

CROP POST HARVEST PROGRAMME

**Paddy Marketing and Rural Livelihoods in Bangladesh
R7496 (ZB0202)**

FINAL TECHNICAL REPORT

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Glossary

<i>Aratdar</i>	Paddy or rice wholesaler
<i>Aman</i>	Wet season paddy crop
<i>Aus</i>	Late dry season / early wet season paddy crop
<i>Bepari</i>	Large scale paddy or rice trader
<i>Boro</i>	Dry season paddy crop (irrigated)
<i>Chatal</i>	Yard for drying paddy
<i>Faria</i>	Small scale paddy trader
<i>Godown</i>	Grain storage warehouse
<i>Hut</i>	Market place
<i>Mahajan</i>	Private moneylender
<i>Mauud</i>	Unit of paddy (37.4 kilograms)
<i>Paddy</i>	Unmilled rice

Abbreviations

CPHP	Crop Post Harvest Programme
GPC	Government Procurement Centre
IFPRI	International Food Policy Research Institute
NGO	Non-governmental organisation

Executive Summary

The goal of this project was to contribute to increasing the incomes of small-scale rice producers by identifying actions that can be taken to overcome existing constraints to accessing higher paddy prices. The aim was to examine the marketing constraints of small scale paddy producers in both surplus and deficit rice production areas of Bangladesh. An assessment of the factors that influence farm-gate prices of paddy would highlight the key constraints to increasing the financial returns from paddy production.

Specifically the project explored the following hypotheses:

1. that economic, political and social constraints prevent small and medium scale farmers from achieving better 'exchange rates' for their paddy.
2. that inefficiencies in paddy markets result in lower producer prices.
3. that the government policies intended to support small producers in marketing paddy fail in both design and implementation to support these farm households.

Hypothesis 1: economic, political and social constraints prevent small and medium scale farmers from achieving better exchange rates for their paddy.

This hypothesis was found to be TRUE.

Key findings:

- The selling or other disposal of paddy (for example for the repayment of loans or payments of agricultural inputs) plays an important role in the livelihood strategies of many resource poor rice cultivating households. This is true even for those households which have traditionally been labelled as 'deficit' in terms of paddy production. Such households tend to dispose of a high proportion of their paddy (often over half) in order to meet household expenditure needs, debt repayments and agricultural input purchases. 'Deficit' households often retain a *lower* proportion of their production for household consumption than do 'surplus' households, and therefore the 'exchange rate' (in terms of cash, land, labour, etc.) they receive for paddy is vital in determining their livelihood outcomes.
- Financial constraints force smaller farmers to dispose of their paddy when market prices are at their lowest, immediately after harvest. Prices tend to dip significantly during the post harvest period, and subsequently climb, by around 25-30 percent in the 3 to 4 months following the aman harvest in November, and by around 15-20 percent in the months after the boro harvest in May.
- Social capital is a key asset in the household economy. Households operate in a web of complex relationships within their communities, which determine access to credit, land, labour, irrigation water and other markets. Paddy is a key commodity in maintaining, strengthening and honouring these relationships. In practice, many smaller farmers have relatively little choice in selecting outlets for disposing paddy, as they are dependent upon input suppliers and/or paddy traders who are well known to them. It is difficult to value paddy which is used to honour these informal agreements within communities. Although the implicit price of paddy that farmers receive is generally below the prevailing market price in these non-market transactions, paddy is used to secure access to a range of other services and goods.
- The need for access to cash and credit is the most important factor in determining the choice of marketing outlet for smaller farmers. Many smaller farmers are in near

permanent indebtedness, using paddy to pay off debts, only to then fall into new debt in order to pay for agricultural inputs and other household expenditure. Some traders will pay in advance for paddy (in part or in full) which is an attractive option to farmers, even though the price in such arrangements is below the prevailing market rate (an implicit interest rate on this credit).

Hypothesis 2: inefficiencies in paddy markets result in lower producer prices.

This hypothesis was found to be FALSE (though this could not be absolutely proven)

Key findings:

- Paddy markets were found to be (on the whole), dynamic and efficient. There are many participants in all levels of the marketing system, and infrastructure is generally good (though this depends on the season, with increased transport difficulties in the rainy season).
- Despite accusations from farmers of price fixing and unscrupulous behaviour by traders, no evidence was found in the market research to confirm this. Barriers to entry into the paddy trade are generally low, with access to finance and the establishment of trust being the most significant. Spatial integration of prices is high, with prices at the same level over large geographical areas and any changes in prices quickly transmitted across a region. This suggests that there is little opportunity for collusion between traders to fix prices, apart from, possibly, over very short time periods (i.e. daily).
- Despite the availability of market intermediaries to purchase paddy from farmers, farmers are often limited in their choice of intermediary for the reasons listed above, and **not** due to market inefficiencies.
- The behaviour of paddy market participants is driven by: maximising price; minimising transaction costs; developing informal financial arrangements with trading partners; increasing the scale of operation; and increasing the number and frequency of transactions. This has resulted in a marketing system characterised by close, trust-based business relationships between participants which minimise transaction costs, and by the quick turnover of stock.
- Shortage of finance is the main constraint for traders. It is possible that increasing the supply of credit to traders (for example through inventory credit) would increase the liquidity in the marketing system and therefore lead to higher prices for producers. However, although many individual traders complain of their low level of working capital, this has facilitated new entrants into the market and has therefore reduced the chances of excessive market power concentrating in the hands of a few, and there is no evidence of there being an **aggregate** liquidity shortage.

Hypothesis 3: the government policies intended to support small producers in marketing paddy fail in both design and implementation to support these farm households.

This hypothesis was found to be TRUE.

- The main intervention in paddy markets intended to support producers is the Government operated procurement and distribution system for paddy and rice, which has multiple objectives of stabilising producer and consumer prices, providing a food security reserve, and providing a subsidised marketing channel for small scale producers.

- Farmers typically face difficulty in selling paddy to these centres: transport costs to the centres may be high with no guarantee of being able to sell; ‘musclemen’ outside the centres may prevent farmers from reaching the centre and force farmers to sell to them instead; paddy may be rejected on quality or quantity grounds (small amounts of paddy are rejected); and complex procedures which require several visits to the procurement centre and to banks before the payment is received. As a result, only larger farmers with political connections benefit from the system, with the main beneficiaries being traders and millers and local elites.
- A number of measures could improve the system including: reducing the procurement period to the few weeks following the harvest; using local NGOs to represent farmers at the procurement centres and co-ordinate farmer supply to procurement centres; and purchasing more paddy and less rice. However, reforms to the system will run up against considerable resistance from those politically influential people who stand to lose out if the system is reformed. Also, given the relatively small proportion of total paddy marketed which is procured through this scheme (approximately 5 percent), reforms of the system with its current budget will only ever benefit a minority of farmers.
- The second publicly funded scheme to benefit small-scale farmers in marketing is SHOGORIP, an inventory credit scheme for small farmers. Although farmers on the scheme appear to be satisfied, the costs of the scheme are likely to be high given the small quantities of grain involved and high fixed costs (though no data on costs was available) and could be a drain on public resources. Furthermore, analysis of price movements following harvest showed that prices (and hence returns to storage) vary from year to year in scale and timing, making inventory credit risky especially with the absence of good market information.

Background

The economy of Bangladesh is heavily dependent upon rice. Nearly 75 percent of the total cropped land is devoted to paddy (unmilled rice) cultivation and 35 percent of all household expenditure is spent on rice alone. The paddy-rice sector is a major source of income for many Bangladeshis, with the total combined income from the production and marketing of rice amounting to about 27 percent of total Gross Domestic Product¹. Paddy and rice are particularly important for resource poor households, both as a cultivated crop and also as a major constituent of diets in rural and urban areas. Paddy is the major crop grown on the vast majority of small farms, over 75 percent of which are less than one hectare in size. For these households paddy cultivation provides an important source of food for the household and often a vital source of income. Markets for paddy and rice play a vital role in the livelihoods of many of the poor in Bangladesh, providing both an outlet for selling paddy and a source of rice for consumption.

The nature of paddy and rice markets has changed considerably since the late 1980s. Up until that time, the state intervened heavily in the domestic markets through a procurement and distribution system. However, by the early 1990s, the paddy and rice market had been largely liberalised, and private trade in paddy is now far larger in scale than the public procurement and distribution system. Prices for private trade are not fixed and producers can, theoretically, sell to whoever they wish. In parallel with the opening up of paddy and rice markets, markets for agricultural inputs (irrigation water, seed, fertilizers and pesticides) have also been liberalised. Consequently, farmers are, more than ever before, open to the opportunities and risks associated with markets, including fluctuations in domestic and international prices, and the negative impact of market failure. Farmers, and in particular small-scale farmers, face a number of economic and social constraints to realising the full benefits from paddy cultivation.

There has been research of paddy and rice marketing issues over the past 20 years, (though this has been far outweighed by research into paddy production), which has identified a number of possible factors which influence the returns to, and profitability of, paddy cultivation and marketing for resource poor farmers. The research has raised further questions.

1. Smaller farmers in particular, make 'distress' of paddy immediately after harvest to meet cash shortages, when paddy prices are at their lowest. Later in the season, farmers purchase rice for household consumption when prices are higher. What is the extent of these 'distress' sales and what are the underlying causes?
2. In the past, farmers were unable to sell their paddy at the market value due to an array of inter-linked transactions with input markets, controlled by locally powerful merchants, landlords and financiers, in which the price for their paddy is fixed in advance². How prevalent and important are these linkages for small farmers now, given the liberalisation of markets since the early 1990s?
3. Lack of credit in the lower tiers of the paddy/rice market chain has been identified as a key constraint to traders and millers³. To what extent does this affect paddy producers?

¹ Shahabuddin, Q. and Rahman, R.I. (1998) Agricultural growth and stagnation in Bangladesh. Centre of Integrated Rural Development for Asia and the Pacific; Dhaka

² Crow, B. 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, pp. 1011-1030.

³ Baulch, B., Das, J., Jaim, W.M.H., Farid, N and Zohir, S (1998) The spatial integration and pricing efficiency of the private sector grain trade in Bangladesh: Phase I and II reports. IDS; Brighton

4. Rice market prices have become more volatile since market liberalisation due to reduced government intervention in the rice market⁴. Are there opportunities for farmers to benefit by storing paddy and delaying the time of sale?
5. Policy interventions in grain markets (state procurement of paddy and rice) are intended to benefit resource poor farmers, though there is evidence that access to government procurement centres is difficult⁵. What is the level of farmer access and what factors affect access?

The general consensus is that market liberalisation has been positive for the rice sector taken as a whole with production increasing rapidly in the early 1990s after liberalisation, with subsequent growth thereafter (although this has been less consistent, mostly attributable to natural disasters). However, the benefits to producers of increased production are limited by their ability to access 'good' prices for their paddy or rice. Without a reasonable return on paddy marketing, the impact on livelihoods of increased productivity is lost. This applies not only to the livelihoods of farming households: low prices also put a downward pressure on agricultural labour wages, which is an important source of income for the landless and land-poor, and also have a generally negative effect on the entire rural economy.

Despite the recognised importance of markets, and of paddy markets in particular, on livelihoods, relatively little research has been conducted on specific nature of the constraints and their effect on the livelihoods of resource poor farmers. The limited research that has been conducted has tended to focus on the structure, conduct and performance of marketing systems with little consideration of the impact on livelihoods. One of the more recent research projects on rice markets, "Spatial integration and pricing efficiency of the private sector grain trade in Bangladesh", funded by CPHP and completed in May 1998, highlighted that there was a dearth of information on marketing constraints facing small paddy producers following market liberalisation. Following further discussions with leading research organisations based in Bangladesh⁶, this project was designed to address existing gaps in current knowledge of the relationships between the livelihoods of resource poor farming households and rice and paddy marketing systems.

Project Purpose

The purpose of the project was to investigate the interaction between small resource poor farming households and paddy markets, and to identify and analyse the factors that influence the returns to those households for selling or other disposal of their paddy. The central concept in the research is the 'exchange rate' at which these farm households dispose of their paddy. This includes, though is not restricted to, the 'normal' marketing of paddy, when a farmer sells paddy directly onto the paddy market and receives an amount of cash in return dependent upon the agreed price. In addition to this 'normal' marketing of paddy, farmers also dispose of their paddy through a number of alternative channels. For example, paddy marketing may be linked to other markets - land, labour, capital and agricultural input markets – with paddy used to repay loans, rent land, pay for labour or purchase other inputs.

⁴ Baulch, B., Das, J., Jaim, W.M.H., Farid, N and Zohir, S (1998) The spatial integration and pricing efficiency of the private sector grain trade in Bangladesh: Phase I and II reports. IDS; Brighton

⁵ Shahabuddin, Q. and Nabiul Islam, K.M. (1999) Domestic Rice Procurement Programme in Bangladesh – an Evaluation. FMRSP Bangladesh, IFPRI, Dhaka

⁶ including the Bangladesh Institute for Development Studies (BIDS), International Food Policy Research Institute, Bangladesh Agricultural University, Ministry of Agriculture, and Bangladesh Rice Research Institute.

The project aimed to throw some more light on these transactions, and particularly to determine the factors which influence the ‘exchange rates’ that poorer households receive for their paddy.

The research team⁷ tackled this issue from two angles: firstly, from the farmer household perspective, exploring what factors influence the households’ marketing decisions; and secondly, understanding more about how the market operates, and how this affects paddy marketing households. Bringing these two areas together led to a greater understanding of the current role of paddy in rural livelihoods, and the potential enhanced role of paddy marketing for income generation.

Specifically, the research hypotheses were as follows.

1. The first hypothesis addressed resource poor paddy producing households’ access to paddy markets, as expressed in the exchange rates realised for their paddy. It was hypothesised that economic, political and social constraints prevent small and medium scale farmers from achieving better exchange rates for their paddy.
2. The second hypothesis related to the functioning of paddy markets. It was hypothesised that inefficiencies in paddy markets result in lower producer prices.
3. The third and final hypothesis concerned government support policies for farmers, and in particular the paddy and rice procurement and distribution system. It was hypothesised that the government policies intended to support small producers in marketing paddy fail in both design and implementation.

Research Activities

At the conception of the project, a decision had to be taken as to the most suitable approach to take to tackle the above hypotheses. What was clear from the outset was the essentially qualitative nature of much of the information to be collected. The research team was aware of previous research and was keen to minimise duplication and to add a new angle to complement existing research findings. Much of the previous research into paddy marketing has been done by large-scale questionnaire survey⁸ which yielded a vast amount of valuable quantitative information. Many of the issues under investigation in this project are less easy to quantify, and required a different approach to the research. Questionnaire surveys were included, though sample size was relatively small (120 farmers and 110 traders and millers). Alongside these questionnaire surveys, less formal research tools were employed to try and get to the bottom of the complexity of paddy markets and farmers’ interaction with these markets. The research team consisted of both agricultural economist and social anthropologists, with both disciplines approaching the same issues from different entry points. The team conducted a number of research activities between February and December 2000.

Activities were conducted at the farm-level, market level and policy level. At the farm household level a questionnaire survey was conducted to assess market access and constraints

⁷ The team consists of Andrew Goodland, Andrew Long and Barbara Adolph (Natural Resources Institute (UK)), Professor W.M.H Jaim from the Bureau for Socio-economic Research and Training at the Bangladesh Agricultural University, a team led by Dr M.A. Jabbar at the Agricultural Economics Department of the Bangladesh Rice Research Institute, and a team led by Rabeya Rowshan, a social anthropologist consultant.

⁸ Islam, M.A., Hossain, M., Islam, A.S.M.N., Akhter, S., Harun, M.E. and Efferson, J.N. (1987) A Benchmark Study of Rice Marketing in Bangladesh. Bangladesh Rice Research Institute, Joydepur, Bangladesh

to improved marketing of paddy by smaller farmers. This was used as the entry point to selected household case studies examining market relationships across a range of socio-economic groups of producers to detail the significance of the local hierarchy of social relations and constraints to accessing markets. At the market level, a trader and miller survey was completed to assess marketing behaviour and to identify market inefficiencies. In addition, analysis of price fluctuations in paddy markets was conducted, using secondary and primary data, to determine the nature and extent of seasonal price movements. At the policy level, the government procurement system was reviewed through discussions with local procurement centres, backed up with farmers and traders perceptions of the system and complemented by a review of previous research in this area. Prior to conducting any of these activities a review of relevant literature was undertaken, and this review of previous research and documentation continued throughout the project as new avenues were explored and relevant project and reports were identified. The project concluded with a workshop to present and discuss project findings and recommendations.

Study areas:

Three districts were selected for fieldwork. The objective in survey site selection was to choose three areas contrasting in terms of socio-economic and agro-ecological conditions. It was hoped that by looking at similar issues in contrasting situations would deepen our understanding of these issues. The three districts selected were **Bogra**, **Sunamganj** and **Feni**. **Bogra** is one of the major rice production areas of the country with very high cropping intensity. All sizes of farmers are able to cultivate both aman and boro paddy⁹. There is also a large marketable surplus of paddy, and a well developed marketing infrastructure including a high concentration of mills. **Sunamganj** suffers from annual floods which prevent the cultivation an aman crop in most areas. It is therefore dependent upon boro production, though even this is at risk from flash flooding. Marketing infrastructure is far less developed than Bogra, and the area itself is relatively remote, especially during the monsoon season when the area is largely dependent upon boat transportation. Sunamganj has a relatively large Hindu community. **Feni**, in direct contrast to Sunamganj, is nearly completely dependent upon aman production and has only small boro and some aus production. In the southern part of the district, where our survey villages were located, only a small area of land is irrigated and water salinity is a hazard. The area is politically volatile, and we were not able to complete all of our intended fieldwork here.

Principal Activities in detail

Farmer survey.

A questionnaire survey was completed by 120 farmers in the three districts. Specific thana (parishes) from each district were selected, and from these two villages chosen. Finally, farm household lists for each of the selected villages were prepared and 40 farm households for each of the three districts were selected randomly (making 120 farm households in total). The farmers were interviewed twice during the year 2000; once during the *aman* marketing season (during the months of March and April) and other once during the *boro* marketing season (during the months of November and December).

⁹ The two most important paddy cultivation seasons in Bangladesh are Aman and Boro. Aman paddy is cultivated over the monsoon season from approximately July to November, when it is harvested. The main marketing season for Aman begins in November and continues until March or April. Boro is the dry season rice crop requiring irrigation, which is grown from approximately February until May. The marketing season for Boro lasts from May until August.

The farmer questionnaire survey was complimented with a more detailed social anthropological survey conducted with the same farm households. A number of anthropological fieldwork techniques were used to carry out the survey work, including the use of simple PRA exercises, such as ranking and diagram drawing exercises. Focus group discussions were held in the same villages as the farmer questionnaires were conducted, and with the same respondents. The information from these activities was used to select households for detailed case studies. A total of 10 households were chosen from the original 120 to achieve a diverse range of rural households representative of specific livelihood strategies. Repeat visits were made to these households to build up a detailed picture of their livelihoods. In addition to interviews with paddy producers, the team also carried out checklist guided interviews with local NGOs operating in the study areas. The aim was to find out about their perceptions of farmers' marketing constraints, and their projects and programmes especially in the fields of finance and credit.

Trader and miller survey

Initially, this activity was intended to focus on storage behaviour, but it quickly transpired in discussions with traders that storage behavior is very much tied to other factors within the paddy marketing system. This activity was therefore expanded into a broader survey of paddy market traders, wholesalers and millers. The work was conducted in all three of the project districts: Bogra, Feni and Shunamganj. Two approaches were used to acquire the information. Firstly, semi-structured checklists were used to conduct individual and group discussions with a range of market participants. These discussions yielded substantial information and provided guidance to the second approach: a follow-up questionnaire with individual participants.

Review of secondary paddy price data

Analyses of prices in the rice sector of Bangladesh have previously focussed on district and national level rice prices, with little consideration of local prices of paddy. Paddy prices are collected weekly from 130 'farmer' markets across the country by the Department of Agricultural Marketing in the Ministry of Agriculture. These data were used to analyse seasonal paddy price movements during the last 10 years throughout Bangladesh as well as in the three selected districts (Bogra, Feni and Sunamganj). For estimating the seasonal variation of wholesale paddy price using time series data over last 10 years, a multiplicative model was used. The trend was estimated by a simple 12-month centered moving average method and seasonal indices were worked out by averaging the de-trended series.

Review of policy

This has been the subject of much recent research, in particular by the IFPRI-Ministry of Food led 'Food Management and Research Support Project'. Over the past two years the IFPRI-Ministry of Food project has completed a comprehensive review of the government procurement system, yielding very useful information on its performance. It was not the intention of this project to duplicate the work conducted under the IFPRI-Ministry of Food project. Our objective was primarily on farmers' access to the procurement centres, though we also touched on more general issues relating to the procurement system. A review was made of the existing research findings, and this was supplemented with discussions with farmers, traders, millers and government procurement centres.

Outputs

Hypothesis 1: economic, political and social constraints prevent small-scale farmers from achieving better exchange rates for their paddy.

An initial line of enquiry was to determine the level of farmer interaction with paddy markets. Small farmers are the target group for this research and an initial assumption is that even small farmers are to some extent dependent upon paddy exchange. This assumption is contrary to the over-simplified view that deficit households (i.e. those producing less paddy than is required to meet their needs) retain all of their paddy output, and that it is only those surplus households which dispose of paddy. This has been dispelled previously, and was confirmed in our focus group discussions and questionnaire survey. Seventy percent of farmers in Bogra and Feni sold a proportion of their aman paddy into the market and 85 percent of all farmers interviewed sold a proportion of their boro paddy, whilst nearly 70 percent of farmers need to purchase rice at some point of the year. The paddy and rice market *is* important, even for smaller scale farmers.

Paddy marketing cannot be understood in simple financial terms with farmers driven solely by the desire to get the highest price possible for their paddy. Instead, paddy marketing must be viewed in terms of complex livelihood strategies and constraints, in which achieving a high price for paddy is only one of several concerns for farmers. The link between marketing options and input markets (especially for credit, land, fertilizers and irrigation water) are vital with farmers in a constant struggle to access the inputs they require to continue the cultivation of paddy and other crops. Access to these markets is often determined by social relations (the level of social capital), in which smaller farmers are frequently disadvantaged. This is manifested in several themes which were repeatedly raised by the villages in all the districts covered by the survey.

The most significant recurrent theme in the research of these issues was the extent to which small and medium farmers have pressing cash needs at the time of harvest. Their cash needs cover a range of things, including the need to pay for household expenditures, school children's educational costs, medical treatments, and for meeting the costs of weddings and other social obligations. Their most important cash need however, relates to their paddy production. These are principally the costs of paying for irrigation water, fertiliser, and pesticides.

Many, if not most farmers take loans either from *mahajan* (moneylenders) or NGOs to meet these input costs. Some take loans from banks, but this is less common as often the farmers do not have the collateral required (usually large areas of land). However, access to loans is dependent upon having good relations with lenders, and the research found that even smaller farmers could access bank loans if they had good personal contacts, though this was very rare. To reduce the interest payments on these loans, and to avoid the risk of having their land taken away from them by the moneylender on a mortgage basis, farmers will sell their paddy immediately after the harvest in the most convenient way possible, and therefore receive a low return as paddy prices dip during this period.

