997

Map - 5 Rice Trade Flows to and from Dhaka



Jaim & Rahman, 1993

6.1.5 Direction of Trade Flows for Domestic Wheat

Among the 6 selected wholesale markets for domestic wheat; Dinajpur, Bogra in the North-west region and Jessore in the South-east region were found to be the main procurement markets. Of these 3 district markets, only Dinajpur procures wheat locally and sends directly to distant markets; mostly to Narayangonj, Dhaka and Noakhali (Map 6 and Table 6.2. In the case of Bogra, domestic wheat for long-distance trade is procured mostly from other districts rather than from Bogra itself. The main supplying districts are Dinajpur and Rangpur. Domestic wheat procured mainly from these two districts as well as from other Northern districts (as can be seen in Table 6.2) are sent to the wholesale markets of Chittagong, Narayangonj, Dhaka, Sylhet and Manikgonj. The wholesale market Jessore on the other hand, procures about 80 % of domestic wheat from local markets and the rest 20 % mostly from the neighbouring districts of Meherpur and Chuadanga; and to some extent from the districts of Kushtia, Barisal and Rangpur. Domestic wheat thus collected is sent mostly to Narayangonj followed by Khulna and Faridpur. Small amount is also sent to the wholesale markets of Pabna, Kushtia and Chittagong.

The terminal market, Chittagong procures domestic wheat mostly from Dinajpur and Rangpur. The other supplying markets can also be seen in the Map 6. In addition to Dinajpur and Rangpur, Kushtia plays an important role in supplying domestic wheat to Dhaka. Again, Dinajpur, Rangpur, Jessore and Jinaidha are the main suppliers of domestic wheat to Narayangonj wholesale market. Table 6.3 as well as Map 6 shows detail trade flows of domestic wheat. It can be observed from the Map that Northern districts like Dinajpur, Rangpur, Rajshahi and Bogra; and the districts located in the South-west region like Jessore, Kushtia and Jinahdah are the main suppliers of domestic wheat. Domestic wheat thus procured by the important terminal markets located in the Central region (Dhaka and Narayangonj) as well as in the South-east region (Chittagong) is mostly sold locally.

6.1.6 Direction of Trade Flows for Imported Wheat

Trade flows of imported wheat is somewhat different than those of domestic wheat. Imported wheat mostly arrives through the ports of Chittagong and Khulna. It also comes by road from India across the border of different districts located in the North-west and South-west regions of Bangladesh. However, Chittagong is the main supplier of imported wheat.

Although Dinajpur wholesale market in the North-west region was found to be a major supplier of domestic wheat, it has in fact no role in supplying imported wheat. However, imported wheat comes through Hilli border which although belongs to Dinajpur district, it is too far from the district headquarters of Dinajpur and very close to the neighbouring district Joypurhat. Dinajpur actually receives imported wheat from Chittagong. The other North-western district, Bogra collects imported wheat mostly from Chittagong and Hilli. Bogra also collects imported wheat from other districts as can be seen in Table 6.2. The important markets where the imported wheat is again sold by the wholesalers of Bogra can be seen in the Map 7. It shows that imported wheat from Bogra mainly flows to Pabna, Rangpur and Rajshahi in the Northern region; and Dhaka and Narayangonj in the Central region. Further, Chittagong being the major wheat importing market, also receives imported wheat from Bogra. The other market linkages with Bogra can also be seen in Table 6.2.

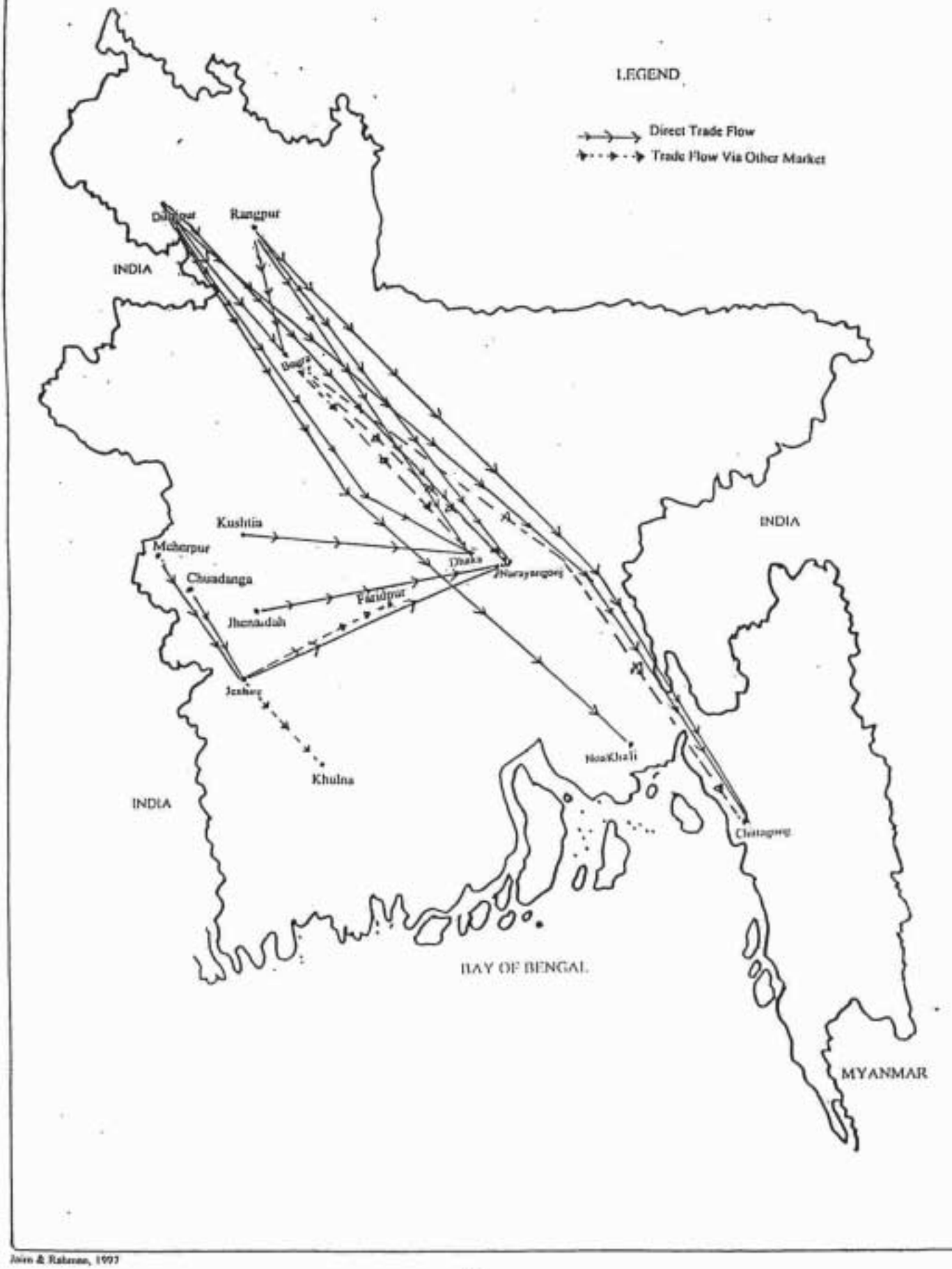
Table 6.2 Trade Flows of Wheat to and from the Selected Markets

Market / Districts	Domestic Wheat		Imported Wheat	
	Collection Market	Sending Market	Collection Market	Sending Market
Bogra	Dinajpur** Rangpur* Thakurgaon Joypurhat Gaibandha Lalmonirhat Kurigram Nilfamari	Chittagong* Narayangonj* Dhaka* Sylhet Manikgong,	Chittagong** Dinajpur (Hilli)* Lalmonirhat Chapainawabgonj Khulna	Pabna,** Dhaka * Rangpur* Narayangonj* Rajshahi * Natore Chittagong Sylhet Kushtia Manikgonj
Chittagong	Dinajpur** Rangpur* Faridpur Jessore Kushtia Bogra Jamalpur Rajshahi Joypurhat Thakurgaon	Locally sold*	Procured by local importers* (80%) Hilli (Dinajpur) Rangpur Rajshahi Joypurhat Bogra,	Locally sold* Narayangong** Rangpur* Dinajpur* Bogra,* Pabna Faridpur Kushtia
Dhaka	Dinajpur** Rangpur* Kushtia* Rajshahi Mymensingh Faridpur, Tangail	Locally sold*	Chittagong*	Locally sold*
Dinajpur	Locally procured*	Narayangonj** Dhaka* Noakhali* Chittagong Feni Sylhet Comilla	Not applicable	Not applicable
Jessore	Locally procured* (80 %) Meherpur* Chuadanga* Rangpur Kushtia Barisal	Narayangonj** Khulna* Faridpur* Pabna Kushtia Chittagong	Procured by local importers* Chittagong ** Khulna,* Faridpur Kushtia	Locally sold* (80%) Kushtia Pabna
Narayangonj	Dinajpur* Rangpur* Jessore* Jhinaidha* Bogra Gopalgonj Panchagar Nilfamari Thakurgaon Sherpur Kushtia	Locally sold*	Chittagong* Dinajpur Khulna	Locally sold*

** indicates most important markets, * indicates important markets and without * indicates less important markets

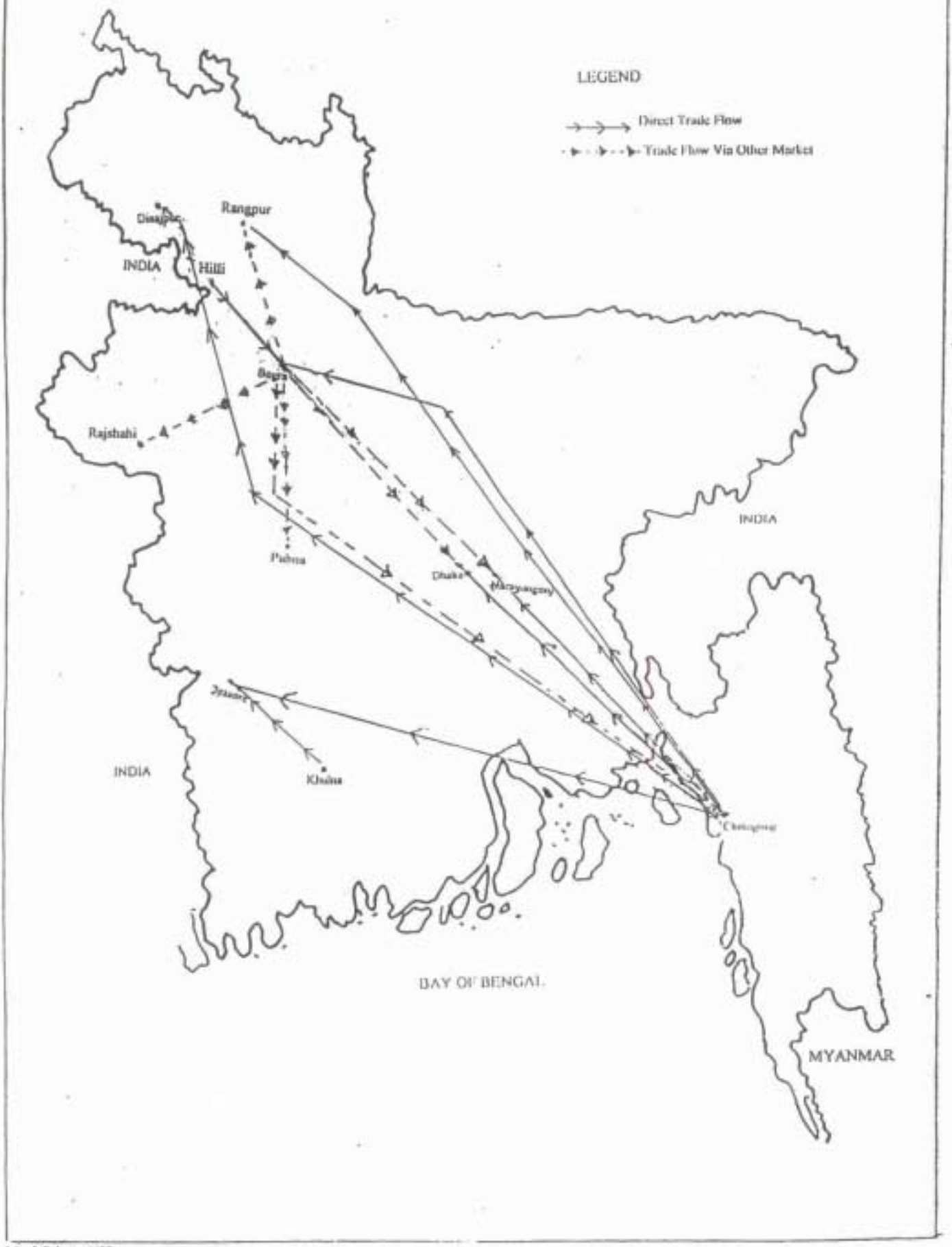
Source : Field survey, 1997.