Sales of paddy immediately at harvest time are vital to meet the costs of inputs and to repay loans. Many small farmers are effectively caught in a vicious cycle of debt, paddy production and repayment. It is almost impossible for them to get out of this cycle, since they can never produce enough surplus both pay off their debts and afford to remain out of debt for the next

production season. There is clearly a close link to the costs of agricultural technologies, which appear to be monopolised by the richer farmers. In some cases, even though middle farmers could afford to purchase shallow tube well irrigation pumps, they do not do so under threats from the rich farmers. In some cases these threats are of violence, in others they are threats to withdraw access to other technologies needed, for example, power tillers and mechanised threshing.

In most cases preference is to sell directly to local traders at the farm-gate, rather than at the market, but preference depends on the farmers' needs. Marketing costs are high for farmers selling small volumes of paddy at the market and they cannot always be assured of receiving cash on the spot. With small quantities to sell, farmers are immediately at a disadvantage, and lacking market information and knowledge of market intermediaries, they are liable to receive low returns for paddy marketed through this channel. In addition, farmers normally require immediate cash, so will be restricted to those purchasers who are willing to take small volumes of paddy and pay cash.

One further problem is the difficulty of selling paddy to government procurement centre. This is due to a number of factors. Government procurement centres are often too far from the villages to be reached without paying large transport costs. The quantities that the government agents are prepared to buy also exceed the capacity of most small and medium farmers. In addition it is reported that government officials expect to be given some form of 'sweetener' or bribe before accepting ordinary farmers' paddy.

Indebtedness was a constant theme of the research. Options for marketing paddy are severely constrained by the need to pay off debts, only for farmers to then fall into further debts to pay for production inputs. The team discussed with farmers and local NGOs possible interventions that could increase the amount of money farmers get for their paddy, many of which involve trying to break the strangle hold of indebtedness. The following options were discussed:

1. Seasonal / annual credit through NGOs;
2. Seasonal / annual credit through banks;
3. Inventory credit;
4. Improved access to government procurement centres;
5. Group action to break the monopoly of rich farmers over agricultural inputs.

1: The current system of long-term loans with weekly instalments that most of the NGOs in the study areas are promoting is not well suited to agricultural producers. Farmers would prefer seasonal or annual loans that can be either repaid immediately after harvesting, or at the end of the year, after selling the paddy, once the paddy prices have gone up. NGOs are generally reluctant to lend for seasonal activities. Their loans are normally provided without collateral and instead they depend on close monitoring and regular repayments. The risks associated with crop cultivation and the inability to make regular repayments dissuades NGOs from seasonal lending.

2: Access to bank loans for small farmers is highly restricted due the high levels of bureaucracy involved in obtaining a loan, the need for collateral, and the alleged need to bribe bank officials to get a loan application processed. Farmers are interested in bank loans, because they have to be paid back only after a year and interest rates are far lower than in the informal money-lending sector, and the amounts received from banks are generally larger than the amounts given by NGOs. However, banks are generally uninterested in lending to

the agricultural sector, and in particular in lending relatively small sums of money that small farmers require. Fixed costs attached to assessing risk, dispersing loans, monitoring and enforcing repayment if necessary make small loans un-economic for banks.

3: The idea of inventory credit was presented to farmers to find out what potential they see for this type of credit in the paddy sector. The government operates an inventory credit scheme called SHOGORIP, though not in any of the research areas. In Bogra, where many farmers are producing two crops of paddy per year (and sometimes even a third crop of potato), they expressed an interest in inventory credit. However, as this system involves storing paddy in a warehouse, they were concerned about corruption and middlemen, because of their previous experience with government storage. Inventory credit for small producers requires fairly costly administration and management. However, the NGOs in Bogra, with whom the system was discussed, believed that they could manage it in a cost efficient way. One major concern is whether storage would be profitable for farmers (see section on market prices below).

4: Improved access to government procurement centres. While farmers are sceptical about the feasibility of this option, it appears to be the most lucrative one for small farmers, because of the marked price difference between market prices and the government procurement rate. In the period of the study the margin was approximately 110 taka per maund or 50 % of the rate generally paid at the farm-gate. From all options discussed, this one would have the largest impact and enable farmers escape their indebtedness. However, the feasibility of this depends on the political will to change the current procurement system in favour of small producers (see section on the procurement system below).

5: Group action to break the monopoly of rich farmers over agricultural inputs. The team discussed with farmers the option for poor and medium farmers to increase their access to physical and financial capital through group action (formation of thrift and credit groups, joint purchasing of inputs, joint marketing). However, the response was rather negative. Farmers pointed out that there is no tradition of forming groups for these activities. There is a lot of mistrust between farmers, and there are a number of underlying conflicts. In several parts of the study area, a number of credit groups had been formed by different NGOs, but all are now defunct. In cases where deep tube wells were owned by groups of farmers, problems had arisen both from within the group (internal conflicts) and from outside the group (threats from rich farmers). It is questionable whether the strategy of promoting such group activities will be successful in rural Bangladesh under the circumstances described in this study.

Hypothesis 2: inefficiencies in paddy markets result in lower producer prices

The focus of our research was to understand the incentives and constraints which influence the behaviour of market participants, to see how they link together to form the paddy marketing system and identify any market inefficiencies. In neo-classical economic theory, transactions are based purely on price: both parties in a transaction are assumed to have access to perfect information on prices, and the seller selects the buyer with the highest price so as to maximise the seller's profit. While the basic premise that participants will try to maximise their benefits generally holds good, the situation in Bangladeshi paddy markets is far more complex than simply seeking the highest price. In the paddy markets studied during this research, a number of different factors drive the buying and selling behaviour of market participants.

1. maximising price;
2. minimising transaction costs;
3. developing informal financial arrangements with trading partners;
4. increasing the scale of operation;
5. increasing the number and frequency of transactions.

1. Maximising price

This is self explanatory, as all participants have a desire to maximise the price they receive for paddy. However, the interesting finding here is that this is not the sole motive driving paddy transactions, with the factors below also playing a significant role in determining how the market operates.

2. Minimising transaction costs.

Transaction costs are those costs involved with finding a buyer/seller, and ensuring their reliability in completing the transaction. In paddy markets these costs will be mainly in terms of the time it takes for buyers and sellers to seek out reputable people to conduct trade in paddy. The level of these costs will be higher if the time taken to collect information is longer, or if the time used is of a higher value. Buyers and sellers therefore may try to minimise transaction costs by trading with people who are known to them, and who they trust. Repeat transactions between the same participants are therefore a common feature of paddy markets. For example, millers often enter into informal arrangements with wholesalers to provide them with paddy with a fixed ‘commission’ for each maund supplied.

3. Access to informal sources of credit

With repeated difficulties in accessing bank loans, participants in the paddy marketing chain are forced to look elsewhere for working capital. The result is that a complex set of arrangements between participants has replaced formal sources of credit. Buying on credit and forward buying are commonplace in the paddy markets and exist between all tiers of the system. These arrangements help to reinforce long-term business relationships, and contribute to reducing transaction costs by developing trust between market participants.

4. Increasing the scale of operation.

Trading in larger quantities generally reduces the costs per unit of produce. Fixed marketing costs include labour and transportation – a half-full truck will cost nearly as much to run a fully laden truck. Profits are increased by dealing in larger quantities of paddy. Milling fixed costs are fairly high (paying for equipment, or renting mills) and throughput needs to be maintained at a high level to justify these outlays and to increase profits.

5. Increasing the number and frequency of transactions:

Paddy markets appear to be competitive in all the research areas we examined. Barriers to entry were relatively low, with little evidence of market power distorting the performance of the markets. Although no detailed information was gathered on marketing margins, the surveys did not reveal any evidence of excessive profits being made in the market. Without large margins of paddy transactions, increasing business turnover is critical to increasing returns. This is even more the case when liquidity constraints are significant, as was found in our research. Traders, wholesalers and millers are constantly trying to sell their stock of paddy (or rice) to free up the capital to purchase more. For this reason, storage of paddy is relatively low, except in the milling sector where millers try to maintain a level of stocks so as to keep their mills operating for as long as possible.

Marketing systems in the three research areas.

Market intermediaries play similar roles in the three areas. Farmers sale their paddy directly to miller and aratdars, though most of it is channelled through traders. In Bogra there is a clear distinction between farias and beparis, serving small and large farmers respectively. In Sunamganj farias and beparis play distinctive roles, with farias playing an assembly role and selling to beparis who bulk up further and transport to mills (and then market the rice). In Feni farias and beparis play similar roles, though they trade on different scales. Aratdars play a similar role in both Bogra and Feni, bulking up paddy from farmers, beparis and farias and selling on to millers at a fixed commission. In Sunamganj there are no aratdars.

These differences in roles reflect the differing circumstances in the three areas which affect the production and marketing environment. In each area the marketing systems have evolved to fit with the local environment. Although the systems differ, they all appear to function well in terms of farmer access to markets, price transmission and fairness. More striking than the differences between the survey sites are the similarities. In all three areas, the marketing systems are characterised by liquidity shortages, informal credit arrangements, close relationships between market participants, and wide fluctuations in paddy prices. All of these market characteristics are interdependent to some extent. A final common characteristic is the failure of the government procurement system to improve prices for paddy producers.

Conclusions

Are there potential positive returns to storage?

Answering this question requires an assessment of the price movements after harvest and also of the costs of storage. On average over the period of investigation, prices of aman paddy in Bogra increased by 29.3 percent between November and April, and for the boro marketing season, between May and October, by 21 percent. In Feni, prices of aman paddy also increased by 28 percent between November and April, and for the boro season increased by 18 percent between May and October. For Sunamganj, the aman data can be disregarded as there was so little data, and for the boro marketing the price increased by 14 percent between May and October. However, these fluctuations vary year to year with a wide range of less than ten percent to over fifty percent. If the costs of storage are taken into consideration, returns are often marginal and sometimes negative. The profitability of storage is related to the costs of capital, which is the largest single storage cost. A good guide to the costs of capital is interest rates on loans, which vary considerably depending upon the lender. As discussed under hypothesis 1 above, small farmers generally only have access to informal moneylenders with very high rates of interest, under which profiting from storage can only be achieved in years of exceptionally high price fluctuations. Interest rates are lower from formal sources (NGOs and banks), and in most years storage would be profitable if farmers could access these sources, and also if farmers had access to market information enabling them so sell at the optimum time.

Is there a shortage of liquidity in the paddy marketing system?

This is an important question to ask. Shortages in the aggregate volume of liquidity can dampen demand and lead to lower producer prices. A credit scheme in the Philippines targeted at rice traders resulted in an increase of paddy prices in the area by over 7 percent¹⁰. Virtually all traders, wholesalers and millers in our survey listed credit as their number one constraint, suggesting that liquidity may indeed be a problem, particularly during the post

¹⁰ Coulter, J. and Shepherd, A. (1995) Inventory credit: an approach to developing agricultural markets. FAO Agricultural Services Bulletin; Rome

harvest period when the majority of paddy trading takes place. However, just because paddy market participants face working capital shortfalls does not necessarily indicate a liquidity problem, and in fact it may prevent the concentration of market power in the hands of a few, and encourage more entrants into the market. Certainly, no farmers reported an absence of buyers in the market.

Is there evidence of excessive profits in paddy marketing?

No analysis was conducted on marketing margins or on individual participants costs and benefits. However, proxy indicators can be used to determine whether excessive profits are likely in markets. One of the most useful is to consider barriers to entry into different levels of the marketing chain. Barriers to entry can take many forms. Capital requirements can act as a barrier, for instance for a farmer trying to grow into a bapari. Transaction costs can also act as a barrier, with limited access to information. Whilst these two previous barriers can be viewed as legitimate, the exercising of market power by individuals or groups to exclude new entrants is illegal and potentially has serious repercussions for the efficiency of the marketing system. There is some anecdotal evidence of exclusion, with traders from outside a particular area being prevented from trading, but this is not supported by other evidence which suggests a competitive market with numerous participants. In addition, previous research has found markets in Bangladesh to be spatially integrated which also casts doubt on the existence of market power, or collusion in setting prices.

Hypothesis 3: the government policies intended to support small producers in marketing paddy fail in both design and implementation to support these farm households.

Paddy and rice procurement programme.

The Government of Bangladesh operates a procurement and distribution system for paddy and rice, which has multiple objectives of stabilising producer and consumer prices, providing a food security reserve which can be called upon in times of short supply, and providing an subsidised marketing channel for small scale producers. A number of Government Procurement Centres (GPCs) are distributed throughout the country, though they are concentrated in the major producing districts such as Bogra. Officially, the GPCs buy from both farmers and millers. The scale of procurement varies year on year, and between the different GPCs, though the aggregate procurement volume has been declining in recent years and now accounts for less than 5 % of total paddy and rice trade.

For the paddy marketing household, the main benefit from the programme is in price support. Producer prices for paddy are supported both directly and indirectly. One objective of the procurement system is directly provide a marketing outlet for producers. The prices for paddy and rice purchased by the procurement centre are typically considerably higher than the prevailing market prices, especially during the immediate post harvest period, which obviously makes it an attractive option for farmers. However, farmers typically face difficulty in selling paddy to these centres: transport costs to the centres may be high with no guarantee of being able to sell; ‘musclemen’ outside the centres may prevent farmers from reaching the centre and force farmers to sell to them instead; and paddy may be rejected on quality grounds. The farmer questionnaire which was conducted under this project revealed that only two of the 120 farmers interviewed sold their paddy to procurement centres, and these were relatively large scale farmers.

The government procurement system is also intended to support producer prices indirectly by reducing the supply of paddy to the market, though whether it achieves this either in design or implementation is questionable. Firstly, by purchasing large volumes of rice the assumption is made that the increased demand created in the rice market feeds through to paddy prices. This is debatable and depends on the linkage between the rice and paddy markets. Secondly, the purchasing period normally extends over three months after the harvest. The smaller (poorer) farmers tend to face constraints which force them to sell directly after harvest, causing a pronounced depreciation in paddy prices for one or two months. With limited quantities of paddy bought over a three-month period the impact on prices is negligible. At one procurement centre we visited there was also the problem of storage space, with the warehouse full of paddy and rice from the previous harvest preventing the centre from meeting procurement targets.

So it appears that the system is failing on two counts: farmers are neither benefiting from direct sales at higher prices, nor are they benefiting from increased paddy prices resulting from increased demand in paddy and rice markets. Instead, it appears that benefits are being captured by those who are able to sell to procurement centres – well-connected millers and traders.

The findings of our survey work are consistent with those found in other work into the government procurement system, including the work under the IFPRI-Ministry of Food project. The recent project report¹¹ also concluded that farmers' participation in the government procurement programme is "negligible", due to range of factors including the long distances to procurement centres, 'unofficial payments', quality problems and excessive formalities – findings which our study confirmed. However, in terms of policy recommendations, there are differences between our studies. The IFPRI-Ministry of Food project makes many recommendations related to improving the participation of farmers in the scheme. These include: re-organising the system to reduce 'unofficial' payments; improving the fairness of the slip distribution to the benefit of farmers; minimise the harassment of farmers at GPCs; and reduce weighing irregularities. On the infrastructure side, recommendations are made for creating extra drying 'chats' for farmers, creating extra storage at the procurement centres and re-introducing union level procurement centres.

Whilst these recommendations would undoubtedly result in an improvement in the scheme, there are difficulties in implementation. Developing infrastructure and de-centralizing procurement would be expensive for the government, and could result in a much lower procurement price being offered, or increased government expenditure, which would receive substantial opposition. Making changes to the system to reduce harassment, reduce illegal payments, increase fairness are difficult to enforce due to the grip of the local elites on the system, which would be very difficult to dismantle.

In addition to these recommendations, we believe that there are other actions which can be taken to improve the procurement programme for farmers.

1. *Procurement timing.*

This recommendation agrees with the IFPRI-Ministry of Food recommendation to initiate the procurement soon after harvest time. We would go one step further, in recommending both

¹¹ Shahabuddin, Q. and Nabiul Islam, K.M. (1999) Domestic Rice Procurement Programme in Bangladesh – an Evaluation. FMRSP Bangladesh, IFPRI, Dhaka

changing the time of the procurement period, but also reducing the time of the procurement period. Those smaller farmers who are in most need of price support are forced to sell their paddy immediately after harvest to raise income for debt repayments, input purchases and other household expenditure. There is probably only a four to six week period when these farmers will be selling their paddy after harvest, so it seems to make sense for the government procurement only to take place during this period to most benefit smaller farmers.

2. Purchasing paddy not rice.

Procurement is currently split between paddy and rice. The ratio changes annually, though rice purchases tend to be 2 or 3 times greater than paddy purchases. In theory, purchases of either rice or paddy should help to support producer prices, though this depends on the linkages between the rice and paddy markets. Mills tend to operate close to full capacity during the post harvest period, irrespective of whether rice from those mills is being channeled into the procurement programme. If the procurement of rice does not influence the demand for paddy by mills, the impact on paddy producer markets is likely to be negligible. Increasing the amount of paddy purchased relative to rice is therefore likely to benefit farmers more.

3. Involving local NGOs to increase farmer participation

NGOs representing farmer communities could potentially play an important role in selling farmers' produce to procurement centres. The advantages of this approach are that NGOs would have access to trucks and therefore would be able to bulk up farmers' produce and reduce transportation charges for farmers. NGOs could also potentially advise farmers on quality/moisture issues (they may even have access to equipment to assess quality). NGOs would also be in a superior position to farmers with respect to negotiating with procurement centres, and would escape harassment and theft. The disadvantages are that appropriate NGOs wouldn't necessarily be operating in communities. A level of trust between the farmer and the NGO is essential for this approach to work.

The NGO approach could potentially work in two ways:

- Slips could be distributed to farmers in the normal way (though there are clearly problems with this) and then NGOs could collect these slips and sell the paddy on the farmers' behalf.
- Alternatively, the slips could be issued directly to the NGOs under the understanding that they then purchase paddy from farmers.

Inventory credit – SHOGORIP

Inventory credit, where rice, paddy or any other commodity is stored and used as collateral to secure bank loans, can potentially help to give both direct benefits to farmers, by allowing them to store when prices are low, and also to support producer prices by reducing the supply onto the market. There is experience of this in the paddy-rice sector in Bangladesh. In the 1980s, a Swiss financed programme called BASWAP (Bangladesh Swiss Agricultural Project) initiated a scheme in which farmers were organised into cooperatives and members stored paddy in a secure godown. Certificates would be issued to verify the amount of paddy in storage belonging to a particular farmer. This certificate could then be used to obtain short term consumption loans from banks.

The programme has since been taken over by the Department of Agricultural Marketing in the Ministry of Agriculture and renamed SHOGORIP (Shoshoya Gudam Rin Prokalpa). The

objective and operation of the scheme is broadly the same as BASWAP. The objective is to directly support farmers by giving them the opportunity to delay the sale of their paddy by taking out short term consumption loans. The scheme is targeted at small and medium scale farmers, owning up to 5 acres. By 1998 there were 46 godowns in operation in the scheme. By 2002 the aim is to have a total of 116 godowns with a total capacity of 10,000 tonnes, and a total of 100,000 farmers involved in the scheme.

Although no recent evaluation has been conducted on the performance of SHOGORIP, previous evaluations and experiences in other countries have raised concerns about the participation of smaller farmers in these type of programmes, with local elites tending to take control of the management and excluding smaller farmers. Concerns have also been raised about the financial sustainability of the approach. The small quantities of stored produce tend to increase administrative costs, sometimes excessively. Unless the costs of storage are lower than the cost of loans, the scheme will not be viable. Having said this, the concept of inventory credit has been successfully implemented in other countries and there is potential for it to work in Bangladesh.

Is this a better way to support poor paddy marketing households than the paddy procurement programme?

Contribution of Outputs

The goal of DFID's Crop Post Harvest Programme is that "livelihoods of poor people [are] improved through sustainably enhanced production and productivity of RNR systems". Its purpose is that "poor people benefit from new knowledge applied to food commodity systems in high potential areas." The project sought to contribute to this goal by researching and analysing paddy marketing constraints in Bangladesh and identifying the key factors which affect the price or exchange rate that farmers receive for their paddy.

The project memorandum anticipated three principal mechanisms for dissemination and uptake of project results:

1. Via the involvement of key stakeholders in the research and workshop;
2. Via publication of the research results; and
3. Via uptake in the form of further work.

1. Involvement of key stakeholders in the research and workshop.

The project team was in regular contact throughout the project research with organisations which had an interest in the work. This included government departments (in particular the Department of Agricultural Marketing in the Ministry of Agriculture, and the Ministry of Food), local NGOs working in the project survey areas, and national and international NGOs with an interest in rural issues. Special mention should also be made of the Food Management and Research Support project under the International Food Policy Research Institute (IFPRI), which was being implemented at the same time as this research was conducted and touched upon some similar issues. Every effort was made to complement the work of the two projects. Many of the above organisations were represented at the final workshop held in Dhaka in April 2001.

2. Publication of the research results.

A proposal has been submitted to the CPHP for the wider dissemination of project's findings. The proposal is for the findings of this project to be combined in a book with the findings of a

previous CPHP project on rice markets in Bangladesh ('The Spatial Integration and Pricing Efficiency of the Private Sector Grain Trade in Bangladesh'). Combining the two projects will give a complete analysis of the paddy/rice commodity system. The book will be targeted at policy makers, implementation agencies such as government departments and NGOs, and other researchers and academics. This will greatly increase the dissemination of this work.

3. Further work.

The Project Memorandum proposed that one output of the project would be a further proposal for additional action-oriented work to be conducted on the theme of paddy markets. However, the research team in discussions with other partners concluded that this was not appropriate.

Specifically:

- There was considerable debate within the project team and with other stakeholders in Bangladesh about the suitability of seasonal loans to farmers to enable them to delay the selling of their paddy. This was an idea which several local NGOs felt might be worth pursuing. However, before recommending this, several concerns need to be addressed.
 - i. Firstly, the returns from delaying the sale of paddy need to be considered in light of the costs of credit and of storage, and with existing interest rates in the formal and informal markets the conclusion is that with informal rates, farmers would lose out by delaying the sale of paddy, and with formal rates, although farmers may benefit moderately, this would depend on the precise timing of the sale of paddy, and exclude the potentially high fixed and transaction costs of obtaining formal credit.
 - ii. Second, it is clear that choice of when to sell paddy for small farmers is complex, and conditioned by a range of market linkage and social capital factors.
 - iii. Third, for the scheme to be successful and sustainable, ideally requires the involvement of the commercial banking sector, though the incentives for these banks to be involved are very low.
- A phase two proposal centred on marketing constraints of small farmers would run the risk of failing to appreciate the complex livelihood situation of rural households. This project has highlighted the complexity of market access, and that farmers' marketing behaviour is conditioned by a range of concerns, and not only on the maximising of financial returns.
- The constraints faced by market traders and millers only justify further work if it can be shown to benefit the target group of small, resource poor farming households, for instance by increasing the price of paddy accessible by these farmers. However, although trading constraints were identified, especially the shortage of working capital, the research team was of the opinion that addressing these would **not** benefit farmers, and that on the whole the marketing system operates efficiently.

Despite the above points, there are still several possible follow up pieces of work which could be done:

1. Evaluation of SHOGORIP. The scheme has now been running for several years under the Government. There are favourable impressions from farmers who are included in the scheme. It is likely that the scheme is costly to operate, though no financial figures were available. Even if it is costly, it may be a better use of public funds than the current procurement system which was found to have very little benefits for the target group of farmers. An evaluation of the scheme would be a useful exercise, and if it is found to be viable, it could expand into areas not traditionally considered as rice surplus areas.

Currently it is restricted to surplus areas such as Bogra, but farmers in other parts of the country also suffer from the problems of selling paddy during post harvest price dips.

2. Finance for the agricultural sector: the need for working capital was a constant theme in the research for farmers and market participants alike. It is very clear that the formal financial sector (commercial banks, public banks and NGOs) is failing the agricultural sector, even the state owned Krishi Bank which has agricultural lending as its mandate. The frequent allegations of corruption and of the need to pay bribes in the banking sector are a major concern as it is clearly preventing the efficient functioning of the sector. There is a need to explore options for improving the financial servicing of the agricultural sector, especially for the crop sector, both for production and marketing. Although the Grameen model has been a success in Bangladesh, it hasn't served the needs of farmers, and it maybe time to consider alternative approaches. For example, the Centenary Rural Development Bank in Uganda, and several commercial banks in the highly innovative Bolivian banking sector are making headway in seasonal lending. Lessons could be learned.
3. Paddy and rice procurement system. The project confirmed and added to the findings of previous research on the failings of the government procurement system. It also concurred with previous recommendations for the reform of the system and identified some new options for reform. Such recommendations are now well known in Bangladesh, however, as described above, the political will needs to be in place before there is any movement on reforming (or dismantling) the system. An appropriate institutional mechanism is required for reform and pressure needs to be put on government to push through reforms (possibly by donors and NGOs). It may also be time for the rationale for the procurement and distribution system to be revisited – is it value for money?
4. Accessibility of inputs. The research showed the important linkage between output and input markets. Access to inputs is currently being researched under the Poverty Elimination through Rice Research Assistance project (PETRRA), though this research is currently limited to seed, fertilizers and pesticides. The research findings also highlighted access to irrigation water as a problem area for farmers, with evidence of monopolies in water supply. Mechanisms to break market power and increase access to water by resource poor households could be explored further.

ANNEX 1

Paddy marketing and rural livelihoods in Bangladesh: Social anthropology perspectives

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EXECUTIVE SUMMARY

Introduction

This research was conducted under the wider project, 'Paddy Marketing and Rural Livelihoods in Bangladesh', funded by the Crop Post Harvest Programme. This report documents the findings of the social anthropological component of the project. During the research there were a number of themes and issues, which were referred to repeatedly by informants in all three study sites. In many ways these confirm what is already known and documented for paddy marketing by small and medium farmers in Bangladesh. There are a number of issues, which have, however, not been addressed in any detail in earlier studies. This study explored these issues in detail, using focus group discussions, individual case studies, and key informant interviews. The study used the "Sustainable Rural Livelihood" framework to analyse the findings from the fieldwork. In this section we provide a summary of the key findings of this research, as well as some recommendations for clearly targeted practical and policy oriented interventions.

Key findings

There is one over-riding driving force behind the paddy marketing activities of small farmers – the need for cash. This dictates who the paddy is sold to (market intermediaries able to pay cash at the time of sale) and when it is sold (immediately after harvest). Preference is therefore often given to sales of paddy to market intermediaries (*bapari* and *faria*) who purchase directly from villages, although the price at the farm gate is slightly lower than available at the *hut*. In any case, small farmers are deterred from selling paddy directly at the market (hut) due to high costs, even though prices are higher than can be obtained locally. There are a number of costs involved in the sale of paddy at the *hut*, including transport costs, market taxes and transaction costs.

Timely sales are critical for small farmers who have pressing cash needs (household expenditures and loan repayments). Their cash needs cover a range of things (household expenditure, school children's educational costs, medical treatments and for meeting the costs of weddings), but their most important cash need is for agricultural inputs for the next cropping season (principally irrigation water, fertiliser and land). Paddy marketing is therefore closely related to paddy production and the two activities cannot be considered in isolation.

Many smaller farmers are caught in a cycle of debt, in which paddy sales are required to repay loans, only for farmers to then become indebted again to pay for inputs to continue the cultivation of paddy. Many farmers take loans either from *mahajan* or NGOs to meet these input costs. To reduce the interest payments on these loans farmers will sell their paddy immediately after the harvest in the most convenient and timely way possible, when paddy prices are at their lowest.

Small farmers' access to both input and output markets is conditioned by their level of social capital. The social organisation of paddy production and marketing is characterised by important links between rich and poor categories of farmers, particularly in relation to land access, agricultural technologies and for acquiring loans. Agricultural technologies appear to be monopolised by the richer farmers. In some cases, even though medium sized farmers

could afford to purchase shallow tube wells, they do not do so due to threats from the rich farmers. In some cases these threats are of violence, in others they are threats to withdraw access to other technologies needed, for example, power tillers and mechanised threshing.

Selling at the government centres is not possible for most farmers. This is for a number of reasons, which include:

- Farmers need procurement cards, which many do not have;
- The government procurement centres are normally located too far away from most farming communities, increasing the costs of marketing through this channel;
- Even if farmers can reach the procurement centres, paddy sales are not guaranteed as sales to the centres are dominated by *bapari* and other traders in collaboration with government agents.

The above points combine to form the central finding of this study. Despite the apparent efficiency of paddy markets, and the numerous marketing channels, small farmers are, in fact, severely restricted in their choice of marketing outlet and in their choice of when to sell – in effect, they have little control over the disposal of their paddy. Paddy marketing is restricted by household cash demands, which is closely linked to input markets which are controlled by local elites. Smaller farmers are trapped in poverty through indebtedness and dependence upon the wealthy and influential households in their communities. Without the control over marketing decisions, these farmers are unable to access better prices for their paddy. Marketing must therefore be viewed in the context of households' livelihood strategies and their asset base, of which social capital plays a vital role.

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GLOSSARY

Acronyms

BAU	Bangladesh Agricultural University, Mymensingh, Bangladesh
BRAC	Bangladesh Rural Advancement Committee
BRI	Bangladesh Rice Research Institute, Joydebpur, Bangladesh
FGD	Focus Group Discussion
HYV	High Yielding Varieties
ICS	Individual Case Study
NRI	Natural Resources Institute, Chatham, United Kingdom
SRL	Sustainable Rural Livelihoods

Bengali terms

<i>adha-adhi</i>	share cropping arrangement (50:50)
<i>agrahayan</i>	mid November-mid December
<i>amun</i>	wet season
<i>atti</i>	weight unit, 1 arri = 15 kg
<i>ashar</i>	mid June-mid July
<i>arsheen</i>	mid September-mid October
<i>aush</i>	cropping season (overlapping with <i>amun</i>)
<i>baishak</i>	mid April-mid May
<i>bandhaaki</i>	mortgaging
<i>bapari</i>	large scale trader
<i>bari</i>	cluster of households
<i>bazar</i>	permanent market
<i>beel</i>	inland lake
<i>bigha</i>	area unit, one bigha = 36 decimals
<i>borga</i>	sharecropping
<i>boro</i>	dry season
<i>borolok/dhoni</i>	rich (farmer)
<i>chatal</i>	mill
<i>chaitra</i>	mid March-mid April
<i>ezara</i>	hut tax
<i>falgun</i>	mid February-mid March
<i>faria</i>	small scale trader
<i>gola</i>	traditional storage container made of bamboo, cow dung and mud
<i>goanda</i>	area unit, 1 goanda = 4 decimals
<i>golami</i>	slavery
<i>ghush</i>	bribe
<i>gorib</i>	poor (farmer)
<i>pattani</i>	land lease
<i>hul</i>	area unit
<i>haor</i>	saucer shaped lowland area prone to flooding
<i>hut</i>	non-permanent market (once or twice per week)
<i>jaishtha</i>	mid May-mid June
<i>kani</i>	area unit, 1 kani = 120 decimals
<i>kare</i>	area unit, 1 kare = 30 decimals

<i>kartik</i>	mid October-mid November
<i>magh</i>	mid January-mid February
<i>mahajan</i>	large landlord
<i>maund</i>	weight unit, 1 maund = 37.5 kilograms
<i>mastan</i>	local “muscle men”
<i>mazari/modom</i>	middle (farmer)
<i>motka</i>	storage structure
<i>para</i>	part of a village
<i>poush</i>	mid December-mid January
<i>romjama</i>	land renting arrangement in Shunamganj for a year
<i>shomithi</i>	organisation, association, NGO
<i>sraban</i>	mid July-mid August
<i>thana</i>	local government administrative division
<i>tufun</i>	Storm, Cyclone
<i>tola</i>	payment for use of market (unofficial, paid in kind to sweepers etc.)
<i>vadra</i>	mid August-mid September

Area units

1 kare = 30 decimals
 1 goanda = 4 decimals
 1 kani = 120 decimals
 1 bigha = 36 decimals
 1 hul = 12 bigha

Weight units

1 arri = 15 kg
 1 maund = 37.5 kilograms

1 OBJECTIVES, METHODOLOGY AND INTRODUCTION TO THE RESEARCH SITES

1.1 Objectives of the anthropological component

The major objectives of the anthropological component of the research were :

- To explore the different aspects of social organisation in the production and marketing of paddy.
- To explore “social capital” issues, particularly dependency relationships at the village level.
- To establish the nature and extent of these relations, and in particular with respect to how they provide both opportunities for and constraints to accessing paddy markets.

The research was carried out in two stages. The first phase was of a broader character to identify key issues, while the second phase went into more detail to explain these issues. Specifically, the first phase of the fieldwork aimed at:

- Identifying the participants involved in farmers’ paddy market interactions.
- Exploring the ways in which farmers access paddy markets.
- Exploring the various ways in which paddy market relations operate in the context of broader livelihood strategies and options.
- Identifying researchable constraints for detailed follow up research.
- Initiating the collection of case study material in order to select a small number of farmers for further case studies.

The second phase of the fieldwork aimed at:

- Filling gaps in knowledge identified during the first phase.
- Exploring some issues arising from the first phase in more depth, using individual case studies.
- Exploring institutional issues related to paddy marketing and credit in the study areas and identifying possible intervention options.

1.2 Methodology

The study was carried out in three districts of Bangladesh that were chosen to reflect the diversity of agro-ecological and socio-economic conditions: Bogra, Feni and Shunamganj. A random sampling technique was used to identify villages and farmers in each district. Twenty farmers from two villages in each of these districts were selected for a questionnaire survey on post harvest activities. Farmers from these lists were identified for inclusion in the anthropological study, which was carried out by a three-person team, including the Bangladeshi social anthropologist consultant and two assistants. In each district, except Feni, two village sites were identified for the anthropological component of the project. In Feni only one site was selected due to logistical problems of access, but mainly because of problems of personal security experienced by research staff.

During the first phase of the study, the Bangladeshi anthropologists used standard rapid anthropological fieldwork techniques including the use of simple PRA exercises, such as

ranking and using diagrams, in order to identify actors and transactions in the paddy market. Focus Group Discussions (FGD) were held with a range of villagers in the study sites. For each focus group discussion the number of participants was limited to 15-20. A checklist of themes was drawn up for each discussion, following a similar format. The researchers followed this format, but allowed the context of the discussions and the concerns of respondents to guide the discussions. The thematic checklist included the following issues:

- History of paddy cultivation in each area and the introduction of HYV
- General questions relating to organisation of agricultural production
- Institutional arrangements of paddy production, including: credit, access to land, labour arrangements, transport costs, storage and processing
- The nature of dependency relationships for the production and marketing of paddy
- Paddy sales and marketing networks

During the second phase, case studies of individual paddy producing households were carried out in two selected areas, Bogra and Shunamganj. These two research sites offered good opportunities for comparison, as they have distinctive agro-ecological, socio-economic and cultural differences. Case studies were done in one of the two villages per district included in phase one. Five households were selected in each village from among the study households in phase one for more detailed discussions, resulting in a total of 10 case studies. The households were selected based on their representativeness for specific livelihood strategies identified in phase one (depending on farm size, income sources and relative importance of paddy among these sources, and religion). In Feni, no further fieldwork was done during phase two because of the prevailing security situation.

In addition to interviews with paddy producers, the team also carried out checklist-guided interviews with local NGOs operating in the study areas. The aim was to find out their perceptions of farmers' marketing constraints, and their projects and programmes in the fields of finance and credit.

The information collected during the fieldwork phase was analysed by making use of the “Sustainable Rural Livelihoods” framework, which is explained in section 2.1.

1.3 Basic characteristics of the study areas

1.3.1 Natural environment and infrastructure

The available resources and the ways in which these are exploited in an economy are of primary importance in determining what people can do for their livelihoods. Before addressing the interaction of middle and small farmers with paddy markets, this section describes the physical environment and economy of the three study areas Feni, Bogra and Shunamganj districts of Bangladesh.

The Feni study area is located in the disaster-prone coastal area. The Shunamganj study area covers the low land floodplains (low-lying lands, which are shaped as saucers, are known as ‘haor’), which are heavily flooded for five to six months a year. The Bogra study area is one of the major agricultural surplus areas of Bangladesh, which consists of relatively high land that is free from the threat of serious flooding.

Infrastructure in all three areas is relatively good. However, during the rainy season, road conditions disrupt linkages with the closest growth centres in some areas of Feni and Shunamganj. Even in Bogra road communication can become difficult at times. In Bogra, Feni and Shunamganj almost all the villages have electricity, which means that they are relatively more influenced by mass media, such as television and radio which potentially gives them better access to agricultural and market information. Due to the availability of electricity, all three areas have a number of rice mills. They also have the option to pump water from shallow tube wells for irrigation, using electric pump sets.

1.3.2 Role of non-agricultural activities

Agricultural activities in Feni and Shunamganj, and to a lesser extent in Bogra, are afflicted by natural disasters, especially floods. In order to survive, non-agricultural activities have expanded (see section 1.3.2 for the range of off-farm activities farmers are involved in).

People, especially from the lowest classes, find it essential to engage themselves in different types of non-agricultural occupations at different times of the year. Some occupations require migration within and outside the districts and some are practised locally. Due to the development of the road communication in Feni and Shunamganj, labour migration to the adjacent districts has become a common phenomenon throughout the whole area. Only in Bogra is there little need to migrate out of the area, because everyone can spend a minimum of four to five months each year cultivating paddy and potato (potato is the second most common crop in Bogra).

Seasonal labour is a common phenomenon in Feni and Shunamganj. During the harvesting season, labourers may get work within the areas, because farmers need to finish the harvest within a very limited period time. The harvest season is when demand for labour peaks. After the harvest, wages and opportunities of getting work fall drastically in Feni and Shunamganj, and, to a lesser extent, in Bogra. Until the next agricultural peak period (apart from in Bogra), villagers depend on off-farm earnings. Such is the case from June to September and again from February to April. During this period, many landless and land poor men migrate elsewhere.

The major income of the villagers interviewed in Bogra and Shunamganj comes from the agricultural sector. "Business" is the leading occupation in Feni (with agriculture only ranking third), as a result of the high risk attached to agricultural production. Apart from agriculture, people are involved in rickshaw driving, petty trade, construction work, handicraft making, and cross border smuggling (only in Feni). In all three study areas, men work as non-agricultural daily labourers. Another important occupation is fishing, which is one of the major economic activities in Shunamganj and, to a lesser extent, in Feni and Bogra.

1.3.3 Access to land

In all three areas, farmers from all classes have access to farmland, even though in Feni and in Shunamganj not all the small and middle farmers have land of their own. Farmers either go for sharecropping or lease in other farmers' land. Basically there are two types of leasing arrangement: leasing land for a year, or for an unspecified period of time. In Feni and in Shunamganj the risk attached to agriculture is very high, because they are disaster-prone, and more or less every year they have floods, cyclones or drought. For this reason, farmers like to

lower their risks by leasing out their land to others or to go for sharecropping, which allows middle and small farmers to get access to land for cultivation (see also sub-section “Land” in section 2.2.6)

The socio-political context of Feni is different from Bogra and Shunamganj, because of localised security problems and political unrest. In Feni, localised political violence and the generally poor security situation (frequent theft, muggings etc.) have led to a number of killings and beatings. There are many disputes over land, with land being gained and lost from changes in river courses and changes in the coastline. These areas (*char*) are being hotly contested since land is considered to be the most valuable asset for villages and is often subject to competing claims over ownership. There is, therefore, a lack of clarity with respect to land boundary definitions. (This has exasperated political tensions and makes it somewhat unsafe for unknown and inquisitive Bangladeshi (particularly male) researchers to move around freely – fieldwork ceased in Feni after phase one due to an escalation in violence)

According to local sources, most of the land in Shunamganj and Feni belonged to Hindu landlords before the creation of Pakistan in 1947, and Hindus ruled these areas. This is not the case in Bogra. Throughout the fifties, the most wealthy and educated Hindus left for India, selling, donating or just leaving their land behind. Poor Hindus, who often belonged to the low castes, remained in the areas. The departure of the wealthy Hindus left a void, which in Feni was rapidly filled by a few Muslim families within the villages and by rich Muslim families from outside villages. Today, these families hold political and economic power. The highly hierarchical structure of the rural society remains, even though no single landowner possesses as much land as half a village, as was the case in the past.

1.3.4 Agricultural production and food availability

Rice is the most important food in the Bangladeshi diet. The local economy in Bogra and Shunamganj is based on rice cultivation; it is the main source of food and employment. The availability of food is associated with cropping patterns. Clearly, where there are more cropping seasons each year, periods of scarcity are less. According to the local people, the most difficult months are those which precede the main harvest. Almost everywhere these are *Falgun* and *Chaitra* (mid-February to mid-April). Apart from farmers in Bogra, people experience the month of *Kartik* as a period of hardship. For the landless, who are unable to accumulate rice from any of the harvests, hardship starts immediately after their employment opportunity ceases. In Feni and Shunamganj the whole monsoon is a difficult period for the poorest, unless they migrate out as labourers.

The introduction of High Yielding Varieties of rice (HYV) and irrigation facilities in all three areas has resulted in important changes in the study areas. It started in the mid-seventies, but intensified in the eighties. In the past, little land in Shunamganj was cultivated during the dry season, yielding low returns. Irrigation facilities and intensive cultivation of the *haor* have increased paddy yields and the value of the land. Similarly, farmers in Feni can now grow both *boro* and *amun* crops. However, due to water salinity, Feni remains a marginally area of production. In the past, farmers in Bogra used to cultivate two crops, but yields were low. After the introduction of HYV packages in the study area, Bogra is now one of the surplus producing areas in Bangladesh. This has brought many changes in social and economic terms, which are analysed in Chapter 2 of this report.

1.3.5 Credit Market

In the months of *Push* and *Magh* (mid-December to mid-January), when fields are prepared for the HYV *boro* crop, farmers need large amounts of cash to pay for labour, fertiliser and irrigation water. It is estimated that approximately 4000 to 4500 taka is needed to cultivate one *bigha* of land. This is more or less same in all three areas. Since the post-liberation years, most farmers borrow heavily during this period, often at a high interest rate – around 20% to 50% for the duration of the *boro* cultivation (3-4 months).

Farmers in Feni generally pay the same as in Bogra, but in the village Sofarpur the situation is somewhat different. Rich men from that village prefer to lend money at low interest rates to those farmers who have very little land, and when these farmers fail to return the money within due time, the rich farmers put pressure on them to sell their land to them.

1.3.6 Paddy and Rice Markets

The market is a very important institution in Bangladesh. Irrespective of class, all people are highly dependent on the local market to fulfil their daily needs and also to sell their products. In Feni and Bogra there are two big local markets (*huts*) near the study villages, whilst in Shunamganj study villages the local *huts* are comparatively small and relatively isolated.

2 ANALYSIS OF FINDINGS, USING THE SUSTAINABLE RURAL LIVELIHOODS FRAMEWORK

2.1 Introduction / Background: Sustainable rural livelihoods

This study uses the sustainable rural livelihood framework to analyse the anthropological information obtained from the fieldwork. The SRL framework starts with an assessment of people's strength and opportunities by focusing on the assets available to them. According to Carney¹, people draw upon five different types of assets to build their livelihoods. These are:

1. **Natural Capital.** The natural resource stocks from which resource flows useful for livelihoods are derived, e.g. land, water, wildlife, bio-diversity, environmental resources. In the context of this study, land and water (in terms of quantity, quality, and access to them) are the most important natural resources used by farmers.

2. **Social Capital.** The social resources (networks, membership of groups, relationships of trust, access to wider institutions of society) upon which people draw in pursuit of livelihoods. The section "Social capital: what it is and what it does" (page 19) explains in more detail the relevance of social capital for this study.

3. **Human Capital.** The skills, knowledge, ability to labour and good health important to the ability to pursue different livelihood strategies. Paddy farmers of Bangladesh have a range of skills and experience that enable them to produce paddy, as well as to follow other livelihood strategies for income generation (such as fishing, trading, barbering, etc.).

4. **Physical Capital.** The basic infrastructure (transport, shelter, water, energy and communications) and the production equipment and means which enable people to pursue different livelihood strategies. For paddy producers in Bangladesh, such capital consists i.a. of production inputs, as well as storage and processing facilities.

5. **Financial Capital.** The financial resources which are available to people (whether savings, supplies of credit, or regular remittances or pensions) and which provide them with different livelihood options. In the context of this study, access to credit is of particular importance, as it is a key determinant of farmers' marketing strategy.

Farmers use these assets in their livelihood strategies to achieve livelihood outcomes. These outcomes vary from household to household, or even within a household. While a woman might aim at having enough food to feed her children, a man might aim at saving enough money to purchase a radio or a bicycle.

The livelihood strategy used by an individual or a household is determined by the assets, the desired livelihood outcome, and a range of external factors summarised in the framework as "transforming structures and processes". These include the vulnerability context (trends, shocks, and local cultural practices which affect livelihoods), the structures (organisations, government institutions, private sector, etc.) and the processes (policies, laws, incentives) which define people's livelihood options. Marketing strategies of farmers are part of their

¹ Carney, D., ed. (1998) *Sustainable Rural Livelihoods - What contributions can we make?* Papers presented at the Department for International Development's Natural Resources Advisors' Conference, July 1998. London: DFID

overall livelihood strategies and are, like all livelihood strategies, dependent on the asset base and external factors generally beyond the control of the individual.