Map - 6 Major Trade Flows of Domestic Wheat : Banglade



Jain & Rahman, 1993

Map -7 Major Trade Flows of Imported Wheat : Bangladesh



Jain & Rahman, 1997

The wholesalers of Chittagong dealing with imported wheat procure about 80 % of the imported wheat from the importers of Chittagong (the importers are also wholesalers in some cases). The rest 20 % is collected from the importers located in the North-west region of Rangpur, Bogra, Joypurhat, Rajshahi and Dinajpur (Hilli). The imported wheat of Chittagong is mostly sent to Narayangonj (in the Central region) and Rangpur, Dinajpur and Bogra (in the North-west region). Pabna, Faridpur and Kushtia also receive imported wheat from Chittagong.

Imported wheat in the wholesale market of Jessore comes from the importers of Jessore as well as from the wholesalers of Chittagong and Khulna. It is also collected from the wholesalers of Faridpur and Kushtia although to a lesser extent. About 80 % of the imported wheat procured is sold at the Jessore local market and the rest 20 % flows to the wholesale markets of Kushtia and Pabna.

Dhaka and Narayangonj; the major consumers of imported wheat procure imported wheat mainly from Chittagong and to a lesser extent from Khulna and Dinajpur (Hilli). Most of the imported wheat procured from these markets is sold locally. This indicates that imported wheat has a very high demand in the Dhaka and Chittagong markets. The most important trade flows of the imported wheat can be seen in Map 7. It can be observed from the Map that there are two-way trade flows of imported wheat : from the South-east region (Chittagong district) to the North-west region (Rangpur, Dinajpur, Rajshahi, Bogra, etc.); and again from the North-west region to the South-east region crossing the Central region (Dhaka and Narayangonj) in both the ways.

Usually the wheat wholesalers or the flour millers of Chittagong do not purchase imported wheat from other markets since Chittagong receive most of the imported wheat through its sea port. However, sometimes, the wholesalers and the millers of Chittagong purchase imported wheat from Dinajpur (Hilli) and Bogra to meet the temporary crisis / demand in the local market. The crisis originates when the stock of the imported wheat reduces and also when the imported wheat can not reach timely.

6.2 Seasonality of Trade Flows

6.2.1 Periods of Maximum and Minimum Trading of Rice

Table 6.3 presents seasonal trade flows of rice among different important market pairs. The following observations can be made from the table :

i) Rice trading does not continue throughout the year. There are seasonal peaks as well as lean periods for both the *Aman* and *Boro / Aus* seasons.

ii) There are some markets which are involved in trading both in *Aman* and *Boro / Aus* seasons while others are involved in trading either in *Aman* or in *Boro / Aus* season.

Further, it was found that maximum trading of rice in *Aman* season takes place during the Bengali months of *Paush* and *Magh* (from mid December to mid February). However, trading in *Aman* season starts from the month of *Agrahayan* (from mid November to mid December) and continues up to *Falgun* (from mid February to mid March). This indicates that maximum trading in *Aman* season starts just after *Aman* harvest (from mid November to end of December). Again, majority of the traders (66 %) reported that the months in which rice is not at all traded in *Aman* season are *Chaitra* and *Baishak* (from mid March to mid May).

Table 6.3 Seasonality of Rice Trade between the Important Market Pairs

Market Pairs	Trading in Aman Season		Trading in Boro Season	
From - To	Peak period	Lean period	Peak period	Lean period
Dinajpur-Dhaka	Agrahayan to Magh	Chaitra - Baishak		
Dinajpur-Chittagong	Paush to Falgun	Chaitra - Baishak	Jaista to Sravan	Katrik
Dinajpur-Chandpur	Paush to Falgun	Chaitra - Baishak		
Dinajpur-Ashugonj			Jaista to Sravan	Ashin - Katrik
Dinajpur - Noakhali	Paush to Falgun	Baishak	Jaista to Sravan	Katrik
Dinajpur- Feni	Paush to Falgun	Chaitra - Baishak		
Dinajpur -Sylhet	Magh to Chaitra	Agrahayan - Paush	Ashin - Katrik	Asar - Sravan
Dinajpur- Bhairab Bazar	Paush - Magh	Chaitra - Baishak		
Naogaon - Chandpur	Magh - Falgun	Chaitra - Baishak	Jaista to Sravan	Ashin - Katrik
Naogaon-Choumohoni			Jaista - Asar	Ashin - Katrik
Naogaon - Chittagong	Paush to Falgun	Chaitra - Baishak	Jaista to Sravan	Katrik
Naogaon - Dhaka	Paush - Magh	Chaitra - Baishak	Jaista to Sravan	Ashin - Katrik
Naogaon - Khulna	Paush to Falgun	Chaitra - Baishak		
Naogaon - Narayangonj	Magh to Chaitra	Baishak	Jaista to Sravan	N.R.
Naogaon- Sylhet	Magh to Chaitra	Agrahayan - Paush	Ashin - Katrik	Asar - Sravan
Bogra-Dhaka	Agrahayan to Magh	Chaitra - Baishak	Jaista - Asar	Ashin - Katrik
Bogra- Norshingdi	Paush to Falgun	Chaitra		
Bogra- Barisal			Jaista to Sravan	Katrik
Sherpur-Chittagong	Agrahayan - Paush	Chaitra - Baishak		
Sherpur - Dhaka	Paush to Falgun	Chaitra - Baishak		
Sherpur - Narayangonj	Paush to Falgun	Baishak	Jaista to Sravan	Ashin - Katrik
Pubna- Dhaka			Jaista to Sravan	Ashin - Katrik
Dhaka -Barisal			Asar - Sravan	Katrik
Dhaka -Noakhali			Ashin - Katrik	Jaista - Asar
Mymensingh-Dhaka	Paush to Falgun	Chaitra - Baishak	Jaista to Sravan	Ashin - Katrik
Jamalpur- Dhaka			Jaista to Sravan	Ashin - Katrik
Natore- Dhaka			Jaista to Sravan	Katrik
Lalmonirhat - Bhairab Bazar	Paush - Magh	Chaitra - Baishak		
Bhairab- Sylhet			Asar - Sravan	Katrik

Market Pairs	Trading in Aman Season		Trading in Boro Season	
Patuakhali - Barisal	Paush to Falgun	Agrahayan		
Natore -Barisal	Paush to Falgun	Agrahayan		
Pabna -Barisal	Asar - Sravan	Katrik		
Jessore - Satkhira	Magh to Baishak	N.R		
Natore - Jessore	Magh to Baishak	N.R		
Jessore - Faridpur	N.R	N.R		
Natore - Khulna	Magh - Falgun	Agrahayan		
Gaibandha - Khulna	Paush to Falgun	Agrahayan		
Khulna - Chittagong	Magh to Chaitra	Agrahayan		
Munshigonj-Chandpur			Asar - Sravan	Ashin - Katrik
Ashugonj-Choumohoni	Paush to Falgun	Chaitra - Baishak		

Field Survey, 1997.
Notes : Black areas indicate periods of no trade.
NR = No response.

In the case of *Boro / Aus* season, *Jaista, Asar* and *Sravan* (from mid June to mid August) are the peak months of trading. This also indicates that maximum trading *of Boro / Aus* takes place after harvesting of these crops. Again, about 77 % of the traders reported that *Ashin* and *Katrik* (from mid September to mid October) are the two months when *Boro / Aus* rice is not at all traded.

6.2.2 Periods of Maximum and Minimum Trading of Domestic and Imported Wheat

In the case of domestic wheat, the wholesalers reported that *Chaitra, Baishak* and *Jaista* (from mid March to mid June) are the peak months for wheat trading (Table 6.4). Regarding the period when domestic wheat is not at all traded, the traders gave a variety of responses from which it was difficult to identify any specific period. Again, no specific period for peak trading of imported wheat could also be identified (Table 6.4). However, about one-third of the wholesalers (36 %) reported that *Ashin, Katrik* and *Agrahayan* (from mid September to mid December) are the peak months of procuring imported wheat. Further, about two-third of the wholesalers (65 %) said that during the months from *Chaitra* to *Jaista* imported wheat is not at all traded. It may be recalled that this is the period when maximum domestic wheat is traded. Therefore, the analysis indicated that there is seasonal complementarity in domestic and imported wheat trading in Bangladesh.

It can also be seen from the table that there are some markets which trade both domestic and imported wheat while others trade either domestic or imported wheat. For example, Chittagong wheat traders are mostly involved in imported wheat trading while the traders of Jessore and Dinajpur are mostly involved in domestic wheat trading. The traders of Bogra on the other hand are involved in both domestic and imported wheat trading. Trading of domestic and imported wheat has also influence on seasonality of trading in the markets as can be seen from the Table 6.4. Seasonal nature of trading both for rice and wheat indicates that foodgrain trading among different market pairs is not continuous throughout the whole year.

Table 6.4 Seasonality of Domestic and Imported Wheat Trading between the Important Market Pairs

Market Pairs	Trading of Domestic Wheat		Trading of Imported Wheat	
From - To	Peak period	Lean period	Peak period	Lean period
Bogra-Chittagong	Chaitra to Jaista	Ashin - Katrik Paush - Magh	Katrik to Paush	Chaitra to Jaista
Bogra-Dhaka	Chaitra - Boishak	Asar - Sraban , Ashin - Katrik Paush - Magh	Katrik to Paush	Chaitra to Jaista
Bogra-Narayangonj	Chaitra - Boishak	Asar - Sraban Ashin - Katrik Paush - Magh	Katrik to Paush	Chaitra to Jaista
Chittagong- Bogra			Agrahayan to Magh	Chaitra to Jaista
Chittagong-Dhaka			Agrahayan to Paush Asar - Sraban Vadra to Falgun	N.R
Chittagong-Narayangonj			Asar to Paush	Chaitra to Jaista
Chittagong-Jessore			Katrik to Paush	Chaitra - Boishak
Dinajpur-Bogra	Chaitra - Boishak	Asar - Sraban	Agrahayan to Magh	Chaitra to Jaista
Dinajpur-Chittagong	Chaitra to Jaista	Katrik to Falgun		
Dinajpur- Dhaka	Chaitra to Jaista	Vadra-Ashin		
Dinajpur-Narayangonj	Chaitra to Jaista	Ashin to Falgun		
Jessore-Chittagong	Chaitra to Jaista	Katrik to Magh		
Jessore-Narayangonj	Chaitra - Boishak	Katrik to Magh		

Field Survey, 1997.
Notes : Black areas indicate no trade between the markets.
NR = No response.

6.3 Conclusions

Findings in this chapter indicate that major flows of rice are from Northern districts towards Central and Southern districts. However, there were some seasonal variations (in *Aman* and *Aus/Boro* seasons) with respect to trade flows among different markets.

The concept of radial market model was not found to be valid for all the consuming / receiving markets. Some of the receiving markets were also found to be transhipment points. For example, among the 14 selected markets, Dhaka and Bhairab Bazar were found to be important transhipment points.

In the case of domestic wheat, major trade flows were from the Northern and South-west regions to the Central and South-east regions. In the case of imported wheat, two way flows were observed; from South-east region to North-west region and again from North-west region to South-east region. This depends on wheat demand-supply balance in the markets located in theses two extreme locations.

In the case of rice, it was found that peak periods of trading matched with the harvesting periods of *Aman* and *Boro / Aus*. Again, in the case of wheat, seasonal complementarity in trading of domestic and imported wheat was observed. The analysis indicated that both rice and wheat trading are not continuous throughout the year due to seasonal behaviour of trading. Discontinuity in foodgrain trading indicates that there may be price differences in different market pairs when trade does not take place at all.

CHAPTER - 7

TRANSFER COSTS FOR FOODGRAIN TRADING

Transfer costs include transportation cost, handling cost and traders normal profit. Whether trade between two markets will take place or not largely depends on the amount of transfer cost and the price differences in the two markets. Lower transfer costs usually lead to lower price for the consumers in the terminal markets.

Transport cost depends on variety of factors, like distance of the markets, mode of transport, number of bags loaded by the transport, weight per bag, etc. On the other hand, handling cost also depends on various factors like loading and unloading cost, different types of legal and illegal fees / charges, etc. The aim of this chapter is to estimate transport costs, handling costs as well as traders' margin in order to estimate transfer costs of long-distance rice and wheat wholesalers. However, before going to estimate transportation costs of foodgrain between different market locations it is important to understand variations in the mode of transportation, the number of bags per truck and also variations in the weight of each bag. All these factors have direct impact on transportation cost of foodgrain.