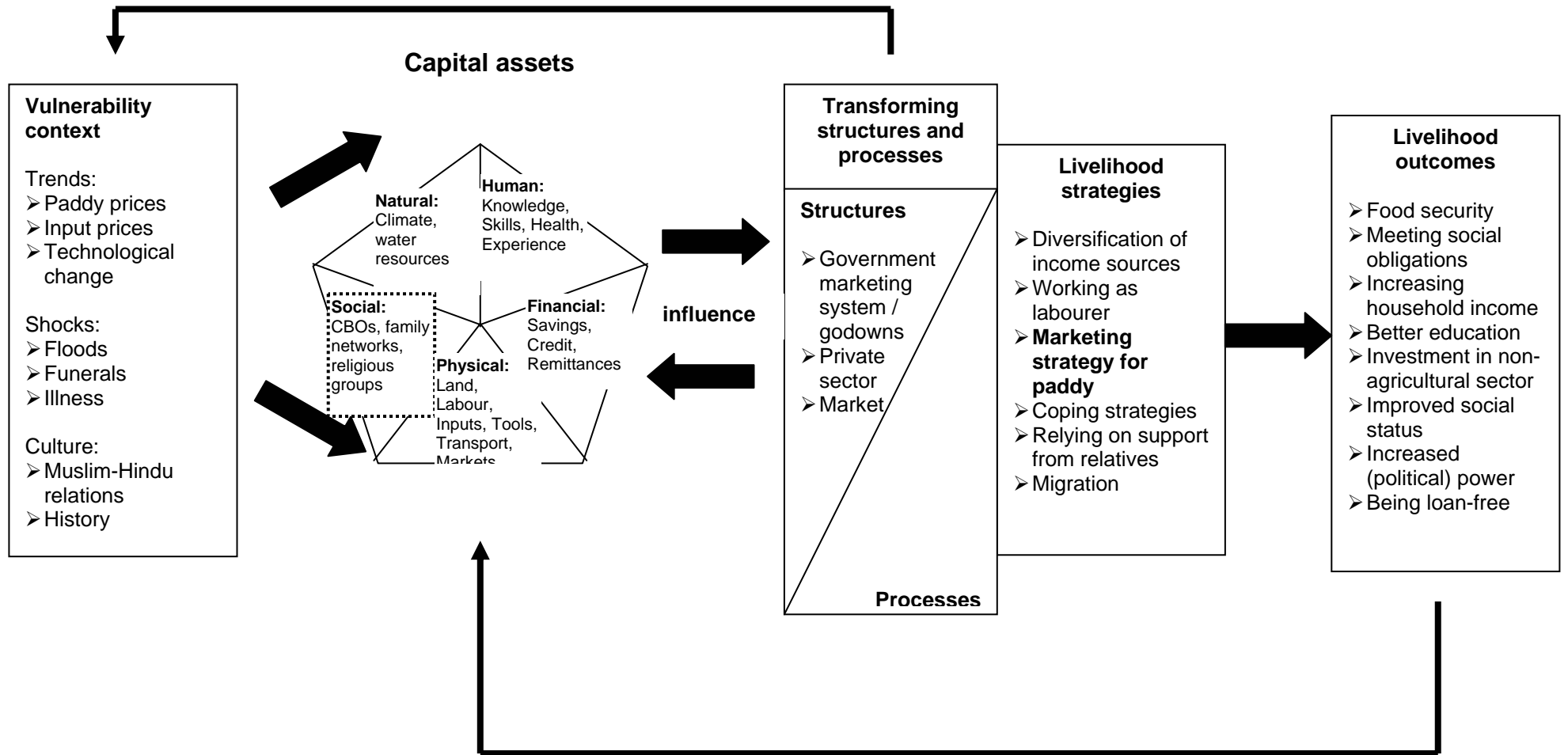
Figure 1 shows how the SRL framework can be used to analyse the key issues of this study. The different elements of the SRL framework are used in the subsequent sections to structure the findings of this study. Because of the interrelationship between assets-strategies-outcomes-external factors, a certain amount of repetition could not be avoided. In fact farmers' own categorisation criteria reflect these linkages: FGD participants in Sofarpur used a combination of assets, achievement of livelihood outcomes, and livelihood strategies to classify farmers into four categories (see Table 1).

Table 1 Classification of farmers in Sofarpur village

Category	Criteria
Poor	Those who work as daily labourers and don't own any land. They do not operate other peoples' land through sharecropping arrangements, because they do not have the ability to pay for agricultural inputs. They have chronic food deficit in their family.
Small farmers	Can run their family, i.e. have enough rice for 4-5 months, but need to take loans for household consumption. They work for others as agricultural labourers, especially if they don't have any other source of income / business.
Middle	Don't have surplus, but don't need to buy paddy from the market. They don't need to take loans, but can sometimes have to work as daily labourers.
Rich	Don't need to buy a single grain of rice, have surplus and can sell paddy in the market. Never work as daily labourers. Often have a high social status.

Source: FGD Sofarpur.

Figure 1 Sustainable rural livelihoods and paddy marketing: Framework



2.2 Factors determining paddy producers' marketing strategy

2.2.1 Livelihood outcomes of paddy producers in the study areas

From the focus group discussions and individual interviews it became clear that farmers are pursuing a number of livelihood outcomes. These goals can at times be in conflict with each other, because they compete for the limited resources available to the farmer. For example, while a farmer's desired livelihood outcome might be to pay off his debt to a moneylender, he might also want to provide his family with sufficient food and help his brother to marry off his daughter. He won't be able to achieve all three-livelihood outcomes because of the limited assets available to him.

As to be expected, there is a marked difference between the goals of the poorest farmers and those of the better off. Landless people's and poor farmers' biggest concern is food security. The aim is to have enough rice to provide for the basic food requirements of the family, either by producing paddy, or by earning enough income to purchase rice, or by bartering rice or paddy for labour. Many of the poor families in the study area fail to attain this goal and hunger is a frequent feature in their lives, particularly in times of natural calamities (such as floods or cyclones).

As income levels increase, farmers' desired livelihood outcomes become more ambitious. Some of the better-off farmers in the study area have a fairly high living standard and are aiming at increasing their asset base by investing in more or better physical capital (e.g. means of transport), human capital (better education for their children, a better - more balanced - more diversified diet) and social capital (political influence or community leadership). Whether or not a particular farm household (or part of a farm household) achieves its livelihood outcome depends on whether or not it has the assets required to follow an appropriate livelihood strategy. It also depends on a number of external factors, such as policies, macro-economic developments, and natural calamities (see Section 2.2.7).

Box 1 Livelihood outcome from a rich farmer

FGD Sofarpur: **Shamsul Haque Company**

“Company is the richest farmer in Sofarpur village. His main occupation is to rent out the trucks and to work as a driver. He is earning a lot from the transport sector and with this money he is buying land in the village. He has no sons who can cultivate his land, and therefore he is leasing out most of his land and has also given some land for sharecropping. Through these arrangements he is expanding his social network in the village and also outside the village.”

2.2.2 Livelihood strategies of paddy producers in the study areas

In order to understand farmers' marketing strategies, one needs to look at the context of their overall livelihood strategy and the livelihood outcome they aim to achieve. Farmers' choice of when and to whom to sell their paddy depends not only on their asset base, but also on their overall livelihood strategy. The following sections analyse livelihood strategies found in the study areas, i.e., the activities undertaken by farmers in order to make the best use of the assets available to them to achieve their desired livelihood outcome.

Sources of income and income diversification

Paddy producers in Bangladesh generally rely on a variety of income sources for their livelihood. This is partly due to the fact that paddy production alone is not sufficient to provide a family with enough food and income to survive, especially for farmers with small areas of land and in areas which experience frequent floods. In addition to paddy production, most families are involved in other farm activities, notably vegetable cultivation, small-scale poultry rearing, as well as small-scale goat, and cattle production. Among the off-farm activities, cottage industries (net and mat weaving, pottery, etc.) are common, as well as different types of services. Income from business sectors varies according to the type and size of business. From off-farm activities like barbering, fishing or rickshaw pulling, they earn a minimum of taka 50 and a maximum of taka 150 per day in Bogra. Apart from fishing, this is more or less the same for the other two areas. Fishing is one of the dominating occupations in Shunamganj and from that sector people earn a minimum of taka 150 and a maximum of taka 500 per day. In all the study areas income from cottage industries or handicrafts varies according to the type and amount of goods produced per month. Table 2 shows the estimated proportion of people involved in these activities, as well as a listing of the main types of enterprises in each sector.

Table 2 Proportion of villagers involved in various economic sectors/ activities [% of village population], and income from these activities (respondents' estimate)

Village	Sector	Agriculture	Business	Service	Labour	Fishing
Kolgram	% involved	81	12	5	2	
	Activities	Paddy & Potato cultivation	Paddy trading (<i>faria, bapari</i> , miller), Glossary shop & fishing(lease in the ponds in group)	Barbering, teaching, journalist, post officer etc.	Rickshaw pulling, Agricultural day labour, non-agricultural day labour etc.	
Kathahali	% involved	76	12	6	6	
	Activities	Paddy & Potato cultivation	Paddy trading (<i>faria, bapari</i> , miller), Glossary shop, fishing (lease in the ponds in group) & net weaving and selling	Carpentry, NGO worker, teaching, Government employees etc	Rickshaw pulling, Agricultural day labour, non-agricultural day labour etc.	
Sofarpur	% involved	12	50	25	13	
	Activities	Paddy cultivation & a small scale production of vegetable	Handicraft production & selling, small scale trading, carpentry, rent a car services(track and pickups)	Barbering, Carpentry, NGO worker, teaching, Government employees, international migrants etc.	Working as agricultural and non agricultural daily labourer	
Noahkali	% involved	38	6	25	19	12
	Activities	Paddy cultivation	Shops in the bazaar, hawker, Duck & Chicken rearing	NGO worker, teaching, Government employees, internal migrants etc	Daily labourer (agric and non-agric)	Pond fish rearing and river fishing

Source: Focus group discussions in the respective villages

The table shows that agriculture is the dominant economic activity in Kolgram, Kathahali, and to a lesser extent in Noahkali. However, the proportion of people engaged in these activities does not necessarily indicate their economic importance. Agriculture is frequently at a small-scale, subsistence level with people having to use off-farm income to meet the minimum food requirements of their families. The particularly low importance of agricultural activities in Sofarpur is because it is a marginal productive area, which can produce paddy only once a year.

Frequently, off-farm activities sustain families in times of need (especially the lean periods between two paddy harvests) by providing at least a minimum income and that be used to cover daily food needs (see Box 2). Farmers who have taken loans often use their off-farm income to repay these loans. A few farmers who have a regular off-farm income do not even need to take loans to pay for paddy production costs, because their income is sufficient to cover these costs. Sometimes income from paddy production is used to purchase the raw materials / inputs required for off-farm income generating activities.

Box 2 Use of off-farm income for daily needs

ICS Kathahali, Md. Taslim Uddin.

“During the needy period, at the time of **Chaitra-Baishak** months, Md Taslim Uddin works at a rich farmer's home as a daily labourer. Otherwise he works as a woodcutter. The work of woodcutting is profitable because he earns about 50-60 taka in a day excluding all the expenditures of consumption and transport etc. Besides this daily work, his wife weaves more than ten nets per year. The money earned from selling these nets is spent at the *hut* for our daily needs.”

ICC Sofarpur: Md. Abdul Haye

“Sometimes he works as a daily labourer and gets Tk.60-70 per day. During the off-peak period he runs a small business and earns about Tk.2000 per month. He covers the other expenses of his family from this income. So he is not only a farmer but also a small businessman.”

ICC Sofarpur: Nepal Chandra Nath

“He keeps a grocery and basically provides for his family on the income from the grocery.”

ICC Sofarpur: Nepal Chandra Nath

“His wife makes handicrafts in her free time and the income is used for herself and for family needs.”

ICC Sofarpur: Imam Uddin

“At harvest time he sells about 5-6 *atti* paddy and gets 500-600 taka. Using this money he buys leaves to make mats and sells them in the local market. He can earn about 1000 taka this way.”

ICC Sofarpur: Krishna Lal Shutrathar

“Besides being a farmer he is also a carpenter. He maintains his family with the earnings from this job.”

Opportunity costs of labour (in this case the farmers' time required for transporting and selling paddy at the *hut*) can influence farmers' marketing strategy (see Box 3). Other important factors are the distance from the market, transport availability, and whether or not cash is required immediately. See section 2.2.4 for more details.

Box 3 Impact of other income sources on marketing strategy

ICS Kolgram, Amulla Chandra Shill

"If he has any surplus of paddy, after providing for the needs of his family, he sells it to a *faria* at home. Selling at the *hut* involves extra expenses and is time-consuming. He prefers to sell at the farm gate, so that he can spend his time working as a barber instead of going to sell the paddy in the *hut*. He earns about 60-70 taka per day by barbering. He may get 20/25 taka more by selling his paddy in the *hut*, but he can earn more money barbering."

ICS Kolgram, Shudir Chandramali

"He is a fisherman and also a small farmer. He can earn minimum 50 taka and maximum 100 taka per day, so taking paddy to the hut to get 20-25 taka more is actually an economic loss for Shudir. Last boro season his total production was 12 *maund*. He sold the total amount right after harvest from his home to a *bapari* for 200 taka per *maund*."

FGD Sofarpur, Samsul Haque Company

"He is a truck driver and he hardly stays at home. He said that if he goes to the hut to sell his paddy, he needs to take a day off from his other business, because he has no sons who can take the paddy to the hut. He is earning lot more from transport sector and as a driver in a day he earns a minimum of 1000 taka. So he never sells his paddy to the hut, rather he calls the *bapari* at his home and they take his paddy from home at a relatively low price."

Cropping pattern and farming strategy

Farmers' agricultural strategies and choice of cropping pattern are highly restricted by the agro-ecological conditions in the study areas. In Kolgram and Kathahali, farmers produce three crops in a year, two of which are paddy and the others, include potatoes. *Amun* and boro paddy are normally produced. The farmers of Kolgram village generally cultivate at least one *bigha* of land, even if they need to take it under lease. Of all the villages studied, Kolgram is the one with most agricultural activities.

Due to flooding, in most cases only one crop is cultivated in Noahkali and Sofarpur, but in the high lying parts of Noahkali two crops per year are grown. HYV boro is the main crop, planted during the months of *Poush* and *Magh* (mid December to mid February) and harvested during the month of *Baishak* (mid May to mid June). During the winter (*rabi*), non-rice crops are planted in low quantities, largely for domestic consumption.

The choice of cropping pattern is restricted by financial and physical resources available to farmers (see section 2.2.6). The production costs for boro paddy and there is evidence of the sub-optimal use of resources such as irrigation water and fertiliser due to financial constraints. For example some poor farmers did not have enough financial resources so in many cases they were unable to irrigate the land at the right time or even apply fertiliser at the right time. Due to that reason their productivity suffered. Farmers are aware of the amount of inputs required to achieve optimum yields, but are often unable to afford these inputs. This results in a vicious cycle: the low use of inputs results in lower yields, which means less paddy available for marketing, which again reduces the amount of income available for investment in inputs in the subsequent season.

Box 4 Choice of cropping pattern as a function of financial capital

ICC Sofarpur: Imam Uddin

“Sometimes he cultivates Haji Ruhul Amin’s land, but he was not able to carry on doing this since Haji only allowed him to cultivate boro paddy. This was not profitable because of the high production costs of boro paddy. He got 50 ‘*arri*’ of paddy per year (1 *arri* = 15 kg.) and this was not enough to feed his family.”

The costs of production can be high. In both of the villages in Bogra land leasing rate per year is 110 taka per decimal of land. Irrigation costs per *bigha* land is 360 taka and cultivation costs per *bigha* for 100 taka for boro paddy and 200 taka for *amun* paddy. Farmers usually keep seeds for the next cultivation from their own production and only occasionally buy new varieties from the market. The prices of seeds depend on the variety, but ranges between 350 taka to 450 taka per *maund*. In all three areas farmers buy fertilisers and pesticides from the *hut*, the prices of which vary from year to year. Farmers generally need to pay 250 to 300 taka (*per bigha*) for labour to harvest paddy in the peak season and to provide food three times a day to labourers.

The increased costs of boro production are justified by the large increases in productivity. During the *boro* season in Bogra before 1972 (before the introduction of HYV) farmers used to produce 6 to 8 *maund* of paddy from 1 *bigha* of land and now in the same land they are producing a minimum of 15 *maund* and a maximum of 25 *maund* of paddy. In Feni, farmers started cultivating HYV from 1986 and are now producing a maximum of 14 to 16 *maund* of paddy per *bigha*, whereas before 1986 they produced 4 to 6 *maund* of paddy. In Shunamganj before 1980 they used to produce 5 to 6 *maund* of paddy in 1 *bigha* land and now in the same land they are producing 15 to 20 *maund* paddy. In Bogra and Feni over last 20 years production of paddy per *bigha* during *amun* season has been increased from 3 to 5 *maund* to 12 to 15 *maund* per *bigha*.

2.2.3 Marketing options for small and medium scale paddy producers

Farmers in the study areas generally have a choice between different marketing options. Which of these options they make use of depends on their asset base, their desired livelihood outcome, their overall livelihood strategy, and external factors such as distance and transport infrastructure. These linkages will be explored in the next section.

The main marketing options for paddy producers in Bangladesh are as follows:

1. Neighbours. Farmers may sell to their neighbours, if these neighbours have enough money. Paddy is also sold or given to relatives or neighbours in need (who have run out of paddy) on a credit basis, to be returned in paddy or cash.

2. *Bakri bhadha* / female petty traders. These are women who traditionally travel from village to village to purchase small quantities of paddy, which they mill themselves and sell as rice. However, their number is decreasing because of the introduction of new milling technologies which has made traditionally milled rice unmarketable, and also because of better market access for farmers. These traders are still operating in Kolgram village, Sofarpur village and in Kumirial village. The price they pay is a minimum of 2 taka less than the farm gate price paid by *faria* in the same village.

3. *Faria*. These are small-scale traders who buy relatively small quantities of paddy directly at the farm-gate. Usually their only means of transport is a bicycle (with or without a trailer). *Faria* either sell the paddy to the hut, or to the miller, or to larger traders (*bapari*). *Faria* often purchase paddy from their own village of residence or from neighbouring villages - due to the means of transport used, their area of operation and the volume of paddy traded are small.

4. *Bapari*. These are larger scale traders that generally use motorised transport (lorries and cargo boats) to buy paddy at the farm-gate or from a *faria*. The amount of paddy handled by a *bapari* depends on the amount of capital available to them. They sell to millers, to the *hut*, or to the *godowns*. There are different types of *bapari*: some of them are local people who buy paddy from their area of residence. Other *bapari* reside in the urban areas and at times travel large distances to purchase paddy.

Both *faria* and *bapari* tend to visit villages frequently immediately after the harvest. Their visits then become less frequent as paddy supplies decrease, and three months after the harvest hardly any traders can be found in the villages.

5. *Chatal* / Miller. Millers buy paddy from farmers, *faria* and *bapari*, and from the *hut*. Generally farmers do not like to sell to the miller, because they might not be paid immediately. Since payments are postponed, farmers may spend days chasing their payment. Millers generally prefer to buy larger quantities of paddy; in fact they often refuse to buy small quantities from farmers (Kolgram). *Bapari* and millers often have an informal arrangement whereby they fix prices in advance. This leaves little or no bargaining power to the farmers.

6. *Hut*. This is the local market, where agricultural and other products are sold and bought. Generally each cluster of villages has a *hut*. Farmers and small *faria* sell to the *hut*, where millers and *bapari* purchase their paddy. Farmers can sell and buy any quantity of paddy at the hut. Enquiries in Dhaper *hut* showed that a large number of farmers sell paddy in small quantities there, usually one to four *maund*. It is the *bapari* and the *chatal* who purchase most of these smaller quantities. The distance to the *hut* is an important decision making criterion for farmers, as it determines the costs of marketing. Farmers have to pay subscription fees / hut tax to the leaseholder of the *hut*, and pay for sweepers and *tola* when selling at the hut, which can deter poor farmers with small amounts of paddy from choosing this option. But in Sofarpur, Feni the situation is somewhat different as farmers only have to pay *ezara* (*hut* tax) - the buyer pays all the other taxes. The price for paddy at the hut during the study period ranged from 220 to 250 taka per maund, which is well below the government procurement rate of 330 taka, but 20 to 25 taka above the rate paid by *bapari* and *faria*. In Sofarpur the difference is only 5-7 taka, because the *hut* is close to the village and easy to reach.

7. *Godown* / Government warehouses. The government procurement system is meant to purchase paddy from farmers at a guaranteed price (currently 330 taka per maund). The paddy is stored and re-distributed via the government system (for food aid, food for work, and food supply during disasters / crises). There is plenty of evidence that small and medium producers are unable to sell paddy to the *godowns*, because *godown* managers are often themselves *bapari* or make deals with *bapari*. Paddy brought in by individual farmers is often turned away on the grounds that it does not meet the quality standards set, or that the quantity

is too small. *Godowns* prefer to buy several hundred *maund* at time, as this reduces the transaction time. Individual small and medium producers cannot supply such large quantities.

Farmers require a government procurement card to sell paddy at the *godown*; this card is obtainable from union parotid, but most farmers are not aware of these cards, and very few farmers have them. Because of all these constraints, most farmers in the study areas do not even attempt selling to the *godowns* anymore. Only the big farmers, *bapari* and *faria* can access the government *go-down* while ordinary farmers are left out.

Besides these marketing options, farmers can dispose of their paddy in many other ways. Paddy can be bartered for other resources (labour, household goods, clothes) or can be used to meet social obligations during festivals etc.

Box 5 Bapari

FGD Kumirial

“Farmers of Kumirial village sell their paddy in Noahkali *hut*, this *hut* is also larger than the Ganiganj hut. There are a large number of poor farmers in Kumirial village. We asked Lolita Ranjan how much land he has and how many *maund* paddy he produces, where and how he sells this paddy. The Lolita Ranjan said: “I have 6/7 *care* land properties (1 *care* = 30 decimals). I sell my paddy at my home to *bapari*. All of them come from outside of our village. None of them lives in this village. They carry paddy by large sized boat and each boat can carry about 200-300 *maund* paddy. Sometimes I also sell paddy in Noahkali hut. At home we get the price approximately 30/40 taka less per maund than in the *hut*, because *bapari* have to spend this amount of money on transport, otherwise they can't make a profit.”

2.2.4 Marketing strategy in relation to producers' overall livelihood strategy

If the choice of when and to whom to sell paddy was not related to other parts of a paddy producers' livelihood strategy, he or she could just sell to the financially most advantageous outlet at the time when prices are highest. Generally the prices paid for paddy increase from option 1 to 7 (see Section 2.2.3). However, the price paid at the market is not the only criteria for farmers. In pure financial terms, the net price received for paddy is a function of the amount paid by the purchaser minus all transportation and handling costs. As most farmers do not own any means of transport, costs can be substantial. In addition, producers with attractive off-farm incomes consider the opportunity costs of their time (see Box 3).

Farmers require cash at key periods during the cropping cycle. These cash needs severely limit farmers' choices of marketing strategy, in particular time of sales. The most commonly experienced cash needs observed in the study areas are as follows:

1. Cash for repaying loans (which in turn might have been used for any of the expenses below)
2. Cash for purchasing agricultural inputs (irrigation, land lease, seed, fertiliser, and tillage)
3. Cash for meeting daily household needs (mostly food consumption)
4. Cash for meeting regular expenses (instalments for loans, school fees etc.)
5. Cash for meeting unexpected expenses (medical and legal expenses, funerals, etc.)

The link between marketing strategy and cash requirements can be illustrated by numerous examples from the fieldwork. They show that the farmers' production volume and assets influence their marketing strategy. The more assets a paddy producer has, and the more he or she produces, the more options he or she has in terms of market outlet and timing of sale. Virtually all poor farmers have to sell their paddy right after harvesting in order to meet their cash requirements in terms of input needs and loan repayments. In the study areas, only a few large farmers were able to store more paddy than their family requires and sell it later on during the season when prices have gone up. The linkages between paddy marketing strategy and credit markets are explored in more detail in the section "Social capital and access to financial capital" below.

Box 6 Paddy sales to pay for cultivation costs

FGD Noakhali

"In Noakhali village there are no rich farmers, only small farmers. These farmers pay for their paddy cultivation cost by selling paddy; sometimes they also borrow money for this purpose. They sell the produced paddy to *bapari* and *faria* at the farm-gate, and sometimes they sell paddy to millers. *Bapari* and *faria* come from outside of Noakhali village, buy paddy from the farmers, and sell it to the millers or to the government *go-down*. For example, Mr. Kamal has sold 100 *maund* of paddy immediately after the harvest to provide for his family and to pay for cultivation expenses."

FGD Sofarpur

"The people of this region cannot depend on land alone because there are too many natural calamities - floods, cyclones, hailstorms and droughts are very common. So faced with this, the quantity of paddy we harvest is not sufficient to pay off our loans after meeting family needs. But as we borrow money for cultivation and for agricultural inputs, we sometimes don't even get the chance to think about our family's needs, we just have to sell the paddy right after the harvesting at a low rate. The price of paddy is Tk 210.00 per *maund* during the harvest season. During the harvest we have to sell the paddy instantly to pay the cost of irrigation and other loans to the moneylenders and other villagers."

Box 7 Paddy sales to pay creditors

FGD Kolgram:

"In order to pay debts incurred through acquiring inputs (water, fertiliser and tillage), poor farmers sell their paddy to *faria* at 15/20 taka less than the actual price in *hut*. This is because their creditors pressurise them to pay the debt and the quickest way to sell is at the farm gate to the *bapari*."

FGD Kumirial

"To repay our loans we have to sell paddy immediately after the harvest. Most of the farmers have no surplus to sell after meeting their family consumption needs. Those with any surplus would get a better price if they could delay rather than selling immediately. The price is 250 taka per *maund* in *hut* and 220 taka at home."

In order to meet the cash needs of the family (in particular emergency payments, such as medical fees), women often take small amounts of paddy from the family paddy store at a regular basis and store it separately. They often sell this paddy to female petty traders who come to their houses, and use the income from this to supplement the family income. Men are generally aware that this is happening, but keep quiet about it, because it benefits the whole family. During focus group discussions in Sofarpur, the women admitted to following this practice. Female petty traders buy paddy from the middle and small farmers' wives in cash, kind, or on credit. In most cases men do not know how much paddy their wives and other female household members take from the total paddy store before selling. The women commented that they cannot go to the *hut* themselves, and cannot give the paddy to their husbands to sell, as they have "stolen" it from them. They prefer to give the paddy to poor

neighbouring households and to poor female petty traders. Even though the price is lower than elsewhere, women prefer to sell this way, because they do not have direct access to the market. This type of paddy transaction is important in developing and maintaining the social network and mutual support system of the village. Even if the financial returns are attractive, farmers might choose to dispose of their paddy in a different way, because of social obligations, depth, and other constraints. These issues are explored in the next section.

Box 8 Women's paddy sales as part of the village support system

FGD in Sofarpur

"When we take paddy from the family store and sell it to petty traders or to poor neighbours, it is good for both the poor households and for us - we get the money at home, and we can hide the income from our husbands. We don't misuse the money; rather we help our husbands to run the family during crises. Sometimes, when our neighbouring poor households face an extreme food crisis, we also give them small amount of paddy/rice without any conditions. If I have a crisis at my home, I know very well that I will also need to seek help from them or from other low and middle class families. The other reason for doing this is that I am not able to give the poor household women any work at my home, so I help them in this way. The rich people also help the poor families. When they arrange a wedding for their daughter, the rich people give paddy and money as a contribution."

Small and medium producers tend to sell to the *hut* if it is nearby, as the *hut* offers them the best price (with the exception of the *godown*, which is generally inaccessible to farmers). Going to the *hut* also enables them to purchase household goods, to meet with other farmers, and to exchange news. According to a paddy buyer at Dhaper *hut*, the buyers decide the price of paddy before the *hut* day. That is true for other adjacent *hut*, too. Buyers said that they always look at their profits first, but they also consider the farmers' side, because their business depends on the farmers: "If farmers don't sell the paddy, then how will we continue our life?"

To summarise, farmers choice to sell at the *hut* or to *bapari / faria* largely depends on:

- ☞ *The need for cash.* Smaller farmers in particular have pressing demands for cash at the harvest time and will therefore only sell to those who can pay cash immediately.
- ☞ *Season.* Generally farmers in areas with a poor road network prefer to sell at the farm gate during the rainy season, because access to the *hut* is difficult. At the same time, the frequency with which traders visit the village decreases during the month after harvest, leaving no choice to farmers than to sell to the *hut*.
- ☞ *Infrastructure and distance from hut.* If the *hut* is far and roads poor, farmers are more likely to sell at the farm gate. However, the same factors might prevent traders from reaching the villages, which would force farmers to sell at the *hut*.
- ☞ *Alternative sources of income.* Farmers with lucrative off-farm income generally prefer to sell at the farm gate in order not to lose time by going to the market.
- ☞ *Amount of paddy to sell.* If the amount is very small, selling at the *hut* is not profitable because of the *hut* tax and other fees that the seller has to pay.
- ☞ *Other business at the hut.* Whenever a farmer has other business to do at the *hut*, he is likely to sell his paddy there as well, as it does not involve additional transport costs. Farmers frequently use the money from paddy sales to buy other household goods on the same day.

Box 9 Marketing paddy at the hut

FGD Sofarpur

At the hut you need to pay taxes to different people, so if you sell it to faria in your village can't you can save that money?

“No, apart from *ezara* (*hut* tax) we don't need to pay for anything. Because Feni is a marginal productive area and if farmers need to pay for every thing then they hardly have any paddy to sell (particularly small and middle farmers). The other payments are the buyers responsibility at the *hut*, not ours. *Faria* and other traders (buyers at *hut*) have to pay a subscription to the leaseholder of the *hut*, to the sweepers, and to the mosque committee. There are some women buyers who buy from the home (farm gate). They process this into rice and sell it on in local market or in *Mian's hut*. If the farmers sell paddy at the *hut* they get 10/15 taka more but they have to pay the leaseholder of the *hut* and give undue tax to the local *mastan* and they also need to pay the transport costs.”

ICC Sofarpur: Nepal Chandra Nath

“The paddy produced is sold in the village *hut* (market). Sometimes the professional buyers purchase the paddy from the farm gate/home. Paddy sold at home is bought for 210-220 taka while that sold in the village *hut* raises 220-225 taka. In village *hut* we have to pay subscriptions to the leaseholder of the *hut* and also to the mosque. In addition the rickshaw fare is to be paid and time is wasted. Despite these hindrances he sells the paddy in the village *hut* because he can get cash money and buy necessary goods for his family there and then.”

2.2.5 Resulting marketing strategies in the three study areas

While the above described factors of influence apply in all three study areas, the specific socio-economic, physical and cultural conditions in these areas lead to different overall patterns in the marketing strategies, which are shown in the diagrams below.

Bogra

In Bogra production is quite high, because of that almost all the farmers in the study villages sell paddy to a number of different traders who are available. Right after harvesting farmers from all classes sell the majority of their production at the *hut*. In some exceptional cases, farmers sell their entire paddy to the *faria* at the farm gate. This type of farmer is normally involved in other occupation and spending half a day in hut to sell the paddy is an economic loss for them as they can make more profit out of their second occupation rather getting 20-25 taka more from per/maund paddy. Large farmers and some middle farmers also sell their paddy to the miller.

Feni

In Feni relatively little paddy is sold, because the volume of production is low and farmers use most of their paddy for home consumption. Farmers mostly sell their paddy to the *faria* and *bapari* at farm gate, but due to good road communication they also sell paddy in the nearest hut too. Because farmers need to buy other necessary commodities from the hut, they may take a small amount of paddy with them and after selling the paddy buy other items for their family.

Shunamganj

Most farmers in Shunamganj sell their paddy at the farm gate, because there is no hut as such in the area. Only for three months paddy is being sold along the riverbank to traders and millers and also they have different types of seasonal traders who comes to their area in season and buy the paddy from farm gate.

2.2.6 Influence of asset base (in particular social capital) on marketing strategy

This section explores the influence of farmers' assets (in terms of social, human, physical and financial capital) on their marketing strategy. Water (for irrigation) and land (for paddy cultivation) have been included under physical capital rather than natural capital, because they are used as production inputs.

Social capital: what it is and what it does

According to Carnay, Social Capital are "the social resources (networks, membership of groups, relationships of trust, access to wider institutions of society) upon which people draw in pursuit of livelihoods". These resources are particularly important to small and medium scale paddy producers in Bangladesh, because sufficient and good quality social capital can partly substitute for the lack of other assets (especially physical and financial capital). Small farmers rely heavily on their social network to have access to means of production, credit, and employment. In the context of this study, the following types of social capital played a role in farmers' paddy marketing strategy:

- ☞ *Family relations.* Farmers rely in times of crisis on their relatives. Marrying into a well to do, socially prestigious family will also enhance the social status.
- ☞ *Neighbourhood.* Generally people from the same *bari* or part of the village support each other in times of need (especially if they are from the same socio-economic class, and unless they are in conflict over one or the other issue). It is common for neighbours to borrow small quantities of rice from each other (1-2 kg) for immediate consumption.
- ☞ *Dependency relations between rich and poor farmers.* Frequently large producers / business people depend on poor people for labour. In return they provide a social security network by assisting them in times of need (e.g. when their employee runs out of food or faces a crisis). These feudal-like relationships can be found throughout the study area.
- ☞ *Religious affiliation.* As Hindus are generally a minority in the study areas, they tend to support each other. Partly they are also interrelated by marriage.
- ☞ *Social networks through profession.* Some professions (e.g. barber, shopkeeper) enable people to interact with a wide range of people from different backgrounds and to build up a relationship of trust with them.
- ☞ *Membership in certain (government or non-governmental) organisations.* Certain organisations have a high social prestige and being a member of them enhances substantially the social status of an individual. Examples from the study areas include the UP (Union Parotid), the bazaar committee, and others. Members of these organisations often support poor families in one way or another in order to maintain or strengthen their political and social influence.

Box 10 Family relations and access to resources

ICC Sofarpur: Imam Uddin

“Before 1992 he worked in Kaptai under a bamboo merchant and had to work in water all day long. Because of this he became severely ill, and so left the job. During his illness his elder sister bore all his family expenses. In 1998 all crops on his land were damaged because of hailstorms, then he worked as daily labour for others. In addition several times he borrowed money and paddy from relatives and others.”

FGD Noakhali

“In this village, co-operation among relatives plays a vital role. For example, Sher Ali is a poor farmer and married to a rich farmer’s daughter, but without the consent of the bride’s parents. Sher Ali does not get any work and any land to cultivate on sharecropping basis, because of the opposition of his rich and influential father-in-law. So he maintains his family by fishing. In contrast, Siddiq Ali Sha has married the daughter of a brother of a rich farmer. So he gets honour and work. He cultivates lands on the basis of sharecropping. Being a relative of a rich farmer, he is comparatively well off though he is a poor farmer. In Noakhali, cultivating the land often depends on the kinship networks.”

FGD Noakhali

"A villager named Siddiq Ali Sha who failed to harvest even one *maund* of paddy because of heavy rainfall and floods. He has also minor children who are not earning anything yet work. We asked the villagers how they could help him in this crisis. They replied that they would help Siddiq Shah by giving him bamboo to rebuild his house. There are no rich farmers in this village to help him by giving him food or work continuously. So Siddiq Shah will have to work anywhere to maintain his family.”

Box 11 Dependency relations between rich and poor farmers

FGD Kolgram:

"Small farmers such as Shudhir Chandra Mali maintain their family by working in a rich farmer’s home as labourers. In Kolgram, farmers only face a crisis for two months of the year. During that period, small and poor farmers depend mainly on richer farmers. They get jobs in their homes during the needy period. Poor farmers also borrow money and food from others during that period. They generally need to pay interest though. During the needy period small farmers prefer to buy rice at the price of Tk 15 (on a credit basis) from rich farmers rather than from the *bazaar* at the cost of Tk 12, since the rich farmers also help them in other ways by giving them work. Ammullah, for example, said that though he paid Tk 2 more to the rich farmers, he is still grateful to them, because they give him the rice on credit. He wouldn’t be able to buy rice with cash, since he has none during the lean period. So that rich man can save his family’s life.”

Box 12 Role of community based organisations

FGD Noakhali

"The women of the village who are widowed and have no mature sons who can earn money for them work in other people’s homes or receive relief from the Chairman and members of the union council."

Box 13 Changes in dependency relations over time

FGD Noahkali

"Since the farmers of our village are middle and small they do not have sufficient land to allow the landless or other farmers to cultivate their lands on share cropping basis. They only have a little land to maintain their family consumption and they can't help the landless farmers and poor people by giving any kind of support. In previous days during the British or Pakistani regimes people from poor families worked in rich farmers' homes generation after generation, but now this tradition is no more. Poor families are now involved in several types of jobs such as fishing, working in the mills etc. Some of them work in different places and towns. After all they have a sense of self-respect. Now the poor think why should he or his family members work as slaves at a rich farmer's home. Today, although they co-operate with each other during crises or natural disasters, they are not highly dependent on the middle or rich farmers as in previous days. Now they want to work but never to be dependent upon someone."

FGD Sofarpur

"Nature of dependant relations: In the past there was a system in the village whereby our parents used to work at rich peoples' homes, but they got very few benefits from doing this. This was called *golami* (or slavery). This system went on for generation after generation. Nowadays people are more depended on *shomithi* (organisations, NGOs) or on richer local farmers. One farmer said that the poor farmers are not entirely depended on rich men, because the rich farmers do not help the poorest. Rich people like the chairman like to help the other rich and middle farmers. This is because these farmers have enough money or a continuous source of earnings, so they are more capable of repaying loans with high interest.

Two of twelve participants said they borrow paddy or rice from your rich neighbour. The remaining 10 said that they don't borrow paddy or rice from the rich, unless they have a working relation with that particular family. Farmers said that that poor people help each other or get help from their relatives. The way farmers survive is to try and have a good relationship with people from their own class, so whenever they need food or cash they can borrow from them. Actually taking cash as a loan without any interest paid is very rare, but it really depends on the personal relationship involved."

Social and human capital are often interrelated. Those paddy producers, who have other skills, knowledge, and experiences, can more easily build up social capital.

Social capital and access to physical capital

Paddy farmers require a number of inputs for producing their crop. The most important inputs are:

- ☞ Land (both in terms of quality and quantity)
- ☞ Labour (mostly family labour, but seasonally also hired labour, even for some small farmers)
- ☞ Water (for irrigation - coming from shallow or deep tube wells, from channels, or naturally from the monsoon rains)
- ☞ Tillage (power tiller, bullocks and ploughs, or both)
- ☞ Seed (but most farmers keep their own seed for planting, especially for *boro* and *amun*)
- ☞ Fertiliser (mostly urea, bought in the local shop or market and applied in varying quantities, which are frequently below the recommended amounts for a particular soil type).
- ☞ Pesticides, herbicides, and any other chemicals.
- ☞ Threshing equipment (mostly diesel powered threshing machines)
- ☞ Drying space.
- ☞ Storage space and storage bags.

The following sections will explore the access to these inputs for small and medium paddy producers, and how this access depends on social capital.

Land

Farmers in the study areas cultivate between 33 to 180 decimal of land. Depending on the environmental and economic prevailing in the study areas, farmers used different farm sizes to classify farmers into groups. A large farmer in Feni could thus be a small farmer in Shunamganj, because in Feni farm sizes are generally smaller and agriculture plays a minor role. It should be noted that therefore categories of farm size do not correspond to categories of wealth. Someone might be a small farmer, but have other sources of income which allow him or her to purchase food and other household goods.

Table 3 shows the different farm size categories given by farmers in the study areas. In addition to farm size, people used other criteria to characterise a household in terms of wealth. These criteria are:

- ☞ Duration for which the paddy produced on the farmers land will last for the feeding of the family
- ☞ Other sources of income besides paddy production
- ☞ Social status / prestige

Table 3 Local farm size categories in the study villages

Size category		Choto Kolgram	Kathahali	Noahkali
Landless	% of farmers	20 %	20 %	50 %
	Characteristics	Most of them cultivate some land on lease or on a sharecropping basis; still they are poorest of the poor	Poorest landless	Poorest landless
Small farmers	% of farmers	50 %	55 %	29 %
	Characteristics	Less than 4 bigha land, but they are still poor	Less than 3 bigha land, poor	Less than 5 bigha land
Middle farmer	% of farmers	15 %	20 %	14 %
	Characteristics	4 - 7 or 8 bigha land	3 or 4 to 10 bigha land	
Middle rich farmer	% of farmers	8 %	3 %	5-24 bigha land
	Characteristics	8-20 bigha land	10-20 bigha land	
Rich farmer	% of farmers	2 %	2 %	7 %
	Characteristics	More than 20 bigha land	More than 20 bigha land	
				More than 24 bigha land

Source: FGD in the respective village

The table also shows that there is a substantial proportion of landless people and small farmers in all three villages. There are two systems through which these people can acquire access to land:

Share cropping (*borga*). Under this system, the landowner and the tenant will share both the production costs and the production outcome / harvest between themselves. It is practised only during boro season, when input costs are high. It allows spreading the risk of crop losses evenly between the landowner and the tenant. Under Bangladeshi law, for land that is sharecropped input costs (except seed, labour) should be shared equally between the landowner and the tenant. The harvest is then supposed to be divided into 3 portions (2 thirds to the tenant, 1 third to landlord.), but in all three areas in practice the crop is divided into

two. There are differences between *boro* and *amun* seasons in terms of these arrangements, as input costs are low in *amun*. The farmer will then bear all the input costs. In Shunamganj the arrangement is somewhat different. There the input cost in *amun* is higher than *boro* and *boro* season landowners do not share any cost with the sharecropper, but in *amun* landowner pay for the tillage.

Sharecropping arrangements vary between regions, depending on a number of factors such as farm size, economic status of farmers, costs of inputs, etc. Sharecropping is disappearing in areas like Bogra. However, in Feni sharecropping is still common practice. Because the risk attached to agriculture is so high large farmers like to share the production cost with others. People with insufficient family labour normally lease out land and go for sharecropping. In Kumirial, it is the middle farmers who allow the land-less or poor farmers to cultivate their lands on the basis of share cropping. Share cropping is mostly practised between *bari* neighbours and relatives. Access to land can be restricted for people with a poor social network (see Box 10). There are cases where landless people can successfully maintain their families on paddy produced from sharecropped land.

Box 14 Feeding a family on sharecropping

ICC Sofarpur: Md. Abdul Haye

“Md Abdul’s family consists of four sons and daughters and his wife who is a housewife. It should be noted that in this region a farmer who is able to produce the necessary food for his own family without any surplus is referred to as a middle class farmer. In this sense Abdul Haye is a middle class farmer, although Abdul has no land of his own. He cultivates other’s land on the basis of sharecropping. He cultivates approximately two ‘kani’ land every year (1 kani = 120 decimal). Because of the high costs of production he can not cultivate more than this. Most of the landowners do not give him scope to cultivate more land. The landowner on whose land he produces is his relative (cousin). The quantity of crops he gets is enough for his family consumption needs, and he also manages to sell some paddy for Tk. 6000.00-7000.00.”

Leasing (*pattani*). Under this system, the farmer pays a fixed rent to the landowner for an agreed period of time (generally one season or one year, depending on the contract). The lease is around 3000 to 3300 taka per bigha in Kolgram and Kathahali, or 100 - 110 taka for one decimal.

Just as for sharecropping arrangements, the leasing practices and rates vary from region to region, depending on socio-economic and agro-ecological factors. It is mostly the small farmers who lease in land from other landowners. Farmers generally lease from neighbours, relatives, or from farmers with whom they have a good relationship. It is quite common for people to both lease and sharecrop land, depending on the arrangements they can negotiate with the landowners. Several such cases were observed in Noakhali, Sofarpur and a very few cases were observed in both the villages in Bogra (see **Error! Reference source not found.**).

Box 15 Access to land in Noahkaligram

FGD Noahkali

“Access to land: The poor farmers of Noahkali village work hard. They cultivate lands on the basis of share cropping. They take lands through *pattani* from the rich farmers and also mortgage out their land to the rich farmers as well as to middle farmers and some they also lose land through ‘*bandhaaki*’. They cultivate the rich farmer’s lands on the basis of share cropping. Poor farmers borrow money from the rich farmers and *mahajan*”. The middle farmers of this village used to cultivate their lands and call labour from both in and outside of the village. Middle farmers take loans from the *mahajan* and rich farmers. They cultivate the poor farmers’ lands on the basis of share cropping, since the poor farmers are not able to afford cost of cultivation. The middle farmers of the Noahkali village keep their land ‘*pattani*’ or sell it to the rich farmers. They have to borrow money to maintain the cultivation cost.

Under sharecropping arrangements the landowners contributes nothing to *boro* cultivation (water, fertiliser, insecticides etc.), but they have a share of half of the produced paddy. The cultivator’s share is the remaining half of paddy. In *amun* cultivation landowners share the cost of tillage, but paddy is shared equally by both. In this village there is a tradition named ‘*romjama*’. The term ‘*romjama*’ means a manner in which a farmer allows to cultivate his 1 *care* land for a year at the expense of five hundred taka.”

“Finally, we can say kinship is an influencing factor in Noahkali village. Sometimes cultivating the land depends on the kinship networks. Rich farmers never permit the poor landless farmers to cultivate their lands on a sharecropping basis and they do not give their land through *pattani*. Because for poor who do not have any assets (not even grown up sons who can earn), it is really difficult for them to get capital to invest in agriculture.

Land is not only used as a means of production, but also as an asset that can be disposed off in times of crisis. It was common in the study areas that farmers sold land to pay for wedding expenses or other large expenses.

Similarly, small farmers also mortgage land to wealthy people or money lenders (*bandhaaki*, see section on "Social capital and access to financial capital". In Sofarpur, there were a few such cases. The creditor is allowed to cultivate the land of a loan defaulter until the loan is repaid.

With land being a scarce resource in Bangladesh, there are frequent conflicts over land both within families and between people unrelated to each other. Many legal cases are pending in the courts, some of them for decades. Land conflicts are often at the root of other conflicts in rural societies and can be linked to party or religious affiliation.

To summarise, it becomes clear that access to land is strongly linked to a farmer's financial status (ability to pay lease or to pay for inputs under sharecropping arrangements) and to his or her social capital in terms of good relations with landowners.

Box 16 Land as asset to be mortgaged or sold off in times of crisis

ICS Kathahali, Md. Abdus Samad.

“He has a son and four daughters, three of whom are already married. He has seven *bigha* land of his own. This year he has cultivated paddy in five *bigha* and twenty-two decimal lands and given the rest of one *bigha* and eleven decimal for lease. The leasing rate is about 3000.00 taka per *bigha*. He had more land in the past. These lands have been sold to provide the wedding expenditures of three daughters and to finance a land-related case in the court that began 17 years ago.”