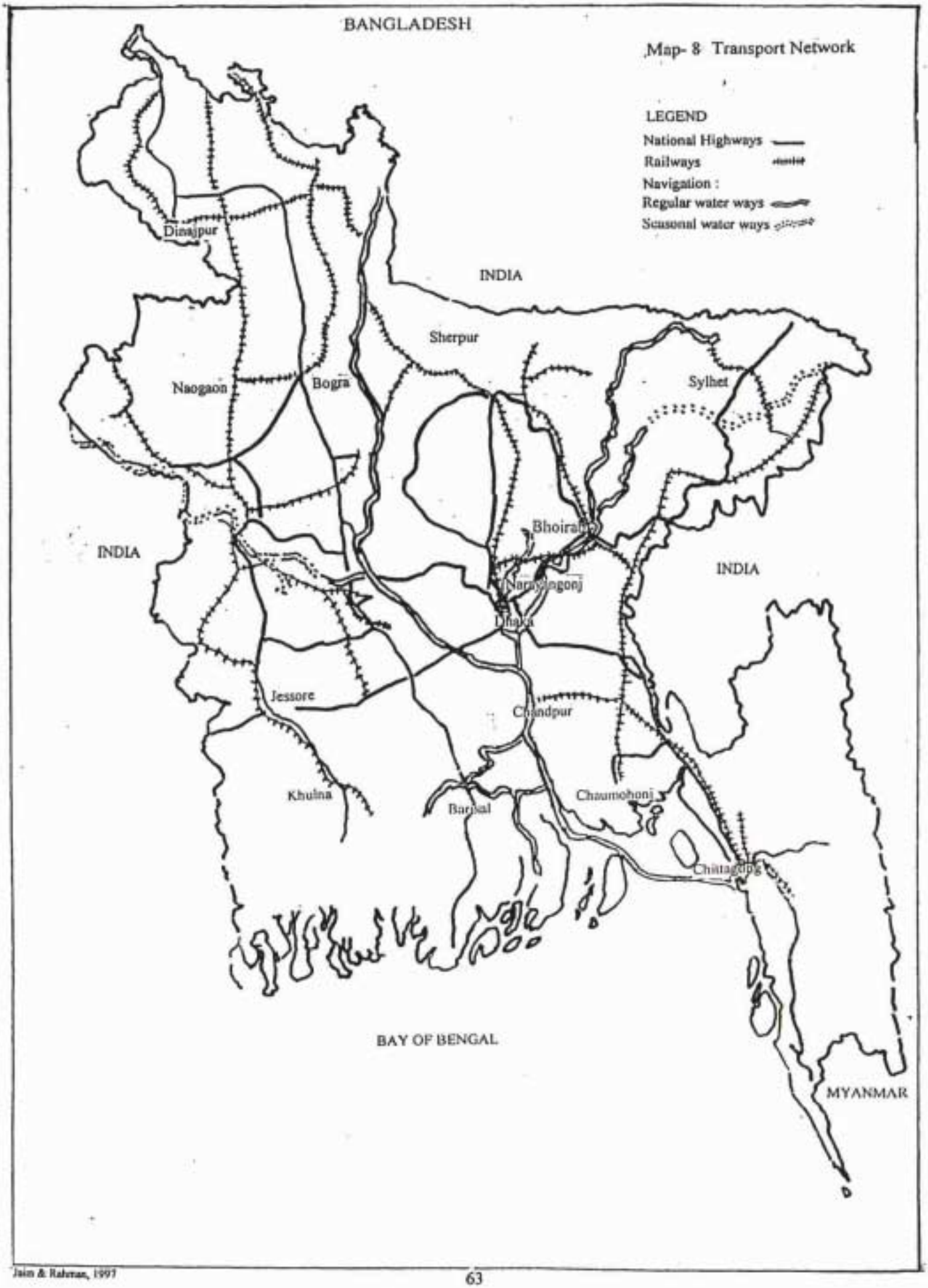
7.1 Some Important Considerations in Estimating Transport Cost

7.1.1 Mode of Transport

Transportation costs for rice have been estimated considering the 14 markets selected for this study. In terms of foodgrain trading although these markets have also linkages with other markets, transport costs for all those market linkages have not been estimated. Trading among the markets took place by road, river and rail. Communication facilities among the selected markets can be seen from transport net work map of Bangladesh (Map 8). Trucks were found to be the only mode of transportation for road, while in the case of river transportation; mechanised boat, launch, barges, trawler, etc. were used. The mode of transportation varies depending mainly on the market locations, communication facilities and sometimes on seasons. The same market may also be linked with more than one type of transportation. For example, Bhairab Bazar is linked with Bogra either by road or by rail; and with Sylhet either by road or by river transportation. In some cases, a combination of two modes of transportation are used to reach certain destinations. For example, from Naogaon to Chandpur, both trucks (upto Nagorbari Ghat) and boats are used. However, truck was found to be the dominant mode of transport for carrying foodgrain in almost all the selected markets. Variations in the mode of transport used for trading rice among different selected markets can be seen in Table 7.1.

7.1.2 Load per Truck and Weight per Bag

In the case of truck load it can be seen from the Tables 8.1 and 8.2 that there were wide range of variations in truck loading. Even from the same markets trucks are loaded with different number of bags. In the case of rice, truck load varied from 77 bags to 201 bags while in the case of wheat it varied between 70 to 160 bags. There was no uniform rule of loading trucks according to the truck loading capacities. Previously, there were some restrictions from the Government regarding maximum number of bags which could be loaded. With liberalized privatization policies that restriction has been abolished. Therefore, loading of truck depends on negotiations between traders and the agents ('*Dalals*') of truck association through whom transportation by truck is



Jain & Rahman, 1997

Table- 7.1 Dominant Mode of Transport, Truck Load and Weight per Bag in Different Market Locations for Rice Trading

Markets		Mode of transport used	Load / truck (No. of bags)		Weight / bag
From	To		Large Trucks	Small Trucks	(In Kg.)
Bhairab Bazar	Sylhet	Truck or Launch	110	-	85
Bogra	Bhairab Bazar	Rail or Truck	154	-	85
Bogra	Barisal	Truck	-	96	85
Bogra	Chittagong	Truck	170	77	85
Bogra	Dhaka	Truck	154	-	85
Bogra	Jessore	Truck	-	96	85
Bogra	Khulna	Truck	154	-	85
Dhaka	Barisal	Launch	na	na	85
Dhaka	Choumohoni	Truck	-	77	85
Dinajpur	Choumohani	Truck	170	77	85
Dinajpur	Chittagong	Truck or Rail	154 -170	77	85
Dinajpur	Dhaka	Truck	170	77	85
Dinajpur	Khulna	Truck	101	-	85
Dinajpur	Narayangonj	Truck	-	77	85
Dinajpur	Sylhet	Truck	-	77	85
Dinajpur	Bhairab Bazar	Rail	na	na	85
Dinajpur	Chandpur	Truck + Launch	154	-	85
Jessore	Barisal	Truck	-	96	85
Jessore	Dhaka	Truck	-	96	85
Jessore	Bhairab Bazar	Truck + Boat	101	-	85
Khulna	Chittagong	Truck or Barge	120	-	85
Khulna	Chandpur	Barge	na	na	85
Naogaon	Chandpur	Boat or Truck + Boat	180	-	85
Naogaon	Chittagong	Truck or Rail	180	-	85
Naogaon	Choumohani	Truck	180	-	85
Naogaon	Dhaka	Truck	180	-	85
Naogaon	Jessore	Truck	-	96	85
Naogaon	Khulna	Truck	-	96	85
Naogaon	Narayangong	Truck or Boat	180	-	85
Naogaon	Sylhet	Truck or Rail	118	-	85
Sherpur	Choumohoni	Truck	101	-	81
Sherpur	Chittagong	Truck	101	-	81
Sherpur	Dhaka	Truck	101	-	81
Sherpur	Narayangong	Truck	101	-	81
Sylhet	Choumohoni	Truck	201	-	75
Sylhet	Chittagong	Truck	150	-	75
Sylhet	Dhaka	Truck	150	-	85

Source : Field survey, 1997.

arranged. Only in Sherpur, where some wholesalers-cum-millers are also members of the truck association (as they own trucks), there is uniformity of truck loading (101 bags) and weight per bag (81 Kg.) (Table 7.1). Weight per bag also found to vary from markets to markets although the variations were not large. In the case of rice, weight per bag varied between 75 to 85 kg.; however, 85 kg per bag. was common in most of the markets. In the case of wheat, the weight per bag varied between 85 to 94 Kg. per bag.

Table 7.2 Variations in Truck Load and Weight per Bag for Transporting Wheat in the Selected Markets

Markets		Load / Truck (No. of bags)		Weight / bag
From	To	Large Trucks	Small Trucks	(In Kg.)
Bogra	Dhaka	140 - 160	70	93 - 94
Bogra	Chittagong	140 - 160	70	93 - 94
Bogra	Narayangong	140 - 160	70	93 - 94
Chittagong	Jessore	-	77 - 101	94 - 85
Chittagong	Narayangong	-	77	94
Dinajpur	Dhaka	140 - 154	70 - 77	85 - 95
Dinajpur	Chittagong	140 - 154	77	85
Dinajpur	Bogra	140 - 160	70	93 - 94
Dinajpur	Narayangong	140	77	85
Jessore	Narayangong	-	85 - 90	93

Source : Field survey, 1997.
Note : Since only truck was used for almost all the market places, other modes of transpiration have not been presented in the Table.

7.1.3 Other Considerations

Although, truck fare varies widely between same locations for various reasons (some of which have already been mentioned), rail fare is fixed (according to weight) for different locations. In the case of river transport, besides distance freight rates depend on the capacity of the boat / launch / barge / trawler and there is no uniformity of their capacities. Sometimes, passengers as well as rice / wheat bags are carried by these modes of river transport. Transportation cost in this case has been estimated on the basis of fare per bag as reported by the traders.

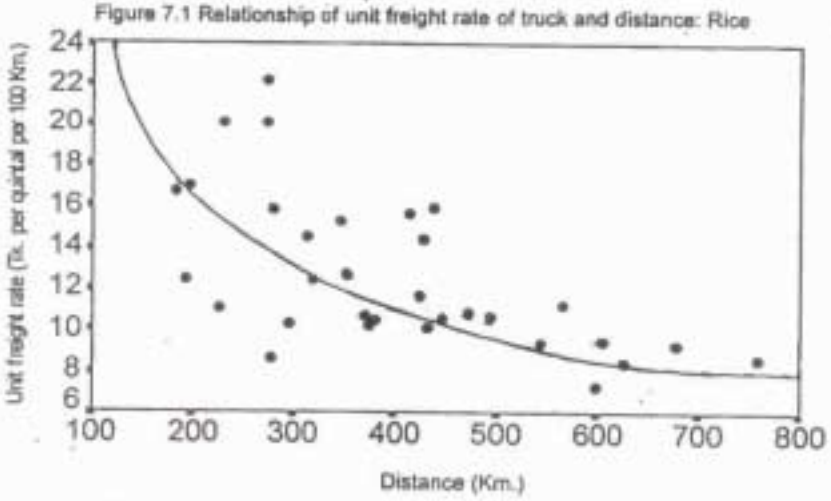
7.2 Variations in Trucking Cost

In estimating trucking cost, truck load (number of bags) as well as weight per bag have been considered. Due to variations in truck load and number of bags even for the same distance truck fare varied significantly. Large variations in truck fare was also observed for markets located at different distances. Therefore, in the following sections, attempts have been made to investigate the nature of truck fare increase and the factors influencing trucking cost.

7.2.1 Relationship between Trucking Cost and Distance

Transport cost depends mainly on distance of the markets. Since truck was found to be the main mode for transporting foodgrain, the relationship between transport cost and distance of the markets have been analysed. It was found that in the case of rice, trucking cost per quintal (100

Figure 7.1 Relationship of unit freight rate of truck and distance: Rice



Source : Field survey, 1997

The fitted OLS regression line for Rice :

$$UFRR_{ij} = 7.001 + 2034.264^{**} \frac{1}{distance_{ij}} + e_{ij}$$

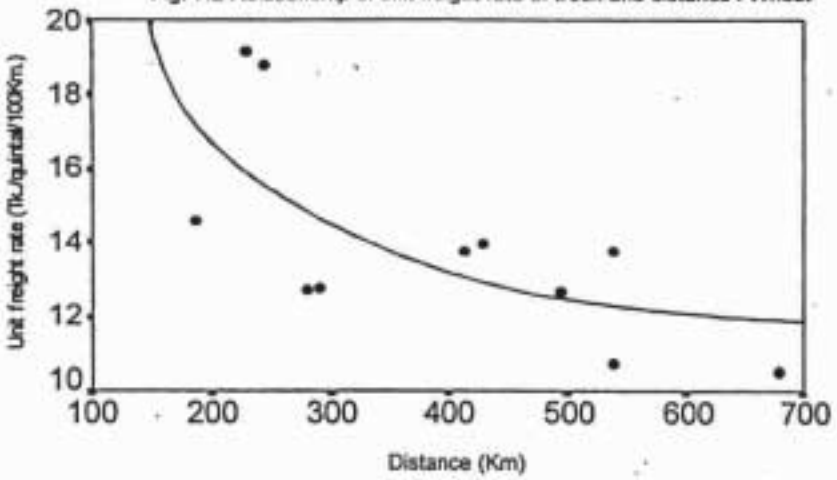
t -Statistics (4.721) (4.203)

Adjusted R^2 = .35708 F = 17.662 Signf. F = .0002

where,
$UFRR_{ij}$ = Unit Freight Rate of Rice (Tk. Per 100 kg. per 100 km) from market i to market j
distance (in km.) from market i to market j.