ICC Sofarpur: Khokon Chandra Shill

“He is the only son of his father, but has two sisters. His father made him get married and had high expectations, but at that time he says he was completely worthless. He cultivated some of his father's land, but the rest was given to another farmer to cultivate on the basis of sharecropping. Because of this the quantity of paddy he got was not enough for his family's consumption. Under the circumstances he mortgaged 25 decimal lands to Siddiq Hajari. After that, in 1986, all his crops and his house were completely destroyed by a cyclone. He then sold 24 decimals of land to Moulovi Abul Bashar and with the money he maintained the family and repaired the house. He also had some land by the river, but the government and villagers acquired 24 decimals of it for a cremation-ground. In 1987 he sold another 20 decimals of land to Siddiq Hajari to manage the wedding ceremony of his sister.

During 1988 all crops were damaged by floods. He mortgaged 34 decimal lands to a women's association of the village for 7000.00 taka. Being unable to repay the money, he sold the land to Shamsul Company. In 1990 again he sold 24 decimal land to Moulvi Abul Bashar for the marriage ceremony of another sister. 1991 all crops were again damaged by the cyclone and he mortgaged a further 20 decimal land to Shamsul Company for 10000.00 taka. This land he sold to treat his ill son, who was affected by pneumonia and died later on. In the meantime he started a barbershop in *Murshir hut*. The daily income from this was on average 50 taka. In 1998 crops were again damaged by hailstorms, so he mortgaged 34 decimals of land for 7000.00 taka. But he was not able to repay the money, and so had to sell the land to Shamsul Haque Company. With this money he purchased a shop at Feni at the cost of 50000.00 taka and hired his brother-in-law to run the shop. He earns about 1800.00 taka from this shop excluding the employees and other expenses. He spent 85000.00 taka on his eldest daughter's wedding. Even now, whenever he needs money he mortgages or sells land. Shamsul Company will lend him money whenever he wants, but if he is unable to repay the money he has to sell the land to him. At first he sold land to Krishna Lal Shutrathdar, but the price was too low; he sold 34 decimals of land for only 2600.00 taka.”

Box 17 Conflicts over land

ICC Sofarpur: Imam Uddin

“Imam Uddin has three daughters and a son. All his daughters are in school. He has no land and cultivates other's lands on the basis of sharecropping. This year he has cultivated 100 decimals of land belonging to Khurshed Driver. He has been cultivating his lands for the last four years. He is the youngest of three brothers. His father had some land, but his two elder brothers occupied it illegally. For this reason he has not got good relations with them and doesn't even talk to them.”

ICC Sofarpur: Imam Uddin

“The chairman of the union parishad is his cousin, but he does not have a good relationship with him, so he never takes any kind of assistance from him. He does not have good relations with any of the wealthy men in the area. His mother also had 3 '*kani*' land (1 *Kani* = 120 decimals), which land the union Chairman took over from his mother illegally. From that time on the relationship with the chairman has been cold. His mother wanted to file a case against the chairman in the court but she doesn't have the financial capacity to do so. These are the reasons why Imam Uddin didn't inherit any land, because his brothers took way the land he is supposed to get from his father and the chairman took over his mother's land. When Imam is in a financial crisis he gets assistance from the shopkeeper of the village market and neighbours. In this way he lives and maintains his family.”

Labour

In the context of this study, labour is considered to be physical capital, because it is an important means of production. Access to labour depends also on social capital. People with good social networks will more easily find someone to work for them than others.

Most paddy producers use their family labour to cultivate paddy. In addition, they can hire outside labour during peak periods in the cropping cycle, and they can hire out their own labour (or the labour of their family members) to other farmers, either seasonally / for specific periods of time, or on a seasonal or annual basis. The latter form of wage labour is called "*Bocho-ar-muni*"; most of the labourers in this kind of arrangement are poor landless people without any other source of income. The employer will pay the person in paddy (e.g. 30 mon for 6-7 months), and will provide food, shelter, clothes and medical facilities. Wages for work in paddy fields are generally paid in cash (40 - 60 taka / day), but during the harvest period they are normally paid in paddy (specific amount of paddy or a fixed share of the amount harvested). In Kolgram, for example, the rate of payment for workers doing the harvesting was 1 to 1 1/2 *maund* of paddy for the season, depending on the duration of harvest period and the area harvested. Generally the employer also provides food for the labourers during the harvesting period. In Noahkali, a female worker can earn 6-7 *maunds* of paddy as wages for helping to dry and process paddy for a month during the harvest period.

In some areas (notably Noahkali), labourers also come from outside the village. Landowners sometimes prefer them because they cost less (40 taka vs. 50-60 taka for a local labourer), work for longer hours, and do not go home between days, since they stay at the landowner's home.

Box 18 Changes in the labour market

FGD Noahkali

"Because of the easy communications, labourers of other district come to this village during planting and harvesting; this is convenient for the farmers. The dependency on landowners by labourers of Noahkali village is reduced, now they have less bargaining power with the landowners for more wages (Kamal)."

Labour expenses are a large proportion of a farmer's production costs. For a family with few working members, these costs are often the reason for leasing out land or cultivating it on a sharecropping basis. This is why social capital plays an important role in labour supply: a producer with good social capital can find friends and relatives who will help him out in times of labour peaks, and will easily find people who will work for him.

Box 19 Adverse effect of weak social network

ICS Noakhaligram: Joykumar Das

"This year in Shunamganj they have early floods and to save their paddy farmers needed to harvest the paddy within a very short time. Joykumar Das is fairly a rich farmer from this village, he hired a group of migrant labourers to harvest his paddy. After fixing up the terms of payment the labourers came to know that he is Hindu and due to that they refused to work for him. He has relatively weak social network in the village. So after been refused by the group he again requested them to work for him and told them that if they harvest his paddy he would like to give them half of his total production. But still they didn't work for him. As a consequence of that after getting another group of labourer four days later he started harvesting. So he lost more than half of his paddy due to flood."

Water

Water is an essential input into paddy production. Water requirements depend on the season and the land type, as well as the relative location / altitude of the field in relation to water sources. Farmers in Bogra and Feni have to irrigate during the boro season, whereas *amun* paddy is mostly rainfed.

Farmers can have access to water through the following channels:

- ☞ Rain
- ☞ Natural flooding (in low lying fields)
- ☞ Own well (shallow well or deep tube well)
- ☞ Someone else's well
- ☞ Share of a well (group of well owners)
- ☞ Pumping water from a channel or river
- ☞ Irrigation scheme

The most common system is to "purchase" water from a well owner. Well owners are generally rich farmers who have a monopoly over water in their particular area, as each well will provide farmers in its vicinity with water. The size of the area supplied by a well depends on the amount of water that can be pumped from that well and the capacity of the pump.

Farmers who own, lease or sharecrop land in the area covered by a particular well will make an arrangement with the owner to supply them with irrigation water. The rate varies from region to region and can be paid in cash or kind (paddy). In Shunamganj, well owners charge 100 taka plus 1 1/2 *maund* of paddy for irrigating one *kare* of land. The cash (equivalent to around 10% of the total costs) has to be paid before the provision of the service, and the paddy during the time harvesting. In other areas, farmers can pay all the irrigation expenses after harvesting in paddy and cash (from paddy sales). In Kolgram, irrigation cost per *bigha* land for boro paddy is 500-600 taka. In Kathahali, it costs 360 to 440 taka per *bigha*.

Sometimes farmers share the costs of a well, pump, and diesel engine and form a sort of co-operative or association. For example, small and medium farmers in Sofarpur formed groups to control and access key technologies including shallow tube wells and power tillers. Similarly, twenty farmers from Kathahali purchased and operate a deep tube-well jointly. However, in the study areas it was frequently observed that rich farmers prevent small and middle farmers from purchasing their own irrigation equipment, because they do not want to lose the monopoly over irrigation water.

In Kolgram, middle farmers choose not to purchase power tillers and shallow tube wells, even though they are affordable to them, because of the powerful positions of the rich farmers. The number of deep tube-wells in Kolgram is greater than that of shallow wells, partly because the deep tube-wells owners compelled the owners of shallow wells to remove their pumps. They threatened them at night and even killed someone. Although most of the middle farmers in a group would be capable of buying a shallow tube well, rich men and rich farmers do not allow them to operate their own shallow tube well. As a result, middle and small farmers are forced to buy water for cultivation from rich men.

Box 20 Maintaining an oligopoly over irrigation in Kolgram

“BADC donated a deep tube-well to the 15 to 25 farmers of the village, but the manager of the deep tube-well occupied it with the collaboration of BADC officials. Zahid, Sayeed, Amzad, Rashid and others (20 persons in total) took a loan from the bank to purchase the deep tube-well from BADC. They appointed a manager from among themselves. With the collaboration of bank officials, the appointed manager did not pay the instalments; instead he stole all the money. The bank then put the deep tube-well up for auction; the appointed manager bid and purchased it for himself. When the manager tried to occupy the machine, a fight broke out and a few people got killed, others were injured.”

Because water is linked to land via technical factors (a certain piece of land can, with the current technology, only be irrigated by a certain water source), farmers have very little choice and have more or less to accept the terms and conditions set out by the well owner. If farmers have a conflict with the well owner and lose access to the source of irrigation, their land becomes virtually useless. Therefore good relations with owners and controllers of inputs such as irrigation water are essential for small and medium scale paddy producers.

Tillage

Paddy land can be tilled manually (by hoe, only for very small areas of land), by ox plough, or by power tiller. In the study areas, power tillers have become very common and frequently the owners of wells and pumps also own and control power tillage equipment.

In Kolgram, farmers prefer to use power tiller rather than ox ploughs because the cost of cultivation using the plough is 150-170 taka per *bigha* land and is very time consuming. In contrast, the use of a mechanised power tiller costs 100 taka for the same area of land and is far quicker.

Box 21 Control over irrigation and power tillage

FGD Sofarpur

“Abdul Razzaq said: ‘The owner of the power tiller and shallow pumping machine are wealthy men of this village. At the beginning of the season they plough and irrigate the land of all farmers in their area, but in the middle of the season they create pressure on poor farmers to pay the costs, otherwise they will not irrigate any more. Then all poor farmers are bound to pay and they collect or borrow money somehow to pay the cost of irrigation. Farmers also need to borrow money to buy fertiliser and pesticides.’”

Other types of inputs

Other inputs and services (such as seed, fertiliser, pesticides, and threshes) are provided at the village level by rich farmers and businessmen, or by shopkeepers. Farmers generally keep seed from their own fields after harvesting. They can also acquire seeds through exchange (especially if they want to cultivate a certain variety which they do not have themselves). It was observed that poor farmers often do not have seeds at the beginning of the season and need to buy from the *hut* or from rich farmers at high prices, because they have sold their own paddy at a low price at the *hut* when in need of cash. Some few farmers also received seeds from agricultural extension services and from NGOs.

Fertiliser and pesticides are often purchased on loan from the same person who provides irrigation and power tillage, and are paid back after the harvest. Farmers also purchase fertiliser for cash or on loan from the local shop and from the *hut*. Generally these inputs are purchased on credit and paid back after harvesting, when some paddy has been sold.

Again, social capital plays an important role in the access to inputs. In order to purchase inputs on a credit basis, shopkeepers and traders need to trust the farmer. Trust is usually based on knowing each other well and having conducted satisfactory business transactions in the past.

Box 22 Acquiring inputs for paddy cultivation

ICC Sofarpur: Krishna Lal Shutrathar

"He had no money during planting season for boro paddy, so he borrowed 5000.00 taka from PROSHIKA (an NGO). He advanced 10% of the irrigation charges and the rest he will pay off at the time of harvesting. He ploughs his land using Wadud Mian's tractor. He advanced him 10% of the ploughing cost and he will pay off the rest after harvesting. He will hopefully be able to save some money from the carpentry work and then he shall pay all debts for cultivation. From the carpentry work he earns 100 taka per day excluding the cost of his food. He purchases fertiliser and insecticide from *Munshir hut* in cash or sometimes on credit. When purchasing on credit, one taka per kg must be paid in interest. He knows the shopkeepers, as they are his fellow villagers. He pays an instalment of Tk.550.00 per month to PROSHIKA."

Social capital and access to financial capital

Financial capital is essential for paddy producers, because they need to purchase a range of inputs and services. Farmers can access financial capital in the following ways:

- ☞ *Labour*. They can hire out their labour for cash or paddy, which can again be converted into cash).
- ☞ *Own paddy production*. Farmers can sell their surplus paddy and use the cash to purchase inputs.
- ☞ *Off-farm income*. Farmers and their family members can earn cash through non-agricultural activities, such as business, handicraft, services, etc.
- ☞ *Remittances*. Some farmers receive cash contributions (or paddy, or both) from family members who live in town or even overseas.
- ☞ *Sale of assets*. Farmers can sell their assets (in particular land) in times of crisis in order to obtain financial capital (see Box 16).
- ☞ *Loans*. These are particularly important in the context of paddy production and will be discussed in detail in the following section.

Sources of loans for paddy producers

Almost all small and medium paddy producers in the study areas are taking loans to pay for cultivation expenses. There are a number of sources for loans, but not each of this source is available to each farmer. Whether or not farmers can access a certain source of credit depends on the farmer's physical assets (especially whether he has any collateral, such as land), and his or her social capital (in terms of trust and mutual obligations).

The credit sources available to farmers are as follows:

1. *Middle and rich farmers.* This is probably the most common source of loans for small farmers.
2. *Mahajan / moneylender.* They lend larger quantities of money preferably to middle and large farmers, but under certain conditions also to small farmers.
3. *Farmers' co-operatives.* In Feni, such co-operatives existed that give loans to their members.
4. *NGOs.* A range of NGOs (Grameen bank, CARE, BRAC, etc.) in the study areas are providing loans to farmers for agricultural inputs.
5. *Krishi bank.* Bank loans are popular because they have the lowest interest rate, but they are generally not accessible to small and medium farmers with "connections".

Ad 1: Middle and rich farmers.

They lend money at around 8 to 10% interest per month. Usually they will lend money to farmers who cultivate their land on a sharecropping basis, or other small farmers who are in some way dependent on them or with whom they have a good relationship (such as neighbours or relatives). They will usually lend only small amounts (up to 1500 taka). Sometimes rich farmers / big landlords lend money to small farmers without interest, even if they know that these farmers will be unable to pay the loan, with the intention of buying their land (see Box 23).

Box 23 Land sales to repay loans

FGD Sofarpur

If farmers cannot repay their loans, they can sell their land to the moneylender. Samsul Haque, a rich farmer, gives loans to different people and he does not take interest. His incentive lies elsewhere. He never gives loan to any landless families, rather, he gives money to landed families and when this family fails to repay the loan he puts pressure on them to sell their land to him. Actually this is the how the moneylender/ landowner became the owner of a large amount of land. Feni is densely populated and there may be many potential buyers of land. Samsul creates a situation in which he can have the monopoly over acquiring land since those he lends to are indebted to him and are obliged to repay their loans by sell to Samsul. He pays the market price for it, but is given the first choice.'

Box 24 Borrowing money from landowners

ICS Sofarpur: Imam Uddin

"When he has no work of his own, he works at his landowner's home as a daily labour and gets 60-70 taka per day. He says he can get 70-80 taka if he works in other peoples' places but he likes to work at the landowner's home; since the landowner also helps him by giving him work and lending him money several times every year. Today he has borrowed an 'arri' of paddy from Khurshed Driver (the landowner). He is repairing KD's house and has to give this paddy to the other labourer who is repairing the house. Generally I take assistance from my father-in-law's house. For house repairs he took 100 taka from his father-in-law."

Ad 2: *mahajan.*

They will generally lend only to people who have land, whom they know well, and who have a reputation for paying back their loan. However, they often don't live in the same village where their creditors live. In some cases they reside in towns and use the income from their money lending activities for business.

Moneylenders charge 10 to 20% interest per month. If a farmer fails to pay back a loan and its interest in the time agreed, he has to pay additional interest on the outstanding amount and the outstanding interest. For example, in Noakhali, if one thousand taka is borrowed from the *mahajan*, either seven maund paddy are to be given at the end of the season (= after four months, *Arsheen* to *Kartik*). Alternatively, 1500 taka are to be given to the *mahajan* against 1000 taka borrowed. If the duration of the loan is extended for two months, then 2100 taka is to be given against 1000 taka borrowed, because a higher rate of interest is charged on the outstanding amount and the outstanding interest. In Bogra, moneylenders do not accept paddy as repayment, only cash. In Feni, farmers do not produce enough to pay back a loan in paddy. Here also repayment is only in cash. In some cases, farmers can pay back part of their loan by working as "bonded labourer" for the moneylender.

Moneylenders can give relatively large amounts as a loan, e.g. 50,000 taka or more at a time, depending on the likelihood that the borrower can repay.

Most moneylenders are men, but there are two or three professional women moneylenders in Noakhali and in Shunamganj. These women are members of an NGO group; they do not have any adult male at home to run a business. So it is easier for them to invest the money in the credit market.

Ad 3: Co-operatives.

The interest on loans here is 10 % per month (same as moneylender).

Ad 4: NGOs.

The mandate of many of the NGOs providing credit in rural Bangladesh is to specifically cater for poor people without collateral who are unable to get loans from other sources. Therefore most of the NGOs give loans on the basis of trust and personal relationships with people other than strictly on economic criteria. Generally loans from NGOs are meant for small-scale business and have to be paid back in weekly instalments. This is not convenient for farmers, who would rather have a loan where the money borrowed and the interest are paid at the end of the cropping season (after selling the paddy). NGOs operating in the study areas give loans through group mechanisms (using the Grameen Bank model). The loans are generally less than 10,000 taka and need to be paid back in weekly instalments. NGO sector is currently not providing the seasonal and annual loans for agricultural producers.

Table 4 Types of loans offered to farmers by NGOs operating in the study area

Issues	Bogra	Shunamganj
Organisations giving loans	BRAC, TMSS, SOWA, Light House	Bandhab, BRAC
Types of loans given	<ul style="list-style-type: none"> ☞ BRAC, TMSS, SOWA, Light House: group loans through association (BRAC: 30-40 members, TMSS, Light house: 25-30, SOWA: 20-25) ☞ TMSS: give 4000 taka to members; pay in weekly instalments of 100 taka, 15% interest), also give loans of up to 20,000 taka to farmers ☞ SOWA: 5000-7000 taka, instalments of 50 taka / week, interest 15% ☞ Light house: up to 8000 taka to members, 15% interest 	<ul style="list-style-type: none"> ☞ Bandhab: Grameen model (3000 -7000 taka to group of 5), 15% interest per year, pay in instalments ☞ BRAC: Credit plus (2000 - 3000 taka per member, groups of 45 members), pay in 46 instalments, 15% interest
Area of operation	Dhupchachya thana, Light house: also Khetlal thana	Sylhet division
Main clients	All members are women of 18-50 of age and each of them owns 3-50 decimals of land, Light house: 3-20 decimal, also men	<ul style="list-style-type: none"> ☞ Bandhab: People with less than 50 decimal of land and who work on others' fields for at least 120 days a year ☞ BRAC: People with less than 50 decimal of land and who work about 100 days a year in the fields of others.
Other programs in agriculture / NRM	CARE: Interfish BRAC: agriculture, forestry, poultry, livestock, fisheries TMSS: training on fisheries, forestry, vegetation SOWA: training on fisheries Light house: fishery, forestry, poultry rearing	BRACK: Give technical training to the villagers, for example- poultry, fishing, etc.
Other programs - non agricultural	BRAC: VGD, health, education TMSS: education, health, cleanliness, etc. SOWA: training in primary health care Light house: education, health, handicraft training	Bandhab: education, health, primary health care

Ad 5: Banks.

The banks will not give loans without collateral (usually land) and therefore landless people and small farmers generally do not have access to bank loans. Even middle and large farmers are often unable to obtain loans, because they are unable to pay necessary bribes (usually around 10 to 15 % of the loan amount), in addition to the interest of 15% per year. Getting a bank loan requires filling in a number of forms, which is difficult for illiterate or uneducated people. The application can take weeks or months, whereas farmers generally require immediate cash (see Box 26). All these factors result in bank loans being rather unpopular with farmers.

From FGD in Sofarpur we observed that some farmers took loans from the bank collectively, through a middleman who has very good links with bank officers. Officially they give the loan to one person, but the money is distributed among a group of farmers. Usually these farmers repay the loan through the same middlemen.

Box 25 Taking bank loan through middlemen

ICS Sofarpur: Md. Abdul Haye

“Several times he has borrowed some money from the farmers' co-operative, and the rate of interest was 10% per month, which was too high. Once he borrowed eight thousands taka from the bank with other farmers collectively. Till now he has not repaid the debt completely. He repaid part by instalments to the team leader but when he went to the bank office he was informed that no money had been deposited. Now bank office sends notice to him asking for the money. He said that he had a cow and by selling it and taking money from his small business he would repay the debt.”

Box 26 Access to bank loans

FGD Kolgram:

“Farmers borrow money for agricultural inputs from *Krishi Bank*, *Grameen Bank*, CARE, BRAC, and from rich farmers and moneylenders. But the small farmers generally do not go to the *Krishi Bank* or other government banks because the bank officials want to take bribes from them; without giving a bribe farmers do not get loans. To borrow Tk 1,000 from the government bank TK100 has to be paid to the bank's officials; sometimes it is more. For example, a village farmer named Zahidul Islam borrowed Tk 4,000 from the bank officially, but in practice he got only TK 3,100. Small farmers prefer to borrow money from NGOs or from local moneylenders rather than the government bank, because if they borrow money from the rich villagers, they have to pay 110 taka for 100 taka at the end of the month. It is easier to borrow from rich farmers and moneylenders, because it takes a lot of hassle and time to borrow from the bank.”

FGD Noakhali

“In Noakhali, only the farmers who have land can get loans from the banks or *mahajan*. Those without land never get loans since they do not have the ability to repay them. On the other hand, the people of the village are not interested in borrowing money from the “*Krishi Bank*” because they have to give the bank officials 150 taka against 1000 taka loan as bribes. One village farmer named Maharam Ali said, ‘Say, if I had land, the bank or *mahajan* would lend me money, but those farmers who have no land will not get a loan. If we try to get loans from the bank it may be delayed for about one or two months. But if we give bribes then it may only take one or two days.’”

As a result of indebtedness many farmers would have no paddy left for home consumption if they sold enough paddy immediately after the harvest to repay all their loans. Such farmers carry their loans from one season to the next and never pay back everything. If, in addition to this, some disaster happens to them (e.g. floods or illness in the family), they have to take

even more loans to survive, making it virtually impossible for them to ever be loan free (see Box 27).

Taking loans from moneylenders is a cyclical process in the farmer's life. After refunding the loan for one season, again farmers borrow money from *mahajan* or different NGOs to buy fertiliser, insecticide and to pay for irrigation water for the next season, as they do not have any resources left to pay for cultivation expenses. This influences the paddy market negatively as it compels farmers to sell paddy at harvest time and therefore depresses market prices. Also, the credit market fixes the price of paddy before the farmers even bring the paddy from the fields to their homes. The price is pre-decided and so, when using paddy to repay a loan, seven *maund* of paddy costs one thousand taka. (During the 2000 season, the government rated price was 330 taka per *maund*, while the farmers sell paddy at the cost 220/230 taka per *maund* to *bapari* or to the hut.)