** indicates significant at 5 % level.

Fig. 7.2 Relationship of unit freight rate of truck and distance : Wheat



Source : Field survey, 1997.

The fitted OLS regression line for Wheat :

$$UFRW_{ij} = 9.656 + 1443.680^{**} \frac{1}{distance_{ij}} + e_{ij}$$

t -Statistics (5.387) (2.597)

Adjusted R^2 = .3649 F = 6.745 Signif F = .0289

where,
$UFRW_{ij}$ = Unit Freight Rate of Wheat (Tk. Per 100 kg. per 100 km.) from market i to market j
distance (in km.) from market i to market j.

** indicates significant at 5 % level.

kg.) per 100 Km. (unit freight rate) varied between Tk. 7.35 to Tk. 22.26 (Appendix Table 7.1). In the case of wheat it varied between Tk. 10.25 to Tk. 19.21 (Appendix Table 7.2). In order to investigate how unit freight cost varied with distance, a simple linear regression analysis was conducted. A reciprocal trend was found to give the best fit to the data and the results are shown in Figures 7.1 and 7.2. For both rice and wheat, unit freight rate of truck decreased as the distance of the markets increased which indicated geographical scale of economies. The distance coefficients for the fitted OLS regression both for rice and wheat were found to be significant at 5 % level which indicated that significant inverse relationship existed between distance and unit freight rate of truck. Since inverse relationship between trucking cost and distance has been considered in the model, the sign for the coefficient of distance is positive rather than negative (which one would expect normally). The adjusted R^2 value in both the cases of rice and wheat was found to be low (.36) because among other factors influencing trucking cost only distance was considered.

7.2.2 Factors Influencing Truck Fare

Truck fare for transporting rice and wheat varies depending not only on distance. Among various other reasons, the number of bags loaded per truck as well as existence of major river ferries are important. It was found earlier that there were large variations in number of bags loaded per trucks. Excessive loading of trucks causes proportionately less increase in transport cost for which the wholesalers are interested in over-loading trucks with rice / wheat bags. This however, causes accidents, damage to the roads as well as to the trucks itself. Again, rice transported by truck from Northern districts to the main terminal markets such as Dhaka, Narayangonj, Chittagong, etc. have to cross the Jamuna river. Ferry problems at the Aricha - Nagorbari *Ghat* of the Jamuna are common which results in delay when transporting commodities from Northern to Southern districts or vice-versa.

On the way from Dhaka to Barisal there are 3 ferry crossings including crossing at Aricha - Doulidia Ghat of Jamuna river, which also cause delay in transporting rice to Barisal. Delay at ferry Ghats causes increased truck fare. The charges for ferry crossings also increase truck fare. Therefore, distance of the markets, number of bags loaded per truck and existence of major ferries have been assumed to have influence on normal truck fare. The fitted OLS regression line considering these three independent variables (Distance of the markets, Number of bags loaded, Existence of major ferries) on the dependent variable, truck fare for transporting rice in long-distance markets is as follows :

$$TRC_{ij} = -1044.3364 + 4.5534^{**}\ Distance_{ij} + 30.8041^{*}\ Bags_{ij} + 602.0956^{***}\ Ferry_{ij} + e_{ij}$$

t-statistics: (-1.478) (4.161) (5.849) (1.841)

Adjusted R^2 = .69076 F = 23.3376* Signf F = .0000

where TRC_{ij} = Transport cost from market i to j ,
$Distance_{ij}$ = Distance from the market i to market j
$Bags_{ij}$ = Number of rice bags per truck carrying from market i to market j
$Ferry_{ij}$ = 1 if major ferry crossing exists between market i and market j
= 0 if otherwise

*indicates significant at 1 % level, ** indicates significant at 5 % level and *** indicates significant at 10 % level

The results of the regression analysis indicated that distance of the markets, number of bags loaded per truck and existence of major ferries had significant effects on truck fare. However, construction of Jamuna Bridge will be soon completed which will solve the ferry problem in transporting commodities from North-western region to other regions of Bangladesh. Substantial reduction in transportation cost (as well as transportation time) is expected after the opening of the bridge. However, major ferry problems still need to be solved in other places like Aricha-Doulodia Ghat at Jamuna river and Paksey Ghat at Padma river.

7.3 Seasonality in Transportation Cost

Transportation cost for rail is fixed throughout the year; for boats / launch, etc. it is also more or less fixed per bag. However, truck fare varies significantly between different periods of the year. According to 69 % the rice traders, transport (truck) fare remains high during the months of Agrahayan, Paush and Magh (from mid November to mid February). This is the peak period for *Aman* rice trading as well as for transporting other commodities since it is a dry period.

According to 89 % of the rice traders truck fares remain maximum during the dry period as the demand for transportation is the highest. Another, 11 % traders reported that trucks returning without back-loading also causes high transport cost. The opportunity for back-loading depends on the market location and it is not necessarily related to any season. For example, truck fare from Naogaon to Narayangonj is generally equal or even less than that to Dhaka although Narayangonj is located about 15 km. away from Dhaka. This is because of the fact that the possibility of back-loading of different commodities from Narayangonj is greater than that of Dhaka.

The majority of the traders (67%), reported that truck fares are at their lowest during the months of Asar, Sravan and Vadra (mid June to mid September) as well as in Choitra (mid March to mid April). During the months of Asar to Vadra, the demand for truck remains low as this is the rainy season and less rice as well as other commodities are transported. In the month of Choitra, wholesale business of rice also remains at a very low level as a result there is less demand for transport which causes low truck fare. On the other hand, during the months of Asar and Sravan, opportunity for back-loading of fish increases from places like Chandpur and Bhairab which reduces truck fare. About 18 % of the traders reported that transport fares significantly decrease when there are opportunities for back-loading. For some market pairs, transportation facilities through using boats (as an alternative to truck) in the rainy season also results in low demand for trucks which causes low truck fares (as reported by about 15 % of the wholesalers).

7.4 Transportation Costs for Rice and Wheat

Transport cost of rice and wheat among different market pairs varies mainly due to variations in distances between the markets and mode of transport used for transportation. As a result large variations in transport cost (per 100 kg. of rice and wheat) among different market pairs can be seen in the Tables 7.3 and 7.4. The transport cost figures for different market pairs at different distances can not be directly compared. However, the figures are directly comparable only when the traders use more than one mode of transportation for the same market pairs.

Table 7.3 Transportation and Handling Costs of Rice for Different Market Locations with Different Modes of Transport

(Tk./ 100 Kg.)

From	To	By Truck	By Rail	By Boat / Launch	Total Transport Cost	Handling Cost	Transport + Handling costs (Total cost)	Handling Cost as % of Total Cost
Bhairab Bazar	Sylhet	25.00		17.64	17.64 25.00	11.29 4.70	28.93 29.70	39.03 15.82
Bogra	Bhairab Bazar	45.75	37.00		37.00 45.75	15.21 4.63	52.21 50.38	29.13 9.19
Bogra	Barisal	70.00			70.00	4.63	74.63	6.20
Bogra	Chittagong	53.00			53.00	4.63	57.63	8.04
Bogra	Dhaka	46.00			46.00	4.63	50.63	9.14
Bogra	Jessore	40.00			40.00	4.63	44.63	10.37
Bogra	Khulna	40.00			40.00	4.63	44.63	10.63
Dhaka	Barisal			21.17	21.17	18.80	39.97	47.03
Dhaka	Choumohoni	24.00			24.00	6.47	30.47	21.23
Dinajpur	Bhairab		46.00		46.00	16.97	62.97	26.95
Dinajpur	Chandpur	45.00		23.53	68.53	4.70	73.23	6.42
Dinajpur	Choumohani	57.50			57.50	4.70	62.20	7.56
Dinajpur	Chittagong	63.00	47.00		47.00 63.00	16.97 4.70	63.97 67.70	26.53 6.94
Dinajpur	Dhaka	65.00			65.00	4.70	69.70	6.74
Dinajpur	Khulna	64.00			64.00	4.70	68.70	6.84
Dinajpur	Narayangonj	62.00			62.00	4.70	66.70	7.05
Dinajpur	Sylhet	66.00			66.00	4.70	70.70	6.65
Jessore	Barisal	55.00			55.00	8.23	63.23	13.02
Jessore	Bhairab	36.00		25.88	61.88	8.23	70.11	11.74
Jessore	Dhaka	61.00			61.00	8.23	69.23	11.89
Khulna	Chandpur			25.88	25.88	8.24	34.12	24.15
Khulna	Chittagong	44.00		29.41	44.00 29.41	8.24 3.24	52.24 32.65	15.77 9.32
Naogaon	Chandpur	30.50		25.53 32.94	56.03 32.94	2.73 3.68	58.76 36.32	4.65 10.13
Naogaon	Chittagong	58.00	43.00		43.00 58.00	9.63 2.73	52.63 60.73	14.24 5.08
Naogaon	Choumohani	51.50			51.50	2.73	54.23	5.03
Naogaon	Dhaka	44.50			44.50	2.73	47.23	5.78
Naogaon	Jessore	40.00			40.00	2.73	42.73	6.39
Naogaon	Khulna	44.00			44.00	2.73	46.73	5.84
Naogaon	Narayangong	30.50		18.82	30.50 18.82	2.73 3.68	33.23 22.50	8.21 16.36
Naogaon	Sylhet	53.00			53.00	2.73	55.73	4.90
Sherpur	Choumohoni	38.50			38.50	4.16	42.66	9.75
Sherpur	Chittagong	47.50			47.50	4.16	51.66	8.05
Sherpur	Dhaka	30.50			30.50	4.16	34.66	12.00
Sherpur	Narayangong	33.50			33.50	4.16	37.66	11.05
Sylhet	Choumohoni	45.00			45.00	2.35	47.35	4.96
Sylhet	Chittagong	50.00			50.00	2.35	52.35	4.49
Sylhet	Dhaka	53.00			53.00	2.35	55.35	4.25

Source : Field survey, 1997.

Table- 7.4 Transportation and Handling Costs of Wheat for Different Market Locations with Different Modes of Transport

(Tk./ 100 Kg.)

From	To	Transport Mode	Transport Cost	Handling Cost	Transport + Handling costs (Total Cost)	Handling Cost as % of Total Cost
Bogra	Dhaka	Truck	44.00	6.89	50.89	13.54
Bogra	Chittagong	Truck	62.50	6.89	69.39	9.93
Bogra	Narayangong	Truck	46.00	6.89	52.89	13.02
Chittagong	Jessore	Truck	74.00	5.50	79.50	6.92
Chittagong	Narayangong	Truck	35.50	5.50	41.00	13.41
Dinajpur	Dhaka	Truck	57.00	5.87	62.87	9.33
Dinajpur	Chittagong	Truck	71.50	5.87	77.37	7.58
Dinajpur	Bogra	Truck	27.00	5.87	32.87	26.98
Dinajpur	Narayangong	Truck	60.00	5.87	65.87	8.91
Jessore	Narayangong	Truck	37.00	4.26	41.26	11.19
Dinajpur	Dhaka	Rail	47.50	8.23	55.73	14.76
Dinajpur	Sylhet	Rail	56.00	8.23	64.23	12.81

Source : Field survey, 1997.

Different modes of transportation are used for long-distance trading of foodgrain. Again, the mode of transportation may be used separately (i.e. either truck / rail / boat /launch etc.) or may be used consecutively depending on the communication facilities available in different market locations. The actual transport facilities used by the wholesalers of the selected markets and the corresponding costs for transporting rice and wheat at different market locations through using various modes of transportation can be seen in Tables 7.3 and 7.4. It can be seen from the Table 7.3 that for transporting rice from markets like Bhairab Bazar to Sylhet; Bogra to Bhairab Bazar; Dinajpur to Chittagong; Jessore to Bhairab Bazar; Khulna to Chittagong; Naogaon to Chandpur; Naogaon to Chittagong; and Naogaon to Narayangonj more than one modes of transportation were used either separately or in combination with one another. The transport costs in these cases clearly show that truck fare is always higher than rail, boat or launch.

7.5 Handling Costs for Rice and Wheat Transportation

Besides transportation cost, handling costs are involved in transporting foodgrain from one market to the other. Handling costs of rice and wheat can be seen in Tables 7.3 an 7.4 while their break-downs can be seen in Tables 7.5 and 7.6. It can be seen from the tables that handling costs include a number of items which varies for different modes of transportation as well as for different markets. Since the composition of handling cost as well as rates for the same item were not uniform in different markets, the handling cost across the markets varied widely (Tables 7.5 and 7.6). Further, it can be observed from the tables that besides loading and unloading costs, the wholesalers had to pay various types of legal and illegal fees ('*Chanda*') including bribes to Police and to some railway staff. All these illegal fees increase transfer costs which also affect traders' profit margin as well as normal business activities. The other reasons for increased handling cost by river and rail transports are involvement of labour and local transports (like van, rickshaw, etc.) to carry rice / wheat to the river port / railway station from the '*Arats*' and again from the river port / railway station to the receiving '*Arats*'.

Table 7.5 Handling Cost of Rice by Markets

(a) Mode of Transport : Truck

(Cost figures are in Tk. / 100 Kg)

Type of cost	Bogra		Dinajpur		Dhaka		Jessore		Naogaon		Sherpur	
	Rate	Cost	Rate	Cost	Rate	Cost	Rate	Cost	Rate	Cost	Rate	Cost
Loading (Tk. / bag)	1.81	2.13	1.50	1.76	3.00	3.53	5.00	5.88	2.00	2.35	0.50	0.62
Unloading (Tk./bag)	2.00	2.35	1.50	1.76	2.50	2.94	2.00	2.35	NA	NA	0.75	0.93
Arranging bags in *Arat* (Tk/bag)	–	–	–	–	–	-	–	–	–	–	1.00	1.24
Millers *Somity* fee (Tk/Truck)	–	–	–	–	–	-	–	–	–	–	20.00	0.31
Traders Association fee (Tk/Truck)	10.00	0.15	–	–	–	-	–	–	30.00	0.20	10.00	0.15
Bribe to Police (Tk./Truck)	–	–	–	–	–	-	–	–	20.00	0.13	10.00	0.15
Labour tips (Tk/Truck or per bag)	–	–	1.00	1.18	-	-	–	–	10.00	0.05	50.00	0.76
Total	-	4.63	-	4.70	-	6.47	-	8.23	-	2.73	-	4.16

Source : Field survey, 1997.
NA = information not available.

(b) Mode of Transport : Rail

(Cost figures are in Tk. / 100 Kg.)

Type of Cost	Bogra		Dinajpur		Naogaon	
	Rate	Cost	Rate	Cost	Rate	Cost
Loading (Tk./bag)	1.50	1.76	1.50	1.76	1.75	2.06
Unloading (Tk./bag)	-	-	1.50	1.76	-	-
Van fare up to station (Tk./ bag)	5.00	5.88	5.00	5.88	-	-
Bribe to Police / Supervisor (Tk/wagon)	175.00	.91	175.00	.91	175.00	.91
Chalan writer (Tk/wagon)	100.00	.52	100.00	.52	100.00	.52
Charge for wagon ceiling (Tk/wagon)	50.00	.26	50.00	.26	50.00	.26
Van fare up to *Arat* at the time of unloading (Tk./bag)	5.00	5.88	5.00	5.88	5.00	5.88
Total		15.21		16.97		9.63

Source : Field survey, 1997.

(c) Mode of Transport : Boat / Launch / Trawler

(Cost figures are in Tk. / 100 Kg.)

Type of cost	Bhairab Bazar		Chandpur		Dhaka		Khulna		Naogaon	
	Rate	Cost	Rate	Cost	Rate	Cost	Rate	Cost	Rate	Cost
Loading (Tk. / bag)	4.50	5.29	4.00	4.70	4.00	4.70	5.00	5.88	2.00	2.35
Unloading (Tk./bag)	3.50	4.12	5.00	5.58	-	-	1.00	1.18	-	-
Labour cost for weighing and taking out of *Arat* (Tk./ bag)	-	-	-	-	2.50	2.94	-	-	1.00	1.18
Van fare up to *Ghat* (Tk./bag)					3.50	4.12				
Arat Samity fee / *Chanda* (Tk./ bag)	-	-	2.20	2.58	-	-	-	-	-	-
Ghat charge / *Chanda* (Tk./ bag)	-	-	.50	.59	2.00	2.34	1.00	1.18	-	-
Boat charge up to Trawler (Tk./bag)	-	-	-	-	4.00	4.70	-	-	-	-
Bribe to police (Tk. / boat)	-	-	-	-	-	-	-	-	20.00	.10
Terminal fee at the time of loading and unloading (Tk./bag or per boat)	1.60	1.88	-	-	-	-	-	-	10.00	.05
Total	-	11.29	-	13.75	-	18.80	-	8.24	-	3.68

Source : Field survey, 1997.

Table- 7.6 Handling Cost for Wheat by Mode of Transportation : Truck and Rail

(Cost figures are in Tk. / 100 Kg.)

Type of cost	Truck										Rail	
	Bogra		Chittagong		Dinajpur		Jessore		Narayangonj		Dinajpur	
	Rate	cost	Rate	cost	Rate	cost	Rate	cost	Rate	cost	Rate	cost
Loading	2.50	2.65	2.50	2.65	2.00	2.35	4.00	4.26	5.00	5.32	2.00	2.35
Unloading	2.50	2.65	2.50	2.65	3.00	3.52	-	-	5.00	5.32	2.00	2.35
Weighting bags	1.50	1.59	-	-	-	-	-	-	-	-	-	-
Labour 'Bokshis'	-	-	25.00	.20	-	-	-	-	-	-	-	-
Van fare	-	-	-	-	-	-	-	-	-	-	5.00	5.88
Total		6.89		5.50		5.87		4.26		10.64		8.23

Source : Field survey, 1997.

Handling costs for transporting by river or rail were found to be higher than those of trucks. Handling costs by rail and river transports were found to be about 3 to 4 times higher than those by trucks. The Tables 7.3 and 7.4 show that handling costs by rail constituted as high as 29 % of the total costs of transporting foodgrain and the corresponding percentage for river transport was 47 %. In the case of truck, the handling cost varied only between 4 to 15 % of the total transporting costs for rice. In the case of wheat it varied between 7 to 15 % (except one case which was 27%). Therefore, although costs of transportation by river and rail were lower than those of trucks, the handling costs were found to be higher (for river and rail transport). In choosing alternative transport mode, the trade-off between transport and handling costs is not

always considered; because comparative advantage of using alternative mode of transport is largely influenced by the seasons, the distances involved between the markets, availability of transport, etc. For example, from Naogaon only in rainy season, boat or a combination of trucks and boats are used; and only for long-distances like Dinajpur to Chittagong or Bogra to Bhairab when trucks are not easily available, rail is used.

7.6 Traders' Margins for Long-distance Trading of Rice and Wheat

To have a normal profit, when a wholesaler sells rice or wheat he adds a margin above all costs which include purchasing cost (of rice / wheat), transportation cost, handling cost, general over head cost (salaries of employees, warehouse rent, telephone charges, etc.), etc. The long-distance wholesalers (both for rice and wheat) were asked to give an estimate of that margin. In the case of rice wholesalers, average margin per 100 Kg. of rice was found to be Tk. 10.21 (Table 7.7). Except Dhaka, traders' margin of rice was found to vary between Tk.5.04 to Tk. 14.47 per 100 kg. The margin for Dhaka was found to be very high which was Tk. 19.00 per 100 kg. It may be recalled from Table 5.8 that Dhaka traders dealt with mostly fine varieties of rice. Purchasing capacities of the consumers as well as scope for charging higher price for the fine varieties at Dhaka markets might have caused this difference compared to other markets. The establishment costs of Dhaka traders are also higher than those of other markets. Further, it was found earlier (Chapter 6) that wholesale markets of Dhaka are not only the largest consuming market, these are also large transhipment points from which rice flows to other markets. In the case of wheat, variation in profit margin from markets to markets was found to be comparatively low. Average margin per 100 Kg. of wheat was found to be Tk. 8.86 with a minimum of Tk. 6.56 in Chittagong and maximum of Tk. 11.60 in Jessore.

Table -7.7 Traders' Margin of Long-distance Rice and Wheat Wholesalers by Markets and Regions

Region	Market	Traders' Margin (Tk./100Kg.)	
		Rice Traders	Wheat Traders
NW	Dinajpur	12.41	8.71
	Bogra	14.47	10.72
	Naogaon	9.91	
N	Sherpur	10.00	
Regional Sub-total		11.70	
NE	Sylhet	10.24	
Central	Dhaka	19.00	8.04
	Narayangonj	10.53	7.50
	Bhairab Bazar	6.43	
S & SW	Barisal	11.00	
	Khulna	9.69	
	Jessore	12.00	11.60
SE	Chittagong	6.16	6.56
	Chandpur	6.03	
	Choumohoni	5.04	
Regional Sub-total		9.61	
All Markets		10.21	8.86

Source : Field survey, 1997.
Note: Shaded area indicates analysis not applicable.

7.7 Transfer Cost of Rice and Wheat between Different Pairs of Markets

Transfer costs which constituted transport cost, handling cost and traders' margin can be seen in Tables 7.8 and 7.9 for of rice and wheat respectively. Transfer costs for different market pairs varied widely due to variations in transport cost, handling cost and traders' margin. To have an idea about the extent of traders' margin across different market pairs, traders' margin in relation to total transfer cost was calculated.

In the case of rice, traders' margin in relation to total transfer costs showed that it varied within the range of 15 to 38 % (Table 7.8). However, about two-third (68 %) of the rice wholesalers' margin varied between 15 to 20 % while it varied between 21 to 25 % for a quarter of the wholesalers. Only 7 % of the wholesalers enjoyed above 25% margin in relation to total transfer cost. The highest trade margin (38.40 %) in relation to total transfer cost was found in the case of Dhaka traders trading with wholesaler of Choumohoni. The rice traders who enjoyed 21 to 25 % of the trade margin were from Bogra, Naogoan, Sherpur and Khulna traded with different markets like Bhairab Bazar, Chandpur, Chittagong, Dhaka, etc.

In the case of wheat, traders' margin in relation to total transfer cost was relatively small compared to rice. In this case, the percentage of traders' margin in relation to total transfer cost varied within the range of 8 to 22 % (Table 7.9). The highest percentage (22 %) was found in the case of Jessore traders, trading with Narayangonj followed by the Dinajpur traders (21%), trading with Bogra. However, with the exception of these two cases, the rest of the wholesalers' (83 %) trade margin varied between 8 to 17 % of the total transfer cost.

Table 7.8 Transfer Cost of Rice for Different Market Locations with Different Modes of Transport

(Tk./ 100 Kg.)

From	To	Mode of Transport	Total Transport Cost	Handling Cost	Traders' Margin	Total Transfer Cost	Traders' Margin as % Total Transfer Cost
Bhairab Bazar	Sylhet	Boat Truck	17.64 25.00	11.29 4.70	6.43	35.36 36.13	18.18 17.80
Bogra	Bhairab Bazar	Rail Truck	37.00 45.75	15.21 4.63	14.47	66.68 64.85	21.70 22.31
Bogra	Barisal	Truck	70.00	4.63	14.47	89.10	16.24
Bogra	Chittagong	Truck	53.00	4.63	14.47	72.10	20.07
Bogra	Dhaka	Truck	46.00	4.63	14.47	65.10	22.23
Bogra	Jessore	Truck	40.00	4.63	14.47	59.10	24.48
Bogra	Khulna	Truck	40.00	4.63	14.47	59.10	24.48
Dhaka	Barisal	Boat/launch	21.17	18.80	19.00	58.97	32.22
Dhaka	Choumohoni	Truck	24.00	6.47	19.00	49.47	38.40
Dinajpur	Bhairab	Rail	46.00	16.97	12.41	75.38	16.46
Dinajpur	Chandpur	Truck + Boat	68.53	4.70	12.41	85.64	14.49
Dinajpur	Choumohani	Truck	57.50	4.70	12.41	74.61	16.63
Dinajpur	Chittagong	Rail Truck	47.00 63.00	16.97 4.70	12.41	76.38 80.11	16.25 15.49
Dinajpur	Dhaka	Truck	65.00	4.70	12.41	82.11	15.11
Dinajpur	Khulna	Truck	64.00	4.70	12.41	81.11	15.30
Dinajpur	Narayangonj	Truck	62.00	4.70	12.41	79.11	15.69
Dinajpur	Sylhet	Truck	66.00	4.70	12.41	83.11	14.93
Jessore	Barisal	Truck	55.00	8.23	12.00	75.23	15.95
Jessore	Bhairab	Truck + Boat	61.88	8.23	12.00	82.11	14.61
Jessore	Dhaka	Truck	61.00	8.23	12.00	82.11	14.61
Khulna	Chandpur	Boat/launch	25.88	8.24	9.69	43.81	22.12
Khulna	Chittagong	Truck Boat/launch	44.00 29.41	8.24 3.24	9.69	61.93 42.34	15.65 22.89
Naogaon	Chandpur	Truck + Boat Boat	56.03 32.94	2.73 3.68	9.91	68.67 46.53	14.43 21.30
Naogaon	Chittagong	Boat Truck	43.00 58.00	9.63 2.73	9.91	62.54 70.64	15.84 14.03
Naogaon	Choumohani	Truck	51.50	2.73	9.91	64.14	15.45
Naogaon	Dhaka	Truck	44.50	2.73	9.91	57.14	17.34
Naogaon	Jessore	Truck	40.00	2.73	9.91	52.64	18.82
Naogaon	Khulna	Truck	44.00	2.73	9.91	56.64	17.50
Naogaon	Narayangong	Truck Boat	30.50 18.82	2.73 3.68	9.91	43.14 32.41	22.97 30.58
Naogaon	Sylhet	Truck	53.00	2.73	9.91	65.64	15.10
Sherpur	Choumohoni	Truck	38.50	4.16	10.00	52.66	18.99
Sherpur	Chittagong	Truck	47.50	4.16	10.00	61.66	16.21
Sherpur	Dhaka	Truck	30.50	4.16	10.00	44.66	22.39
Sherpur	Narayangong	Truck	33.50	4.16	10.00	47.66	20.98
Sylhet	Choumohoni	Truck	45.00	2.35	10.24	57.59	17.78
Sylhet	Chittagong	Truck	50.00	2.35	10.24	62.59	16.30
Sylhet	Dhaka	Truck	53.00	2.35	10.24	65.59	15.61

Source : Field survey, 1997.