Box 27 Impact of natural and personal disasters on loan repayment

FGD Noahkali

“According to one respondent, during the floods in 1998 all the crops were damaged and he had borrowed money from the *mahajan* and is still today paying the interest on the loan. Usually we borrow money for cultivation - for ploughing etc, but we also borrow money for wedding ceremonies, health treatments and so on.”

The relative proportions of loans coming from different sources in a given area depend on the overall infrastructure in the area, especially the operation of NGOs and banks. In Noahkali, 80 of loans received by farmers came from *mahajan*, 25% from NGOs, 15 % from relatives, and 10% each from banks and neighbours.

The relationship between social capital-financial capital

Social capital plays an important role in accessing financial capital. People with good connections to moneylenders, bank officials, or with well-off relatives are in a much better position to secure a loan than people without such connections. For example, one of the case study farmers, who worked as a small scale *faria*, borrowed money from his well-off brother, who was a *bapari* and the main customer for the paddy bought by him. In this case, there are both a business interest and a family interest involved. Families and even neighbours often help each other with small amounts of money without charging interest.

Box 28 Borrowing money from neighbours and relatives

ICS Sofarpur: Krishna Lal Shutrathar

“He doesn’t sell paddy because the paddy is not sufficient. After consuming the paddy he produces he buys rice from the village market or sometimes from his neighbour’s home. Though he has to pay one taka more if he buys from his neighbour’s home. He prefers this since he can get it on credit. In a crisis he borrows money from his neighbours and for that he does not to pay any interest, because he doesn’t borrow a large amount.

During 1998 the crops were damaged by hailstorms, and he borrowed 4000.00 taka from his relatives. He paid this money back by instalments. He did not have to pay any interest because they were relatives. He has never borrowed money from Shamsul Company; because Shamsul is a wealthy man and he will not lend money to poorer farmers, since he only deals with wealthy men. When he needs money he borrows from his brothers or from those with the same economic status as himself. Being neighbours he helps them as far as is possible since they also help him. He never borrows money from moneylenders.”

Others build up social capital through their profession (see Box 29):

Box 29 How social capital helps in getting a bank loan

ICS Kolgram, Amulla Chandra Shill

“Once, Ammullah took a loan from *Krishhi* bank and he didn’t need to pay undue ‘tax’ money to the officers for that. According to him he has very good relations with many people from the union and also outside the union. He said that through his second profession he has, over time, built up a good network, because many people come to him to have their hair cut. In this way he has now a good relationship with one of the *Krishhi* bank officers, who lives in the next village. Ammullah asked him to help him to get the loan from the bank and that person helped him. According to him that officer is a very kind person and he helped many other farmers from this area.”

Convertibility of assets and its impact on marketing strategy

The previous sections pointed out how social capital can help farmers in having access to physical and financial capital. According to the SRL framework, this “convertibility” of different types of capital is mostly positive, because it increases the options that an individual has at his or her disposal. However, convertibility can lead to more vulnerability for some groups of the population, because certain assets are monopolised by the elite. For example, the convertibility of land (physical capital) into cash to repay a loan (financial capital) is in itself a positive thing, because it allows farmers to make use of land sales to avoid financial crisis. But if small farmers lose all their land as a result of this, it will in the long term reduce their livelihood strategy options.

In the context of this study, convertibility of capital is important for farmers in the study areas. Farmers can use their human capital (e.g. skills for certain services, such as fishing or barbering) to acquire financial capital. They can transform financial capital into physical capital (e.g. use loans to lease land or buy inputs), and physical capital into financial capital (use inputs to produce paddy, which in turns can be sold and converted into cash). Social capital is crosscutting, because it enables farmers to reduce risk by providing them with a "safety net" in times of crisis. Without the support from relatives and neighbours, but even support from rich landlords, many small and medium paddy producers would face even more hardships. In many parts of rural Bangladesh, semi-feudal relationships between rich and

poor farmers still prevail with all their advantages and disadvantages. These mutual dependency and obligations are an important part of social networks and that are recognised as such by the people who participated in this study.

2.2.7 Influence of vulnerability context on marketing strategy

The vulnerability context describes the overall framework conditions for people, including aspects such as environment, population, policies and governance, infrastructure, and culture. Paddy production takes place within these framework conditions that cannot be influenced by an individual or group. The following section will analyse how the vulnerability context influences farmers' paddy marketing strategy.

Trends

Trends are changes over time that influence livelihood strategies. The SRL framework looks at the following components (after Carnay 1998, 11):

1. Resource stocks.

The most important natural resources for small and medium paddy producers in Bangladesh are land and water. Both are under pressure as a result of population growth and environmental degradation. The farm size of paddy farmers has decreased over the past decades and farmers are obliged to make a living out of smaller land areas. While water quantity is generally sufficient in paddy producing areas, water quality has deteriorated due to industrial developments and urban growth. Irrigation water for paddy is contaminated or saline in some production areas which affects both the producers and the consumers in a negative way.

2. Population density.

This is linked to resources. As a result of population growth, natural resources become scarcer. The number of landless families in Bangladesh is increasing and the pressure on natural resources is increasing.

3. Technology.

There have been tremendous changes in paddy cultivating technologies over the past decades as a result of the green revolution. Farmers in the study areas pointed out that their current yields are two to three times higher than those of their parents. Mechanised tillage and irrigation have replaced very labour intensive and time consuming production processes and created new income generating opportunities for farmers with sufficient capital to purchase such machinery. This has led to a larger polarisation between rich and poor people in some parts of the study areas and makes the small and middle farmers more dependent upon rich farmers in order to get access to technologies, which are controlled by the rich. At the same time, they need to purchase seed of high yielding varieties, as well as fertiliser and pesticides, which has forced farmers to earn cash income or take loans in order to meet the expenses for these inputs. Farmers described in FGDs how the introduction of HYVs has changed paddy production in their area (see Box 30).

Box 30 Impact of technological changes

FGD Kolgram:

“In 1975, five farmers from our locality cultivated boro paddy after they dug a ditch for irrigation. In 1982, a deep tube-well was established and during the year 1984/85, a shallow tube-well was also established. And after 1987 boro paddy has been cultivated in full swing. Before this period, *aush* and *amun* paddy and jute were cultivated. But nowadays boro is widely cultivated. There was a tradition of sharecropping (*borga*) in Bogra District before the introduction of HYVs of paddy. Under this arrangement, labour and input costs were shared between the landowners and those who worked the land. The crops produced were shared equally among the two. Today this practice is not common, since it is not a profitable means of producing HYV. Leasing (*pattani*), based on a contractual arrangement, usually involving payments for the use of land, has replaced sharecropping, but on the whole farmers prefer to cultivate their own land where possible, since this is most profitable.”

FGD Kathahali:

“Cultivation of boro paddy was started in Kathahali village from 1972. Boro paddy cultivation started more widely about 10/12 years ago. Before that boro paddy was only cultivated in small quantities because of irrigation problems. Besides *aush* and *amun* paddy, jute and vegetables were cultivated. The tradition of *borga* (share cropping) was common with the duration of these arrangements lasting for one year. Crops produced were divided equally (as in Kolgram). Since this arrangement is not profitable for farmers, they prefer to cultivate their own land or to make leasing arrangement (*pattani*).”

The improvement of communications and other types of infrastructure (in particular the road network) has also had an impact on paddy production and marketing, and on other income generating and business opportunities (see Box 31). The improved accessibility of rural areas and the subsequent development of local and regional market have lead to more uniform paddy prices across the whole country.

Box 31 Impact of road construction on paddy markets

FGD Noakhali

"Before the construction of the road people of other villages or places did not come to the Noakhali *hut*. Now the *hut* is extended and many new shops are established, many people come to the *hut* from different villages and places, so there are many villagers employed here. Farmers get a reasonable price of their crops since many *bapari* and *faria* come to the *hut* from different villages and even from different districts. But it was not possible before the construction of this road because farmers were bound to sell paddy to the local *bapari* and *faria*, then local *bapari* and *faria* paid the farmers badly. After the construction of the road the rice mill was established in the village and poor women are employed here. "

Shocks

Shocks disrupt peoples' life by introducing an element of uncertainty to it. The most common shocks that paddy producers in the study area experienced were climatic disasters (floods, droughts, cyclones) and family crises such as illness. Conflicts play also a minor role, in particular Muslim-Hindu conflicts and clashes between political factions. Most conflicts are localised and are based on fights over land.

1. Natural disasters

Especially Shunamganj, but to a lesser extent also the two other study areas, suffer from seasonal floods. In addition, Shunamganj and Feni experience frequent cyclones. These natural calamities can destroy the paddy crop and lead to indebtedness, because farmers will be unable to repay the loans which they took to pay for cultivation costs.

Floods also hinder paddy processing and marketing, because villages become inaccessible and farmers are unable to sell paddy through their preferred channels.

Box 32 Impact of natural disasters

FGD Kumirial

“Communications between this village, other villages and the *hut* are very difficult. During the rainy season, all the places around this village are submerged by floods. Then a boat is the only means of communication and transport. During the dry season the villagers travel on foot. About 70-75 families reside in the village. The main road of this area is about 1½ mile distance from the village. The Ganiganj *hut* is situated 1½ mile from the village beside the main road. This *hut* plays a vital role in daily life of villagers of Kumirial. Usually they buy most of their daily required goods from that *hut*. Other than the Ganiganj *hut*, the next nearest *hut* is some distance at Noahkali.

The communication system is troublesome and it is not easy to transport carry paddy to this hut except in the rainy season. Farmers have to carry paddy on their heads, and sometimes they use horses to carry paddy from village to the hut. But during the rainy season paths become muddy and horses can't pull the wagon. Then people have no way of carrying paddy on their heads. For this reason, small-scale *bapari* or *faria* are not eager to buy paddy from the village. How many times is it possible to carry paddy on the head? And a person can carry at best 1-1½ Mon paddy on the head. So it is not profitable for *faria* to buy paddy from here. Small farmers or poor farmers carry paddy to Ganiganj *hut* on their heads and sell it to buy daily required commodities. Communication is the most severe problem for the people of this village.”

2. Family crisis

Small and medium paddy producers in the study areas generally do not have any savings to support them in times of crisis. If a family member becomes sick and requires medical attention, the family generally has to borrow money from friends, neighbours, relatives or moneylenders. There are many such examples in the study area, one of which is illustrated in Box 33.

Box 33 Family crisis and impact on assets

ICS Sofarpur: Md. Abdul Haye

“In the previous five years he has also experienced hardship due to floods, cyclones and hailstorms which damaged his crops. His wife became ill during childbirth/ labour. He had to spend a large amount of money for her treatment. Then he was in financial crisis. He had some savings and a rickshaw, so he sold the rickshaw. His relatives also give him some support.”

3. Conflicts.

Conflicts over land and over other production inputs (irrigation, tillage) have an impact on paddy production. Land conflicts are fairly common in the study areas (see also section “Land” on page 25).

3 CONCLUSIONS AND RECOMMENDATIONS

The previous sections have considered paddy marketing from a livelihoods perspective. This has been an extremely useful exercise as it has clearly demonstrated the complexity of rural livelihoods, and in particular the vital role of social relations in determining the access to input and output markets. Paddy marketing cannot be viewed in simple financial terms with farmers driven solely by the desire to get the highest price possible for their paddy. Instead, paddy marketing has to be viewed in terms of complex livelihood strategies and constraints, in which achieving a high price for paddy is only one of several concerns for farmers. The link between marketing options and input markets (especially for credit, land, fertilizers and irrigation water) are vital with farmers in a constant struggle to access the inputs they require to continue the cultivation of paddy and other crops. Access to these markets is often determined by social relations (the level of social capital), in which smaller farmers are frequently disadvantaged. This is manifested in several themes which were repeatedly raised by the villages in all the districts covered by the survey.

The most significant recurrent theme is the extent to which small and medium farmers have pressing cash needs at the time of harvest. Their cash needs cover a range of things, including the need to pay for household expenditure, school children's educational costs, medical treatments, and for meeting the costs of weddings and other social obligations. Their most important cash need however, relates to their paddy production. These are principally the costs of paying for irrigation water, fertiliser, and pesticides. Many, if not most farmers take loans either from *mahajan* or NGOs to meet these input costs. Some take loans from banks, but this is less common as often the farmers do not have the collateral required (usually large areas of land). To reduce the interest payments on these loans, and to avoid the risk of having their land taken away from them by the moneylender on a mortgage basis, farmers will sell their paddy immediately after the harvest in the most convenient way possible, and therefore receive a low return as paddy prices dip during this period.

In most cases preference is to sell directly to the *faria* or *bapari* first, and then at the *hut*, but preference depends on the farmers' needs. Marketing costs are high for farmers selling small volumes of paddy at the market and they cannot always be assured of receiving cash on the spot. Farmers normally require immediate cash, so will be restricted to those purchasers who are willing to take small volumes of paddy and pay cash.

Sales of paddy immediately at harvest time are vital to meet the costs of inputs and to repay loans. In a sense many small farmers are effectively caught in a vicious cycle of debt, paddy production and repayment. It is almost impossible for them to get out of this cycle, since they can never produce enough surplus both pay off their debts and afford to remain out of debt for the next production season. There is clearly a close link to the costs of agricultural technologies, which appear to be monopolised by the richer farmers. In some cases, even though middle farmers could afford to purchase shallow well irrigation pumps, they do not do so under threats from the rich farmers. In some cases these threats are of violence, in others they are threats to withdraw access to other technologies needed, for example, power tillers and mechanised threshing.

One further problem is the difficulty of selling paddy to government procurement centre. This is due to a number of factors. Government procurement centres are often too far from

the villages to be reached without paying large transport costs. The quantities that the government agents are prepared to buy also exceed the capacity of most small and medium farmers. In addition it is reported that government officials expect to be given some form of 'sweetener' or bribe before accepting ordinary farmers' paddy. They often make excuses that the paddy is not dry enough or it is not the required/stated quantity. The *bapari*, in collaboration with the government agents, maintain a monopoly over sales at the government *go-down*.

Indebtedness was a constant theme of the research. Options for marketing paddy are severely constrained by the need to pay off debts, only for farmers to then fall into further debts to pay for production inputs. During the second phase of this study the team discussed with farmers and local NGOs possible interventions that could increase the amount of money farmers get for their paddy, many of which involve trying to break the strangle hold of indebtedness. The following options were discussed:

1. Seasonal / annual credit through NGOs;
2. Seasonal / annual credit through banks;
3. Inventory credit;
4. Credit to traders;
5. Improved access to godowns;
6. Group action to break the monopoly of rich farmers over agricultural inputs.

1: The current system of long-term loans with weekly instalments that most of the NGOs in the study areas are promoting is not well suited to agricultural producers. Farmers would prefer seasonal or annual loans that can be either repaid immediately after harvesting, or at the end of the year, after selling the paddy, once the paddy prices have gone up.

2: Access to bank loans for small farmers is highly restricted due the high levels of bureaucracy involved in obtaining a loan and the alleged need to bribe bank officials to get a loan application processed. However, farmers are interested in bank loans, because they have to be paid back only after a year, and the amounts received from banks are generally larger than the amounts given by NGOs.

3: The idea of inventory credit was presented to farmers to find out what potential they see for this type of credit in the paddy sector. The government operates an inventory credit scheme called SHOGORIP, though not in any of the research areas. Farmers' reactions varied between the two regions in which inventory credit was discussed. In Shunamganj, farmers believe that the amount of paddy they are producing is not enough to allow them to wait for prices to go up, even if they can get an advance on the income from the paddy sale. This is because many farmers in Shunamganj only produce one paddy crop per year. In Bogra, where many farmers are producing two crops of paddy per year (and sometimes even a third crop of potato), they expressed an interest in inventory credit. However, as this system involves storing paddy in a warehouse, they were concerned about corruption and middlemen, because of their previous experience with *godowns*. Inventory credit for small producers requires fairly costly administration and management. However, the NGOs in Bogra, with whom the system was discussed, believed that they would be able to manage it in a cost efficient way, charging farmers only 5% service charges from farmers. It therefore needs to be explored further whether this system is feasible and economically viable for small and medium paddy producers.

4: Farmers were not in favour of the proposal to give loans to traders, because they did not believe that traders would pass on some of their profits gained through increased trading volume to producers in the form of higher prices. In Bogra, this is partly because farmers accuse traders of organising informal unions to fix prices. They generally do not allow traders from outside to buy paddy in their area.

5: Improved access to government procurement centres. While farmers are sceptical about the feasibility of this option, it appears to be the most lucrative one for small farmers, because of the marked price difference between the *faria*, *bapari*, and *hut* on the one side and the government procurement rate on the other. In the period of the study the margin was approximately 110 taka per maund or 50 % of the rate generally paid at the farm-gate. From all options discussed, this one would have the largest impact and enable farmers escape their indebtedness. However, the feasibility of this depends on the political will to change the current procurement system in favour of small producers.

6: Group action to break the monopoly of rich farmers over agricultural inputs. The team discussed with farmers the option for poor and medium farmers to increase their access to physical and financial capital through group action (formation of thrift and credit groups, joint purchasing of inputs, joint marketing). However, the response was rather negative. Farmers pointed out that there is no tradition of forming groups for these activities. There is a lot of mistrust between farmers, and there are a number of underlying conflicts. In several parts of the study area, a number of credit groups had been formed by different NGOs, but all are now defunct. In cases where deep tube wells were owned by groups of farmers, problems had arisen both from within the group (internal conflicts) and from outside the group (threats from rich farmers). It is questionable whether the strategy of promoting such group activities will be successful in rural Bangladesh under the circumstances described in this study.

ANNEX 2

Paddy marketing and rural livelihoods in Bangladesh: Paddy market analysis

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March 2001

INTRODUCTION

Background

This study was conducted as part of the project 'Paddy Marketing and Rural Livelihoods in Bangladesh' which is being funded by the Crop Post Harvest Programme of DFID. The project started in late 1999, and will finish in May 2001. The aim of the project is to research the nature of paddy markets in Bangladesh and to explore poor paddy-producing households' interaction with these markets. The initial hypotheses which are being investigated are:

1. Smaller scale farmers' access to paddy markets is frequently restricted by a range of social, institutional and financial constraints which limit the returns to paddy production;
2. Inefficiencies in the paddy marketing system lead to lower paddy producer prices and increase seasonal price volatility, and;
3. Policy distortions impacting on the paddy-rice marketing chain reduce paddy producer prices.

Although this study covered a broad range of issues at the trader and miller level, it explicitly addressed the second hypotheses above. The purpose of this study was to develop an understanding of the structure and conduct and performance of paddy markets. Specifically, the study aimed to identify:

- participants in paddy markets and their roles, practices and strategies;
- different marketing channels;
- prevalence of alternative institutional relationships in the marketing system, such as contracts, vertical and horizontal linkages between participants, and cooperatives;
- variations in varieties and qualities of paddy traded, and the affect on prices;
- fluctuations of paddy prices through the year;
- availability and access to marketing services, such as market information;
- access to storage and marketing finance; and,
- constraints facing market participants.

The marketing study split into three activities conducted during 2000.

1. Firstly, from 12 – 23 May 2000 in the three project districts of Bogra, Feni and Sumanganj, a rapid marketing assessment exercise was conducted with semi-structured checklists used to guide interviews with market intermediaries and millers both individually and in groups.
2. Secondly, in October and November 2000, a questionnaire was conducted, again in all three project districts with traders and millers.
3. Thirdly, paddy and rice prices were analysed to determine the nature of price fluctuations following the harvest period and also the relationship between rice and paddy prices.

This report is sub-divided into three sections, documenting the findings from the three exercises.

SECTION 1: Rapid Market Assessment Exercise

METHODOLOGY.

Two checklists were developed to guide semi-structured interviews with market participants, for traders (including wholesalers) and millers respectively. The checklists included questions on sources of paddy, marketing arrangements, storage, finance and price determination. The purpose of the checklists was to stimulate discussion in the areas of investigation. Discussions were not to be limited to those categories listed in the checklists, instead, interviewees were encouraged to discuss freely any issue they wished to air. Nor were interviews restricted to individual respondents, and more often than not questions stimulated group discussions among the principal interviewees and other observers.

The starting point for the survey was to identify the primary and secondary marketplaces serving the selected project survey villages in three districts. Market participants were identified and interviewed in these markets, as individuals or in groups. From these discussions, we were directed to other participants (millers, wholesalers, beparis, farias, Government Procurement Centres) where we conducted similar discussions. Detailed notes were taken throughout all of the discussions. The majority of the information gathered was qualitative in nature.

FINDINGS

The findings are presented district by district, beginning with Bogra and followed by Feni and Sunamganj. Many of the features of the market are common to all three districts, for instance in market structure and participants' roles, in which case this is made clear and the reader is guided to the Bogra section.

Bogra

General production characteristics

Bogra is one of the most important and productive paddy cultivation districts in Bangladesh, with large quantities of rice and paddy marketed locally and with other districts. In addition, it is a major supplier of rice to national markets. With good access to groundwater, farmers irrigate their fields and produce two crops of paddy each year (boro and aman) and frequently produce another crop such as potatoes between the aman harvest and boro transplanting. As paddy production is so high in the area it has become a major milling area. In the research thana alone there are around 200 mills. In addition to these mills there are many traders of different scales and including both paddy and rice wholesalers.

Market participants, their roles and strategies

Farias:

The term *faria* applies to small-scale traders who provide a linkage role in paddy markets, normally between smaller farmers and wholesalers. Farias are restricted to trading in small volumes of paddy by transportation and financial constraints, for example they typically can only afford to use a bicycle with which they can trade

around 6-7 maunds per day. They operate relatively close to primary and secondary marketplaces, again due to transportation restrictions. Farias tend to purchase paddy from small farmers and sell on to wholesalers normally on the same day, and often completing several of these transactions on one day.

Farias provide a service to smaller farmers by marketing their produce. Farmers may be unable to market their produce themselves, for instance by having no access to transport, or may not want to market their produce themselves, due to the opportunity cost of labour and high transaction costs¹. Farias have better market knowledge and contacts with wholesalers and millers, so they save farmers the costs of collecting information on prices and the reputations of buyers. These costs are difficult to calculate, as they typically involve an investment of time on the part of the farmer. In theory, the more time invested by the farmer in collecting price information and in developing trusting relationships with wholesalers, the lower the risk that the farmer will receive a low price for their paddy. These transaction costs will tend to be fixed costs, and so the per unit of paddy costs will be higher for smaller quantities of paddy marketed. Smaller farmers who are selling relatively small quantities of paddy may therefore prefer to sell to a faria and minimise transaction costs.

Farias generally operate within a small geographical area, often close to their homes, and where they are well known to farmers. The close relationship between farias and farmers implies that a level of trust exists between them, lowering transaction costs. Of course, there is an implicit charge made by the faria for this 'service' (a lower producer price for the paddy of approximately 10 taka per maund), but farmers presumably calculate that it is worth paying. This is particularly the case if farmers are only marketing small quantities. In addition to capitalizing on their market information, farias also realise economies of scale in transporting and marketing paddy by bulking up small quantities of paddy bought from individual farmers.