Table- 7.9 Transfer Cost of Wheat for Different Market Locations with Different Modes of Transport

(Tk./ 100 Kg.)

From	To	Mode of Transport	Transport Cost	Handling Cost	Traders' Margin	Total Transfer Cost	Traders' Margin as % of Total Transfer Cost
Bogra	Dhaka	Truck	44.00	6.89	10.72	61.61	17.40
Bogra	Chittagong	Truck	62.50	6.89	10.72	80.11	13.38
Bogra	Narayangong	Truck	46.00	6.89	10.72	63.61	16.85
Chittagong	Jessore	Truck	74.00	5.50	6.56	86.06	7.62
Chittagong	Narayangong	Truck	35.50	5.50	6.56	47.56	13.79
Dinajpur	Dhaka	Truck	57.00	5.87	8.71	71.58	12.17
Dinajpur	Chittagong	Truck	71.50	5.87	8.71	86.08	10.11
Dinajpur	Bogra	Truck	27.00	8.87	8.71	41.58	20.95
Dinajpur	Narayangong	Truck	60.00	5.87	8.71	74.58	11.68
Jessore	Narayangong	Truck	37.00	4.26	11.60	52.86	21.94
Dinajpur	Dhaka	Rail	47.50	8.23	8.71	64.44	13.52
Dinajpur	Sylhet	Rail	56.00	8.23	8.71	72.94	11.94

Source : Field survey, 1997.

7.8 Conclusions

The analysis showed that trucking costs significantly depend on distance of markets, number of bags loaded per truck and existence of major ferry crossings on the route. However, for long-distance trading of foodgrain, trucking cost per quintal decreases with the increase of distance. It was also found that there was no uniformity in truck load. Among different modes of transportation, transportation costs by rail and river were found comparatively cheaper than trucks, but the handling cost for rail and river transportation were excessive due to payments of various types of legal and illegal fees. Traders' margin at Dhaka wholesale market was found to be comparatively higher than other selected markets. This may be due to high establishment cost of the Dhaka traders as well as higher purchasing capacities of the consumers. However, except Dhaka, profit margin in relation to total transfer cost varied within the range of 15 to 25 % for the majority of the rice wholesale markets which seemed to be reasonable. In the case of wheat the corresponding percentage was relatively low which varied within the range of 8 to 17 %.

Attention is needed to check over-loading of trucks which may cause road accidents as well as damage to the roads. Although this is some sort of intervention in the free market economy; yet it is needed for the greater interest of the economy. Illegal payments / 'Bokshish' to Police, railway staff, lease holders at river ports, 'Chandabazs', etc. should be checked in order to reduce transfer cost as well as for the greater interest of the consumers and the traders.

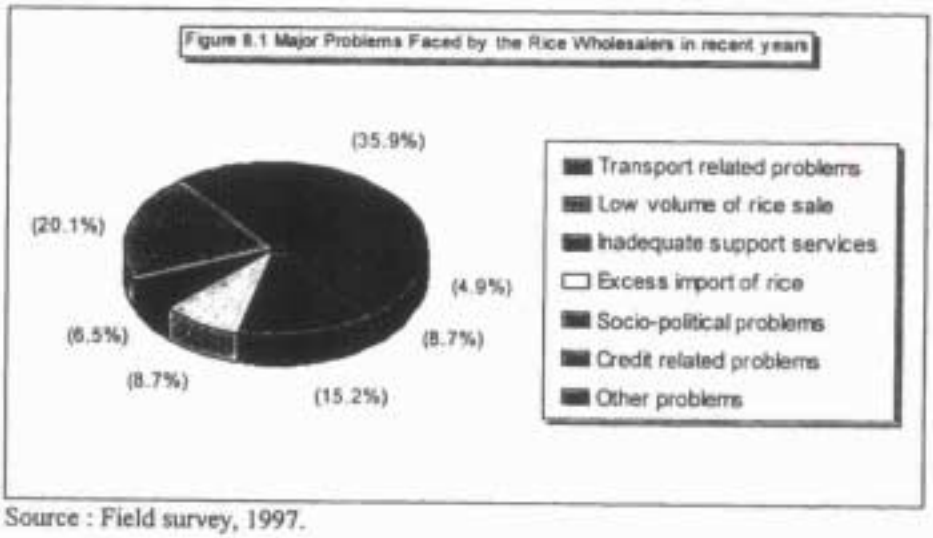
CHAPTER -8

TRADERS' PROBLEMS AND CONSTRAINTS

The long-distance wholesalers are facing various problems which are hindering their normal business activities. Most of these problems are common to all the wholesalers dealing with foodgrain, but there are also some market / location specific problems. This chapter reports problems and constraints faced by the long-distance rice and wheat wholesalers in recent years (2/3 years).

8.1 Major Problems and Constraints Faced by the Rice Traders in Recent Years

It can be seen in Figure 8.1 that among the various problems faced by the long-distance rice traders, transport related problems are the most important (as reported by 36 % of the traders) followed by problems related to the low volume of rice sale in recent years (reported by 20 % of the traders), socio-political problems (reported by 15 % of the traders), excess import of rice (reported by 9 % of the traders), credit related problems (reported by 9 % of the traders), inadequate support services (reported by 7 % of the traders) and other problems (reported by 20 % of the traders). The nature of these problems are briefly described in the following sections.



Source : Field survey, 1997.

8.1.1 Transport Related Problems

The dimensions of transport related problems are different for different modes of transportation as well as for different market locations. In the case of truck, which is the main mode of transportation for carrying rice to long-distance markets, traders face a variety of problems. Most common problems are sudden strikes by the transport businessmen for increasing transport fare in the peak season of rice trading and also strikes called by the transport labour unions on various issues. Further, in most of the places both transport owners and labourers / *Dalals* are involved in

transport (Truck) arrangement. The wholesalers has no chance of bargaining. As a result the wholesalers are compelled to pay the fare fixed by the transport owners and labourers.

Severe traffic jam at the Nagarbari-Aricha ferry *ghat* (at Jamuna river) is the greatest problem for the traders involved in transporting rice by trucks from North-west region to Central or Southern regions of Bangladesh. Traffic jam at the ferry crossing causes delay in delivery of rice in the distant markets and also causes increased truck fare. Traffic jam at the Paksey ferry crossing (at Padma river) is also causing similar problems (although to a lesser extent) for trading of rice between North-west and South-west regions of Bangladesh.

Further, as a result of emerging new *Chars* in the Jamuna river, more time is needed for transporting rice by boats. In the Southern region of Bangladesh like Barisal where water ways play an important role for transportation; water in the *Khals* has been reduced and transporting rice (as well as other commodities) by boats has become difficult. This has reduced supply of rice in the markets of Barisal. Traders also reported that *Ghat* charges at the river ports are very high which increase transfer costs of rice.

In the case of transporting rice by rail, a number of problems were identified. Although cost of transporting rice by railway is cheaper than trucks, the wholesalers were found to prefer using trucks than railway (in the cases where both the modes can be used) because railway services are not good. Time taken for transporting rice is too much. Sometimes it takes more than a month for transporting rice by rail which can be transported in 4/5 days (or even less) by trucks. Sometimes rice is damaged by rain water because of roof leakage of railway wagons. The railway authority does not pay any compensation for this. The traders also reported that sometimes rice is stolen from the bags as a result of negligence of duty of the railway employees.

Some of the terminal markets are also facing problems of traffic jam on the access roads to the markets. For example, severe traffic jam on the road towards Babubazar-Badamtoli market of Dhaka discourages the '*Paikers*' to enter into the market which causes less sale of rice. The traffic jam in this area has increased particularly due to the construction of Burigonga Bridge. Further, the during rainy season, in many places rice wholesale markets become inaccessible due to bad condition of the access roads.

8.1.2 Low Volume of Rice Sale and low profit

From the traders' point of view in recent years, low volume of rice sale accompanied by low profit for rice trading is the second most important problem. Since there is no barrier for new entry and trade licence is easily available, many new traders have entered into the rice trading and new '*Arats*' have been established even outside the main market. This has caused low supply of rice as well as low sale of rice in the old established *Arats*. Although this is a problem from the point of view of the traders, in fact this has increased competition in the market which has caused reduction in the volume of rice sale in the individual *Arats*. This has also reduced profit margin of the traders. Although this is a problems for the old traders who used to control market price; in fact greater competition in the market has benefited both the producers and the consumers.

Moreover, removal of about 50 rice *Arats* for the construction of Burigonga bridge at Babubazar-Badamtoli market of Dhaka has also caused reduced supply of rice in the market. It may be recalled that Babubazar-Badamtoli market is the largest wholesale rice market in Bangladesh.

Traders also reported that the supply of rice in the market has reduced in recent years as a result of distribution of rice under Food for Education Programme in addition to old programme of Foodgrain distribution under Food for Works Programme.

Further, the traders reported that rice price in recent years is very low, particularly because of less procurement of rice by the Government. Low volume of sale as well as low price of rice have resulted in low profit for the rice traders in recent years.

8.1.3 Inadequate Support Services

Although in all the selected wholesale rice markets telephone facilities are available, long-distance direct dialling system is absent in Dupchachia of Bogra which is a big problem for the traders. Further, in all the markets there were several bank branches; however, in some places the traders complained that the services provided by the banks were poor. For example, traders reported that the banks take much time in preparing DD or TT and sometimes it takes long time to make transactions through DD.

Frequent electricity failure and load shading is also causing problems for the wholesalers cum millers. They reported that capacity utilization of their rice mills was below 50 % in some places. Few traders also reported that in the case of transportation by river there are risks of sinking boats (in case of bad weather) as well as incidences like *dacoity*, but no insurance facilities are available for these.

8.1.4 Socio-political Problems

Political instability along with frequent strikes and '*Hortals*' in recent years have seriously affected rice trading particularly by disrupting transport services. Disturbances of '*Chandabazs*' who claim illegal fees from the wholesalers, have also been increased in recent years. The traders are also facing disturbances from the transport brokers ('*Dalals*'). The brokers operate their business opening chambers / offices in the market locations. The traders have to pay some charges to the brokers which increase transport cost. This affects interest of both traders as well as transport owners.

In some cases, behaviour of the lease holders at ferry *ghats* is not good which also frustrates the interested parties of rice trading. Missing of the trucks loaded with rice is another problem. In this case, transport related documents / papers shown to the wholesalers are not genuine. Therefore, the missing trucks can not be traced out.

8.1.5 Credit Related Problems

Traders feel to have more credit from the banks. However, according to them, they do not get credit from the banks according to their demand. Further, they reported that recent increase in bank interest rate from 14 % to 16 % has also discouraged them to have more credit from banks.

Difficulties in recovering money from the wholesalers for selling rice on credit has also been reported as one of their major problems. Moreover, in recent years, increase in the number of rice

traders on one hand, and low demand for rice in the markets on the other hand, caused increased credit sale particularly to the *Beparies*. The traders are also facing difficulties in recovering money from *Beparies* . The traders in this case can not create pressure on the *Beparies* (to repay money in time) as they may go to a new trader in the market.

8.1.6 Excess Import of Rice

Sometimes without assessing the market demand, excess rice is imported by the private individuals / wholesalers which causes lowering the market price and the traders incur loss. Traders imported excess rice particularly in the year 1994/95. This was the first year of rice import by the private traders. There were old as well as new traders who imported excess rice as a result of which market price was depressed and importers in general incurred heavy loss. This was really a lesson for the traders particularly for the new traders who did not have previous experience about the market demand and supply situation. The traders reported that after incurring loss many new importers have already disappeared from the market. Therefore, although the traders reported is as a problem, it is expected that in future such problem will not continue as the traders will be more cautious about assessing market demand-supply situations while importing rice.

8.1.7 Other Problems

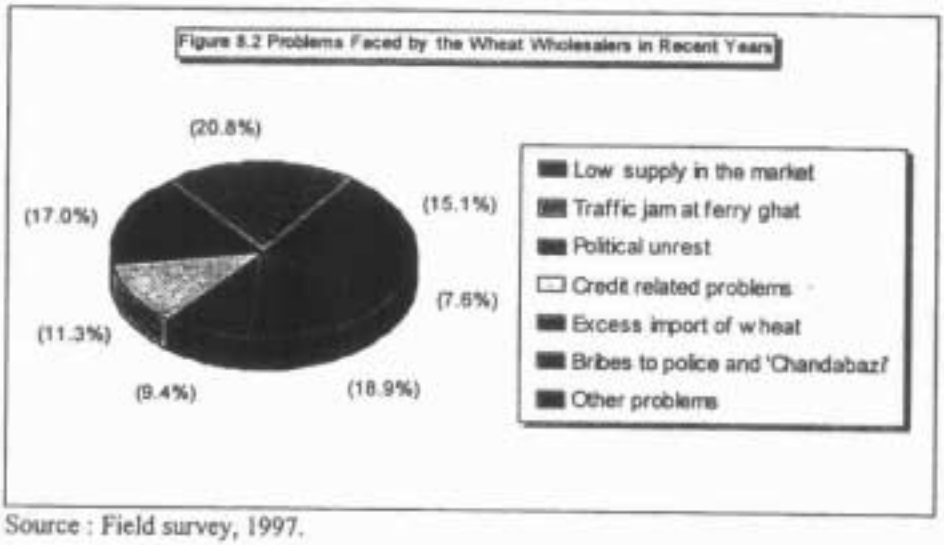
Besides the problems as mentioned above, the rice traders are also facing some other problems. For example, the wholesalers cum millers mentioned about the problems related to rice procurement from the millers by the Government authority. They reported that the Government is procuring rice from the rice mills on the basis of area quota, however; the quota is not distributed properly according to the concentration of rice mills. Therefore, millers in the areas with less rice mills (may be within the area of higher paddy production) are getting proportionately more quota than those areas with more concentration of rice mills. For this reason, to meet the quota, the miller (cum wholesalers) from the low concentration areas are purchasing rice from the open market at low cost and making a good profit by supplying rice to the procurement centres. On the other hand, millers in the heavy concentration areas are getting less quota and their mills are being under-utilized. Some traders who have no mills are also supplying rice to the procurement centres through illegal negotiation with the concerned persons of procurement centres. The wholesalers cum millers also reported that excess electricity charge (per unit) for their rice mills is also affecting their business.

Traders using river routes expressed their concern about security in transporting rice using boats, launches, etc. They reported that transportation through river routes has become risky and insecure as the number of incidences like *loots* or plundering, *hijacking* or *dacoity* have increased recently.

The traders at Chandpur reported that the wholesale rice market has already been affected by river erosion and no permanent river port has yet been established in the market location which is affecting their business activities. Among other problems the traders mentioned about the problems related to low quality of bags used for transporting rice (which sometimes causes wastage of rice), stealing of rice from the bags of loaded trucks, and finally harassment of the traders by the income tax officers.

8.2 Major Problems and Constraints Faced by the Wheat Traders in Recent Years

Like rice traders, wheat traders are also facing a number of problems and constraints in running wholesale business as can be seen in Figure 8.2. Among all the problems, traffic jam at the ferry *ghats* got the highest importance (according to the responses of about 21 % wholesalers). Surprisingly, the second most important problem as reported by about 19 % of the wholesalers was payments of tips / bribes to the Police as well as payments of illegal fees to '*Chandabazs*'. The next important problem was related to political unrest (as reported by 17 % traders) followed by problems related to low supply of wheat in the market (reported by 11 % traders), problems related to credit (reported by 11 % traders), problems related to excess wheat import (reported by 9 % traders) and other problems (reported by 17 % traders). The nature of these problems and constraints are discussed in the following sections.



Source : Field survey, 1997.

8.2.1 Traffic Jam at Ferry *Ghats*

Like rice traders, the most important problem faced by the long-distance wheat traders was also transport related. Traffic jam particularly at the Aricha-Nagarbari *Ghat* causes increased truck fare as well as delay in delivery of wheat in the long-distance wholesale markets. The wheat traders also mentioned about the problems of traffic jam at Paksey ferry *ghat*.

8.2.2 Bribes to Police and '*Chandabazi*'

The long-distance wheat wholesalers reported that harassment of the Police has increased in the case of transporting imported wheat. The traders mentioned that they have to pay '*Bokshish*' or bribes to the Police for transporting imported wheat.

They also have to pay *Bakshish* to the Police for illegal buying or selling of wheat under Food for Works Programme. However, the traders also reported that even for legal trading of imported wheat in the market, the Police charges illegal fees from them. *Bakshish* is also paid to the Police at different points while transporting by trucks. Police also claims illegal fees in the case of

transporting by boats. Besides, *Bakshish* to the Police, the *Chandabazs* claim illegal *chanda* or fees from the traders. The traders also have to pay '*Bokshish*' to the truck *Dalals* (brokers) and labourers.

8.2.3 Political Unrest

Political unrest causing strikes and *Hortals* increases transportation cost (particularly truck fare) which is also affecting trading activities of wheat traders.

8.2.4 Low Supply of Wheat in the Market

In certain places low supply of wheat in the wholesale markets is affecting business of the long-distance wheat traders. Supply of wheat in some wholesale markets has been reduced since flour mills are now procuring wheat directly from distant markets. This has reduced traders' total volume of sale as well as traders' profit. Wheat distributed directly in the rural areas through Food for Works Programme has also caused reduction of wheat supply in the markets.

8.2.5 Credit Related Problems

According to the long-distance wheat wholesalers, their business has been constrained by the availability of funds. They mentioned that bank credit is not available according to their demand, therefore, business could not be expanded. They also mentioned about high interest rate of bank loan.

8.2.6 Excess Import of Wheat

The traders reported that L / C permission for wheat import is given without considering domestic demand. As a result of excess wheat import in the recent past, some traders have already incurred loss.

8.2.7 Other Problems

Besides the problems mentioned above, the wheat traders are also facing some other problems. For the wholesalers cum millers electricity load shading is causing problems for efficient utilization of their flour mills.

With respect to transportation by rail, the traders reported that usually railway wagons are not available timely and it takes long time to receive wheat from distant markets. They also mentioned about risk of transporting by trucks. Sometimes truck numbers shown in the plate are false and trucks loaded with wheat are missing. The traders also mentioned that sometimes truck owners association and labour association bound the them to rent 20/25 years old trucks. The possibility of having an accident is more for these trucks and in the case of accidents, the traders are badly affected.

The traders also fell lack of information about future prices of wheat. As a result of which traders, particularly the importers can not understand what would be the future price and demand for wheat.

Low procurement of wheat by the Government also causes problems for the traders. Government officials suddenly stop procuring shortly after starting procurement. As a result, the traders who purchase wheat for selling it to the procurement centres fall in a difficult situation.

The traders also reported that wheat under the Food for Works Programme enter into the open market through leakage which causes problem for them. Supply of wheat in the market through leakage reduces the market price; as a result of which traders' profit is reduced.

8.3 Conclusions

The analysis in this chapter showed that the long-distance foodgrain traders are facing various problems, among which transport related problems are most important. Other important problems as reported by the traders are related to low volume of foodgrain sales, low profit, excess importation of foodgrain and credit related problems. However, low volume of foodgrain trade and low profit in recent years are due to more competition in the markets as a result of new entry of traders in foodgrain marketing. Although this has been reported as the traders' problem; in fact this has benefited both the foodgrain producers and consumers as a result of more competition in the market. Again, traders in the year 1994/95 imported excess rice which was the first year when private individuals were allowed to import rice. Over importation of rice without assessing market demand caused loss to the importers which was a good lesson for the private importers and it is expected that in future the traders will be more cautious in importing foodgrain. Socio-political problems along with disturbances by the *Chandabazs*, transport brokers, Police, railway staff, etc. are also affecting wholesale business of the long-distance foodgrain traders. The probable solutions to these problems have been outlined in the concluding chapter.

CHAPTER - 9

CONCLUSIONS AND POLICY RECOMMENDATIONS

9.1 Summary of the Study

With the change in government policy towards privatization, the foodgrain marketing system in Bangladesh has undergone substantial changes in recent years. Under the new environment of privatization, the present survey of traders in 14 selected markets spread throughout Bangladesh aimed at exploring functioning of the wholesale markets of Bangladesh which are involved in long-distance / inter-district trading. The problems and constraints which the wholesale traders are facing in recent years and the probable solutions to these have also been investigated.

Analysis with respect to traders' characteristics showed that in some cases there were large variations in traders' characteristics with respect to regions. For example, traders in the North-west and North regions (i.e. Dinajpur, Bogra, Naogaon and Sherpur) who were the main suppliers of rice were mostly pure wholesalers while traders in the consuming / terminal markets in the Central and Southern regions were mainly wholesalers cum commission agents. Again, about 65 % of the traders in the North-west and North regions had rice mills in contrast only 13 % of the traders in the receiving markets had rice mills. However, on the average, about 20 to 25 percent of the long-distance foodgrain traders had either rice mills or flour mills. Few traders particularly in the North-west and North regions had also trucks for transporting foodgrain to distant markets. Most of the foodgrain wholesale traders (about 60 %) are involved in the business for long time (more than 10 years) and most of them have inherited the business. However, in the case of rice, the traders in the North-west and North regions are involvement in trading for longer time than those of other regions. This indicates that there have been more new entries of long-distance wholesale traders in the consuming / terminal markets in the Central and Southern regions than the supplying markets of North and North-west regions.

Majority of the long-distance foodgrain traders (74 % of rice traders and 96 % of wheat traders) were subscribers of telephone. Again, traders' own fund was found to be the main source of working capital for their business. Although banks also played a significant role in supplying credit for their business, the traders could not get credit from the banks according to their demand.

Regarding trading practices it was found that majority of the rice wholesalers (76 %) traded only rice, but more than half of the wheat traders (53 %) traded both rice and wheat (as wheat trading is mostly seasonal in nature). This indicated that the rice traders were more specialized in their business than the wheat traders. In some places (i.e. Dhaka), the number of wheat traders has been reduced as the large flour millers are now directly bringing wheat from long-distance markets rather than purchasing wheat from the local wholesalers and selling it as flour in packets. This is one of the major changes in the wholesale marketing operations of wheat. The analysis also showed that lot of rice varieties with different grades are traded in different markets, and markets located in different regions have different specialization with respect to varieties and grades traded. There are also variations in domestic and imported wheat traded.

Most of the wholesale traders (65 % of rice traders and 82 % of the wheat traders) use their own telephones through which they receive price information and place or receive orders. However,

in some markets (i.e. Dupchachia) direct dialling facilities of telephone are not available which is a big problem for the traders. Transactions of the foodgrain traders were mostly done through Telegraphic Transfer (TT) and to some extent through Demand Draft (DD). The incidence of cash transaction was of minor importance. Although, banking facilities were available in all the selected markets; poor banking services (i.e. delay in preparing TT and DD, the excessive time required to receive payment through DD) have been reported by some of the traders. It was also found that at the time of foodgrain buying and selling, full amount is not usually paid. In the case of rice, about one-third of the traders pay the amount due at the end of the rice seasons while the rest pay within 2 / 3 weeks. In the case of wheat, the payment is more prompt and the incidence of payment at the end of the season is very few.

The foodgrain traders had either own or rented warehouses; however, the number of own warehouses were less than rented ones. For rice, the average capacity of own warehouse was 1615 bags and that for rented one it was 920. In the case of wheat, the average capacity of own warehouse was 2286 bags and for rented warehouse it was 956 bags. Further, it was found that foodgrain traders in the supplying markets had larger warehouses than those of consuming / terminal markets. The long-distance foodgrain traders now have low tendency of hoarding foodgrain due to uncertainty of price increase. However, in the peak periods of trading, some traders felt shortage of warehouse space. According to the opinion of the majority of the foodgrain traders (64 % rice traders and 60 % wheat traders) warehouse facilities are not easily available in case of need.

The analysis showed that the directions of rice trade flows are mostly from the Northern districts (mostly North-west region) towards Central and Southern districts of Bangladesh. Although trade flows of rice in both *Aman* and *Boro / Aus* seasons had close similarities, there were some exceptions. Some of the terminal markets were also found to function as transhipment points in both the *Aman* and *Aus / Boro* seasons. The direction of trade flows for domestic wheat was found to be similar to those of rice (from North-west to South-east regions), but in the case of imported wheat, the reverse trend was observed (from South-east district of Chittagong to the North-west districts). It was also found that there are seasonal peaks when maximum trade of foodgrain takes place and also there are seasonal slacks when almost no trade takes place. Therefore, the analysis indicates that trade flows of foodgrain are neither always uni-directional nor continuous throughout the year which negates the theory of radial market.

Truck is the main mode of transportation from the Northern districts to the Southern districts. The analysis indicated that by using trucks, it takes only 4 / 5 days to receive foodgrain from long-distance markets while it takes about a month or more than a month by rail. In the whole process of shifting foodgrain from the North-west region to the Central and Southern regions (or in reverse direction in the case of imported wheat) by road, one of the biggest problem is, to cross the ferry at the Nogarbari-Archia *Ghat* of Jamuna river. Traffic jam at the ferry *ghat* results in delay in getting delivery of foodgrain by the receiving market which also causes increased truck fare. Traffic jam is also causing severe problem in some terminal markets, particularly in Dhaka, Chittagong, etc. The trucks normally can not reach up to the main '*Arat*', and the traders have to bear extra labour / or local transport cost to carry foodgrain up to their '*Arats*'. This also increases their transfer costs of foodgrain from long-distance markets.

Trucking costs within different markets were also found to vary significantly depending on existence of a major ferry crossings on a route. Distance between two markets and the number of bags loaded per truck also have significant effects on trucking costs. However, except Sherpur, there was no uniformity with respect to number of bags loaded per truck. Truck fares as well as

number of bags to be loaded per truck are fixed by the transport '*Dalals*' and the traders have no control on this; rather they have to pay extra fees to the '*Dalals*' for this. Danger of accidents increases as a result of overloading of trucks which is likely to affect the long-distance traders on the one hand, and on the other hand, affects road condition having more stress on the roads.

Although transportation costs by river and by rail were found to be relatively less than trucks, the handling costs both for river as well as for rail were found to be much higher than those for trucks. Various types of legal and illegal fees (such as '*Bokshish*' to Police and railway staff, and 'chanda' for the 'Chanadabazs') increase handling cost to a great extent. For example, in the case of transporting rice by rail, illegal fees constituted 10 % of the handling cost in Dinajpur and 18 % in Naogaon. Further more, the traders avoid transporting foodgrain by rail due to the excessive delays in transporting rice, damage of rice by rain water due to bad condition of railway wagon, pilferage, etc. Illegal fees also constituted a considerable proportion of the handling cost in the case of river transports. For example, in Chandpur illegal fees constituted 23 % of total handling cost.

In the Southern region, drying up of 'Khals' has reduced transportation by boats. Insecurity through river transport has also been reported by the traders of Chandpur. Further, no permanent river port has been established for some important markets like Chandpur which has already been affected by river erosion.

The supply of rice in the old established '*Arats*' has been reduced as a result of increase of new traders in recent years. This has caused less sale as well as less profit margin in recent years. However, as a result of no restriction for new entry in the foodgrain trading, the number of traders in recent years has increased. This has contributed to increased competition in the wholesale market and reduced traders' margins. Although greater competition in the market is a problem from the view point of the traders; in fact it is a good sign for the producers and the consumers.

Political instability along with frequent strikes and '*Hortals*' severely affect transport services which increase cost of transportation. Excess import of foodgrain by the private traders has also caused problem for the traders. Without assessing the market demand / deficit in the country, sometimes excess foodgrain were imported which depressed the market price for which traders incurred loss in the recent past. However, the problem of excess foodgrain import which the private importers faced particularly in the year 1994/95 (which was the first year of importing rice by the private individuals) is not likely to continue in future since the traders are now more cautious in importing foodgrain.

9.2 Policy Recommendations

In the light of the major findings of the study, the following specific recommendations can be made :

Improvement of Transportation Facilities

The most important problems faced by the long-distance foodgrain traders are transport related. Problems related to major ferry crossing at the Nagorbari-Aricha Ghat will be solved in near future (hopefully by the end of the next year) after construction of Jamuna Bridge. However,

ferry problems at Aricha - Goalanda Ghat (of Jamuna river), Paksey (of Padma river) and other places are yet to be solved.

The main mode of transport for carrying foodgrain was found to be trucks. Over loading of trucks which increases the probability of accidents, damage to the road condition as well as to the truck itself, should be restricted by the law enforcing authority. However, this may increase disturbances from the Police; some of whom already accrue illegal benefits from the truck owners / drivers.

Besides, excessive delay in transporting foodgrain by train, traders have many of complaints about the services provided by the railway. Therefore, although railway freight rates are low, the traders avoid to use its service. Immediate attention is needed by the government to improve railway services.

Attempts should also be taken to re-excavate dried up 'Khals' in the Southern region, particularly in Barisal to facilitate river transport. However, rents collected by the lease holders of the river ports were reported to be high which increase transfer costs of foodgrain. This also needs careful attention so that traders are not charged excess amount.

Improvement of Support Services

Direct telephone dialling system or telephone card facilities may be extended to all the important long-distance foodgrain wholesale markets where these facilities are still absent (i.e. Dupchachia market of Bogra).

Institutional credit facilities are also needed for the wholesalers for running their business. However, sources of working capital can not be analysed independently of the issue of trade credit from the non-institutional sources. Therefore, trade credit transactions particularly with the '*Beparies*' need further investigation.

Insurance facilities may also be introduced to protect the loss of the traders from missing of trucks with rice / wheat as well as from sinking of boats in the rivers and any mishaps on the route caused by the miscreants.

Traders do not have easy access to the information on national food demand-supply balance of foodgrain. Thus when national deficits emerge, they may import excess supplies of foodgrain. To prevent this happening in the future, government should ensure that forecasts of the foodgrain deficit situation are disseminated widely amongst private traders. Government should have mechanism of forecasting and disseminating foodgrain deficit situation in the country, so that private traders / importers may be cautious about over importing of foodgrain.

Improvement of Physical Facilities

Some physical facilities in the long-distance wholesale markets should also be increased. For example, access roads to major foodgrain wholesale markets to be improved. Further, in some market locations warehouse facilities need to be expanded since in the peak periods of foodgrain trading, some wholesalers fell shortage of warehouse space. Further, Government assistance is badly needed to protect Chandpur river port (as well as wholesale market) from river erosion.

REFERENCES

Baulch, B. (1997) : "Testing for food market integration revisited", *Journal of Development Studies*, Vol 33, No 4.

Boyce, J. K. (1987) : *Agrarian Impasse in Bengal: Institutional Constraints to Technological Change*, Oxford: Oxford University Press.

Chowdhury, N. (1992) : *Rice Markets in Bangladesh: A Study in Structure, Conduct and Performance* , Dhaka: USAID

Chowdhury, N. (1993) : *The Structure and Conduct of Bangladesh's Wheat Market: Some Emerging Insights*, Dhaka: IFPRI/BFPP.

Crow, Ben (1989) : "Plain Tales from the Rice Trade: Indications of Vertical Integration in Foodgrain Markets in Bangladesh", *Journal of Peasant Studies*, Vol. 16, No. 2.

Crow, Ben and Murshid, K. A. S. (1994) : "Economic Returns to Social Power: Merchants' Finance and Interlinkage in the Grain Markets of Bangladesh", *World Development*, Vol. 22, No. 7.

Farruk, M. O. (1972) : *Structure and Performance of the Rice Marketing System in East Pakistan*, New York: Cornell University.

Islam, M. A., Hossain, M., Islam, A.S.M., Akter, S. Harun, M. E. and Efferson, J. N. (1987) *: A Benchmark Study of Rice Marketing in Bangladesh*, Dhaka: BRRI/DAM/USAID.

Majiruddin, K. (1989) : Markets and Marketing Polices in Accelerating Agricultural Growth, in *Bangladesh Agricultural Sector Review*, Compendium Volume IV, Markets and Prices, Dhaka.

Ravallion, M. (1986) : "Testing market integration", *American Journal of Agricultural Economics*, Vol 78 (May)

Zohir, S. (1995) : "Food and Agriculture Policies" in *Bangladesh and Prospects of Self Sufficiency in Foodgrain Production, in Bangladesh Strategies for Development*, Edited by Grieve, R. H. and Huq, M., Dhaka: University Press Limited.

APPENDIX

Table 4.1 Specific Wholesale Markets in the 14 Selected Market Locations

Market Locations	Rice Markets	Wheat Markets
Dinajpur	Pulhat, Basuniapatti, Churipatti, Maldahpatti, Barabandar, Bahadur Bazar and Suihari markets.	Old Bahadur Bazar, Maldahpatti, Churipatti, Barabondor and Basuniapatti
Bogra	Dupchachia	Latifpur Coloney Market
Naogaon	Parnaogoan (Choulpatti)	
Sherpur	20 places in the town : Battala, Narayanpur, Sheikhati, Dhakalhati, Gopalbari, Shitalpur, Dhighirpar, Shajhbrkhila, Nowhata, Gaoripur, Kandarpara, Tatalpara, Nagpara, Natun Busstand, Nabinagor, Kaliagonj, Koshbamollapara, Mirjagonj, Chapatali and Tear Bazar.	
Sylhet	Kalighat, Sheikh Ghat and Technical Road.	
Dhaka	Babu Bazar, Badamtoli and Mohammadpur Krishi Panna Paikari Bazar.	Maulovi Bazar.
Narayangonj	Nitaigonj Bazar	Nitaigonj Bazar
Bhairab Bazar	Bhairab Bazar (Natun Goli, Bauchumia Goli, Bastapatti, Battala, Dailpatti and Hindupatti).	
Barisal	Feripatti	
Khulna	Baro Bazar	
Jessore	Hatkhola Bazar	Atapatti
Chittagong	Chaktai and Pahartoli	Chaktai-Khatungonj and Pahartoli
Chandpur	Puran Bazar and Paul Bazar	
Choumohoni	Moheshgonj Bazar and Dakkhin Bazar.	

Note : Shaded area indicates markets not applicable for wheat survey.

Table- 7.1 Trucking cost of Rice per Quintal per 100 Km. Distance

From	To	Trucking cost (Tk./100 Kg.)	Distance (Km.)	Trucking cost / Quintal / 100 Km.
Bhairab	Sylhet	25.00	225	11.11
Bogra	Bhairab	45.75	314	14.57
Bogra	Barisal	70.00	438	15.98
Bogra	Chittagong	53.00	493	10.75
Bogra	Dhaka	46.00	229	20.09
Bogra	Jessore	40.00	320	12.50
Bogra	Khulna	40.00	381	10.50
Dhaka	Choumohoni	24.00	192	12.50
Dinajpur	Choumohani	57.50	605	9.50
Dinajpur	Chittagong	63.00	678	9.29
Dinajpur	Dhaka	65.00	414	15.70
Dinajpur	Khulna	64.00	566	11.31
Dinajpur	Narayangonj	62.00	429	14.45
Dinajpur	Sylhet	66.00	760	8.68
Jessore	Barisal	55.00	274	20.07
Jessore	Dhaka	61.00	274	22.26
Khulna	Chittagong	44.00	599	7.35
Naogaon	Chittagong	58.00	544	10.66
Naogaon	Choumohani	51.50	472	10.91
Naogaon	Dhaka	44.50	280	15.89
Naogaon	Jessore	40.00	371	10.78
Naogaon	Khulna	44.00	432	10.19
Naogaon	Narayangong	30.50	295	10.34
Naogaon	Sylhet	53.00	626	8.47
Sherpur	Choumohoni	38.50	374	10.29
Sherpur	Chittagong	47.50	446	10.65
Sherpur	Dhaka	30.50	182	16.76
Sherpur	Narayangong	33.50	197	17.01
Sylhet	Choumohoni	45.00	352	12.78
Sylhet	Chittagong	50.00	425	11.76
Sylhet	Dhaka	53.00	346	15.32

Source : Field Survey, 1997

Table- 7.2 Trucking Cost of Wheat per Quintal per 100 Km. Distance

From	To	Transport Cost (per 100 Kg)	Distance (in Km)	Transportation Cost (Tk./ Quintal / 100Km)
Bogra	Dhaka	44.00	229	19.21
Bogra	Chittagong	62.50	493	12.68
Bogra	Narayangong	46.00	244	18.85
Chittagong	Jessore	74.00	538	13.75
Chittagong	Narayangong	35.50	279	12.72
Dinajpur	Dhaka	57.00	414	13.77
Dinajpur	Chittagong	71.50	678	10.55
Dinajpur	Bogra	27.00	185	14.59
Dinajpur	Narayangong	60.00	429	13.99
Jessore	Narayangong	37.00	289	12.80

Source : Field Survey, 1997