Farias in Bogra tend to sell to both wholesalers and millers, and usually to wholesalers, with whom they have relatively close ties. Reasons for selling to wholesalers instead of millers include the belief that measurement (weighing) of their produce will be fair, and the fact that wholesalers generally pay cash on the spot. The latter point is critical as access to finance is a major constraint for farias, and receiving cash on the spot is a very important requirement for their operations. They are dependent upon these payments for the liquidity to continue their trading. Access to funds to pay for fixed assets (such as improved means of transportation or storage facilities) is also limited, which prevents farias from increasing their scale of operation (i.e. 'graduating' into a bepari). Few farias have a storage capacity, because they don't have access to storage facilities, nor can they afford to tie up capital in stored stocks.

Beparis:

Beparis are traders who may operate in both the paddy and rice markets. Within the Bogra paddy market, they act as market intermediaries, normally between farmers and millers. They are larger in scale than farias, able to move quantities ranging from a *van* (bicycle with trailer) to trucks. In practice, they play different roles depending upon their size. Smaller scale beparis perform a very similar role as farias, purchasing

¹ Transaction costs are those costs involved in making an exchange, and include the costs involved with gathering information about the other party in the transaction and the goods or services being exchanged.

directly from farms and transporting produce to markets (either wholesalers or directly to millers). Such beparis are typically restricted in the distances they travel by their access to transportation, as they often using *vans*. As with *farias*, they perform a function of reducing transaction costs, though they have a higher transport capacity and can achieve greater economies of scale in paddy marketing. As with *farias*, they face liquidity constraints and prefer to sell to those wholesalers or millers who can pay cash on the spot.

Larger scale beparis operate with trucks. This changes the nature of their market role. They have a much larger scale of operation and can cover a far wider geographical area than *farias* or small-scale beparis. They are, however, restricted in their access to farmers in villages which have no vehicular accessibility, so tend not to be in direct competition with smaller scale market intermediaries. These beparis perform two market linkage roles. They act as intermediaries between larger farmers and the wholesale market or millers. In addition, they may purchase direct from wholesale markets and transport paddy to millers or possibly to other wholesale markets in other districts. In this latter function, the beparis try to exploit spatial differences in paddy prices. In an efficient, spatially-integrated market, the differences in prices between two markets will not exceed the costs in transporting the paddy between the two markets. Where these costs are lower than the price differential, beparis will operate to exploit these prices (which should eventually lead to the reduction of the price differentials).

Large scale beparis also differ from other paddy traders in that fixed arrangements to supply millers are commonplace, with beparis receiving cash advances from millers to purchase paddy. These arrangements have evolved for two reasons. Firstly, they are a way of reducing transaction costs. Close and trusting relationships between millers and beparis reduce the need to invest in information collection, and in the case where a cash advance is offered, they reduce the need of the miller to monitor the bepari closely to ensure repayment of the loan. In addition, the arrangements will help to ensure that millers have a constant supply of paddy to mill, allowing maximum utilisation of their milling equipment.

Paddy Wholesalers (Aratdars):

Paddy wholesalers are generally located in larger marketing centres. They have fixed premises, with some storage space and weighing facilities. They purchase paddy from farmers, or *farias*, or beparis and sell wholesale to millers. They generally have a quick turnover of stock, selling on to millers within 1 or 2 days during the harvest period, and up to 15 days in the off-season. In practice, many operate as independent commissioned agents of millers, and receive a fixed commission on paddy they sell to millers (in Bogra this was 2 taka per maund).

Farmers and market intermediaries without prior arrangements to sell to millers may prefer to sell to wholesalers than to millers. There is a perception that millers offer lower prices, and may buy on credit, providing cash later in the season. As several wholesalers are located within a wholesale market, farmers and market intermediaries have an opportunity to compare prices and normally receive cash in exchange for their paddy. However, in Bogra there was an accusation of collusion and price fixing by wholesalers in one market. Wholesalers provide a service to millers by providing a reliable source of paddy through the year, and allow millers to focus on milling

without the bother of purchasing from farmers and market intermediaries (with the associated transaction costs). A level of trust exists between wholesalers and millers which reduces transaction costs in their exchanges.

Aratdars, as with market intermediaries, complain of liquidity shortages. In particular, this prevents them from storing paddy for any length of time, even though the aratdars spoken to were aware of the positive returns to storage². They have the facilities to store, but cannot afford to have capital tied up in stock. So instead of pursuing a strategy of profiting from storage, they tend to prefer to extract small margins from the quick turnaround of paddy, and try to maximise the amount of paddy they trade.

Millers:

All paddy destined for the rice market is milled commercially. Households may mill some paddy themselves for domestic consumption, either through traditional milling techniques or by using power tillers, however this rice is not of sufficient quality to be sold in markets. All paddy in Bogra is parboiled prior to milling³.

Millers in Bogra source their paddy through a range of channels: producer markets; directly from larger farmers; from wholesalers; or from beparis. At Dhaperhat a producer market operates two days a week, where farmers bring paddy for direct sale to millers. This is an area where there are many mills in close proximity, which has given rise to this market. Millers buying at Dhaperhat only have to travel short distances to buy relatively cheap paddy from farmers. Paddy prices in these markets are lower than the prices obtained from beparis or arathars, due to the shortening of the marketing chain. Farmers also can achieve a higher price than selling to other market intermediaries as they are by-passing the intermediate traders. Beparis and farias are dissuaded from selling or buying from this market as their margins will be squeezed. However, it should be mentioned that this producer market is atypical in the marketing system in Bangladesh, and only occurs where there is a high density of mills.

The mills in the Dhaperhat thana are do not depend entirely on the producer market to source paddy. The market is most active in the period immediately following harvest, and during leaner periods of the year may become an unreliable source of paddy. Arrangements normally exist with beparis and wholesalers (see above) to provide a more consistent (though higher priced) supply of paddy.

Mills in the area range in types of ownership, milling capacity and storage capacity. Storage capacity is important, as only those mills with large storage capacity are able to mill throughout the year. Smaller mills may shut down completely for one and half months per season (three months per year). Approximately half of the mills in the area are rented, and the rest are owner occupied.

Government Procurement Centres.

The Government of Bangladesh operates a procurement and distribution system for paddy and rice, which is intended to stabilise producer and consumer prices, provide a

² If the temporal paddy price fluctuations exceed the costs related to storage, then there are positive returns to storage.

³ The majority of paddy in Bangladesh is parboiled prior to milling (the exception to this are the markets in Sylhet and Chittagong, where consumers prefer non-parboiled rice), a process that is perceived to improve the taste of the rice, and increases the length of time the rice can be stored.

food security reserve which can be called upon in times of short supply, and provide an alternative and subsidised marketing channel for small scale producers. A number of Government Procurement Centres are distributed throughout the country, though they are concentrated in the major producing districts such as Bogra. Officially, the GPCs buy from both farmers and millers. The GPC that we visited in Bogra currently has been instructed to purchase 1000 tonnes of paddy and 3200 tonnes of rice over the next three months (from May – August 2000). This target is unlikely to be reached due insufficient storage space resulting from paddy and rice which remains in storage from the previous aman harvest.

The objective of the procurement system is meant to support producer prices for paddy. The current prices for paddy and rice purchased by the procurement centre are considerably higher than the prevailing market prices, which obviously makes it an attractive option. However, farmers typically face difficulty in selling paddy to these centres: transport costs to the centres may be high with no guarantee of being able to sell; ‘musclemen’ outside the centres may prevent farmers from reaching the centre and force farmers to sell to them instead; and paddy may be rejected on quality grounds. The farmer questionnaire which was conducted under this project revealed that only two of the 120 farmers interviewed sold their paddy to procurement centres.

Millers too face restrictions in accessing the GPCs for selling rice. Those mills hoping to sell to the GPCs must obtain a license from the Ministry of Food. Obtaining a license requires a number of pieces of documentation: proof of land ownership; clearance from the Ministry of Environment that the mill is not polluting the environment; proof of payment of utility bills; and local magistrate verification that documents are genuine. If this license is granted, then millers are obliged to provide a given quantity of paddy at the set price. Although this price is typically higher than the market price, this is not always the case.

The government procurement system is intended to support producer prices by reducing the supply of paddy to the market, though whether it achieves this either in design or implementation is questionable. Firstly, by purchasing large volumes of rice the assumption is made that the increased demand created in the rice market feeds through to paddy prices. This is debatable and depends on the linkage between the rice and paddy markets. Secondly, the purchasing period normally extends over three months after the harvest. The smaller (poorer) farmers tend to face constraints which force them to sell directly after harvest, causing a pronounced depreciation in paddy prices for one or two months. With limited quantities of paddy bought over a three month period the impact on prices is negligible. So it appears that the system is failing on two counts: farmers are neither benefiting from direct sales at higher prices, nor are they benefiting from increased paddy prices resulting from increased demand in paddy and rice markets. Instead, it appears that benefits are being captured by those who are able to sell to procurement centres – well-connected millers and traders.

Storage and Finance

This is an area that has already been touched upon above. Storage and finance are closely linked as goods in store tie up capital. Even in circumstances where the costs of storage are lower than price fluctuations, storage may not be an attractive option as an important hidden cost of storage is the opportunity cost of capital, i.e. the income forgone from not using the capital tied up in stock for more productive uses. Where

access to capital is relatively easy (for example through bank loans) and there are fewer demands for capital, the opportunity costs of capital will generally be lower than when access is restricted.

For example, consider a small-scale trader with limited funds. Say that he has a straight choice between using all those funds to purchase and store a quantity of paddy for two months, or to make daily purchases and sales of a similar quantity of paddy. Clearly, he is likely to make a large margin by storing his paddy, as paddy prices are likely to increase significantly in two months. This margin will be larger than the margin he will achieve by purchasing paddy from farmers and selling on to wholesalers on a single day. But by tying up capital in stock, he will be unable to conduct any of his day to day trading for two months. In this case the opportunity cost of capital is the earnings forgone from his day to day trading. Although the profit from storing paddy over a two period may be higher than the normal marketing margin from one day's trading, the trader will calculate whether the sum of profits from daily trading over a two month period is more or less profitable than the single transaction of buying, storing and selling paddy. In addition, he will need to make an assessment of the risks involved (which are likely to be higher for storage), and the opportunity cost of his labour (i.e. what could he earn if he was not involved with day to day trading). However, if he has access to funds (for example a bank loan), the opportunity cost of tying up capital in stock is likely to be lower.

Access to storage facilities is also closely related to access to finance whether it be the construction and maintenance of storage facilities or paying for rented facilities. Smaller-scale market participants will generally have greater difficulty in accessing funds than larger-scale participants. This was confirmed during the survey work with different market participants. **Farias** rarely if ever store as they have no access to storage facilities and cannot afford to tie up capital in stock as they have limited access to working capital. Instead of storing they aim for a quick turnover of paddy. **Beparis** are also reluctant to store as it ties up capital, and although they may have access to storage facilities, they will only store if they are unable to dispose of their paddy quickly, and storage will only be for a very short period (1 or 2 days). **Wholesalers**, like beparis, favour a quick turnover of stock and tend not to store for any length of time. **Millers** do store paddy. The smaller scale millers (those able to mill around 200-500 maunds of paddy per day) have an average storage capacity of 1000 maunds. This is not a very high capacity in relation to milling capacity and only will allow several days of milling should paddy supplies stop. It cannot therefore be viewed as storage for the purpose of achieving profit through temporal price fluctuations, rather it is to ensure that the mill remains at close to full capacity and doesn't face short term shortfalls in the supply of paddy. Despite this, most smaller mills will be closed for part of the year when paddy is difficult to obtain. It is only the larger mills (with storage capacity of up to 20000 maunds) which are able operate all year round.

Storage losses are generally small throughout the marketing system – of those storing (mostly millers and some aratdars) all estimates were of around 2 percent – due mainly to rat and fungal damage (the latter resulting from dampness).

Credit within the paddy marketing chain.

Access to formal sources of credit (for example from banks or NGOs) is limited for the majority of market participants, and the research revealed a large gap between the

demand for credit and the supply from formal sources. As a result of this gap, a large number of informal credit arrangements have evolved among market participants. These range from well-defined provision of cash loans to be repaid at a later date with an interest charge, to less formal arrangements such as cash advances for purchasing paddy and delayed payment for paddy. The research identified a number of different credit arrangements between market participants:

Farmers to beparis and farias: Traders buy on credit from farmers and repay with hours or days once the paddy is sold.

Millers to beparis: millers may provide short term cash advances to beparis to purchase paddy, which are deducted from the proceeds when the beparis sell the paddy to the miller.

Wholesalers to millers: wholesalers may only receive part payment for the paddy they sell to millers, the remainder being paid later in the season. This constrains the operating capital of wholesalers.

Farmers to wholesalers: wealthier farmers without immediate cash demands may sell paddy to wholesalers on credit, with the price received for the paddy being the prevailing market price when the credit is repaid. This arrangement benefits both farmer and wholesaler. The farmers, in effect, receive free storage for paddy which they deposit with millers. They are then able to choose when to receive payment for that paddy, depending upon cash needs and the level of the prevailing price for paddy. Wholesalers benefit from being able to sell on the initial paddy deposit to millers and thereby obtain further operating capital to purchase more paddy.

Millers to farmers: millers may provide loans to farmers shortly before harvest. Such forward buying is restricted to cases where the miller and farmer in question have a close and trusting relationship, possibly through kin or built up through repeat business.

Farias to farmers: up to 75 percent of the value of paddy may be loaned to farmers prior to harvest (up to 1 month before harvest).

The overall impression gained from this survey was that there are considerable liquidity constraints in the paddy marketing chain. Although the informal arrangements such as those listed above go part way to filling the gap left between demand and formal sector supply, there is still a shortfall, with many participants complaining of the shortage of funds. It is only really the millers who can access formal sector credit, using mills as collateral to obtain bank loans. There is also evidence of inventory credit in Bogra district, with stored paddy being used to secure bank loans for millers. For this to operate, the bank places the paddy collateral under lock and key. However, there are even liquidity constraints in the formal financial sector, with local banks sometimes unable to meet the demand of requested funds for millers.

There are two forces driving the emergence of informal credit arrangements. Firstly there is the need for increased access to funds which are not currently accessible from the formal sector. Secondly, there is a desire to develop close relationships between mutually dependent market participants, and credit arrangements are one way of forging these relationships. Credit arrangements demonstrate trust between the two participants involved, and help to deepen this trust. This trust extends beyond the credit transactions to other transactions. If, for example, a wholesaler and a faria are involved in a credit 'contract' neither side would be wishing to jeopardize that contract by, for instance, being dishonest in a paddy transaction (by cheating on quality or quantity or price). Trust in the marketing chain lowers transaction costs, and explains why farmers

are often unwilling to deal directly with wholesalers or millers: they don't have a close, trusting relationship with them and they therefore feel vulnerable to exploitation in the transaction.

Taxation

There are a number of taxes/tolls/dues paid in the paddy and rice marketing chain, and also in input markets, which increase costs and decrease profits. Farmers are most affected by this, as even taxes that are not directly levied on farmers will feed into lower output and increase input prices. The fees that are levied are both legal and illegal. Farmers have to pay tolls in local markets both to sell produce and purchase inputs.

Quality

One line of enquiry that was pursued in the survey concerned the relationship between quality of the produce and price. The rationale behind including questions on this topic was the hypothesis that producers in particular may be losing out by presenting poor quality produce to the market. Questions were asked to determine both the criteria which are used by traders and millers to assess quality of paddy and the affect that quality has on paddy prices. A number of different varieties are grown in the Bogra area. The principal determinant of quality with respect to variety is the coarseness of the rice, with fine varieties commanding a higher price than coarse varieties. The most common boro varieties grown in the area are the coarse *chandina* variety and the fine *parija* variety. The latter receives an approximate ten percent premium over the former.

Other than variety, the most important quality consideration is moisture content, with moister paddy receiving lower prices. Paddy with a higher moisture content results in lower rice output. Millers and traders claim to base the price they pay for moist paddy on the expected rice outturn. This suggests that farmers selling damp paddy will not be penalized for this: although they receive a lower price per quantity of paddy sold, this reflects the additional weight due to water content and the cost of drying the paddy. Damp paddy generally attracts a price of up to ten percent less than dry paddy. The assessment of moisture content of paddy is done manually by the feel of the paddy in the hand and also the amount of breakage in grains when crushed in the hand. More sophisticated equipment for measuring moisture content was found at Government Procurement Centres, which do not accept paddy above a stated moisture content.

Two other quality criteria were mentioned: damaged/empty grains (*chita*) and cleanness (foreign matter amongst the grain). These were not common problems in Bogra. As with moisture content, traders and millers claim to base the price they offer for poor quality grain on the expected milling outturn. It was not possible in this survey to determine whether this claim was true, as this requires a detailed survey of quality, milling outturn and prices. However, the impression gained from the work was that quality is dictated by milling outturn, and whilst lower quality attracted lower price, this was justified and farmers are not being unduly penalised. On the whole, quality of paddy sold in markets is good, and the main factors influencing price are variety and moisture content.

Feni

General production characteristics

Feni is located in the south east of the country, with a coastal char area. Although production characteristics vary throughout the district, the area selected for the research project is situated in a zone where the norm is for only one crop of paddy to be grown annually. This is the *aman* crop, though some *aus* will also be cultivated and a limited amount of irrigated *boro*. The shortage of irrigation water restricts *boro* cultivation with land typically left fallow during those months. The amount of paddy traded is therefore considerably less than in Bogra, and fewer market participants operate there. In the project thana only two mills are functioning, several wholesalers, and a relatively small number of intermediate traders.

Participants and strategies

Millers

There are only two mills in the Sonagazi thana, both belonging to the same owner. During the *aman* marketing season, the miller purchases paddy both from local wholesalers and directly from farmers. When purchasing from farmers the normal process is that the farmer will present a sample of paddy, and once a price has been agreed, the miller will collect the paddy from the farm along as the farm is not situated too far from the mill (normally no more than three miles). However, as little *boro* paddy is grown, during other periods of the year paddy is purchased from other parts of the country, for instance Mymensingh, Brahmanbaria and Hobiganj. The cost of sourcing from these other areas (mostly transportation costs) is approximately Tk20 per 75 kilogram bag. Even with these additional sources of paddy, the mills do not operate year round, typically remaining idle for two or three months per year.

During the *aman* season, the miller is partly dependent upon wholesalers for supplying paddy in bulk. He has an arrangement with local aratdars in which they receive a commission of Tk5 per 40 maunds of paddy supplied over and above the prevailing market price for paddy.

To smooth out supply, the miller will also store some paddy. As with the millers in Bogra, this storage is not on a very large scale, and serves both as a means of covering temporary shortfalls in paddy supply as well as benefiting from temporal price increases. There are risks involved in the latter strategy. In the 1998-1999 season, the miller lost money on 3000 maunds of stored paddy. After purchasing the paddy, the price rose quickly due to nationwide shortages. However, this high price prompted large imports of rice from India, which severely depressed the local price of paddy to below the level at which the farmer originally purchased.

The paddy in storage is subject to some storage losses from rats and pests, though this is not considered by the miller to be significant (though he estimated losses at 5 percent), and no measures are taken to reduce or prevent losses.

Access to formal sources of credit is not a problem for the miller as he can easily obtain loans from the Krishi Bank using the mill as collateral. Seventy percent of his

working capital comes from bank loans. He also provides cash advances to beparis and farias in the area following the local aman harvest.

Wholesalers:

There are only a few paddy wholesalers in the area (only four in the main marketplace), and their business is often combined with other business activities such as rice wholesaling. Approximately 75 percent of paddy is bought from beparis, and the rest from farmers. Paddy is mostly sold to the local mills, though it is not unknown to sell to neighbouring thanas if prices are better. No paddy is stored for any length of time and is quickly sold on to mills. Bank loans provide of working capital for the wholesaler, though shortages of capital are experienced during the aman harvesting period. One informal credit arrangement during this period is to receive paddy on credit from farmers. Farmers will receive part payment for their paddy when they sell it, and receive the remainder at a later date (usually only a week or so later). In alternative circumstances farmers may receive cash advances from aratdars prior to harvesting. Again, these tend to be only for short periods, and are deducted from the payment for the paddy at the time of sale.

Sunamganj

General production characteristics

Sunamganj is low-lying *hoar* district located in north-eastern Bangladesh. It is a remote area of the country, with limited accessibility especially during the monsoon season when the area becomes fully flooded for several months. During these periods, transport is restricted to boats together with a few roads which run along embankments linking larger towns. Aman paddy cultivation is extremely limited due to the high flood waters, with fishing being the predominant activity during the monsoon months. Paddy production is limited to the dry season irrigated boro crop. As with Feni, the volume of paddy traded in the area is far less than in Bogra. In the selected research thana there are five mills and a number of traders.

Participants and strategies

Farias:

The marketing chain in Sunamganj differs from that in Bogra and Feni, due to the flood waters. Farias do play a similar role than in the other districts, bulking up paddy by purchasing paddy from farm households. However, both mills and wholesalers may be inaccessible to farias due to flood waters. Farias will generally only have access to small boats (owned or hired), if any at all, and are unable to transport paddy over large distances requiring larger boats. During the wet season following the boro harvest farias will therefore sell to beparis, who do have access to larger boats.

Beparis

Beparis in Sunamganj play a key role in the paddy marketing system. As already stated, beparis purchase some paddy from farias as well as directly from farmers. The boro marketing season coincides with the monsoon floods so the majority of transport is on boats with have a capacity of up to 200 maunds. Boats are normally hired by beparis for the boro season. Paddy is not sold to local wholesalers and millers as in the Bogra and Feni. In Sunamganj, there are no aratdars, and instead the beparis take their paddy direct to the mill or to wholesalers in Syhlet, a distance of around 60 kilometres. However, paddy taken to mills is not sold to the miller. Instead, the bepari retains

ownership of the rice and pay the miller a milling charge. The rice is then usually sold to wholesalers in Syhlet.

Beparis may store paddy and rice to take advantage of temporal price increases, though may be dissuaded from storage due to shortages of working capital. Storage losses are not significant, the main cause of losses are rats which are controlled with poison.

Beparis are frequently involved in credit transactions. Credit is often received from millers, and credit is frequently provided to farmers. It was estimated that 90 percent of farmers receive credit from beparis, typically between two months and 15 days prior to harvest. Interest is charged on these farmer loans, which is deducted at the time of sale. No interest is charged on the loan from the miller to the bepari, though millers benefit from a milling charge and from the retention of the paddy husk and rice bran.

Millers.

There are five mills in the Noakhali Bazar area. Millers in Noakhali Bazar all have similar arrangements to obtain paddy. Cash advances are provided to beparis to purchase paddy from farmers and farias. The major difference between this area and the other survey districts is that the miller rarely takes ownership of the paddy or rice. Beparis pay the millers a milling fee (typically Tk10 per maund) and retain ownership of the rice, which they then wholesale locally or in Syhlet before repaying millers the original loan. In addition to the milling charge, the millers keep the rice bran and paddy husk, which is sold as poultry feeds and fuel respectively. Millers use the loans to tie in beparis to their mill, to ensure that they have sufficient access to paddy in order to run as near as possible at full capacity.

Mills only run at full capacity for approximately half of the year. During the low season, they close down completely or below full capacity. None of the paddy milled in the area is parboiled as local consumers prefer the taste of non-parboiled rice. As millers rarely own any paddy or rice, there is no storage capacity at these mills.

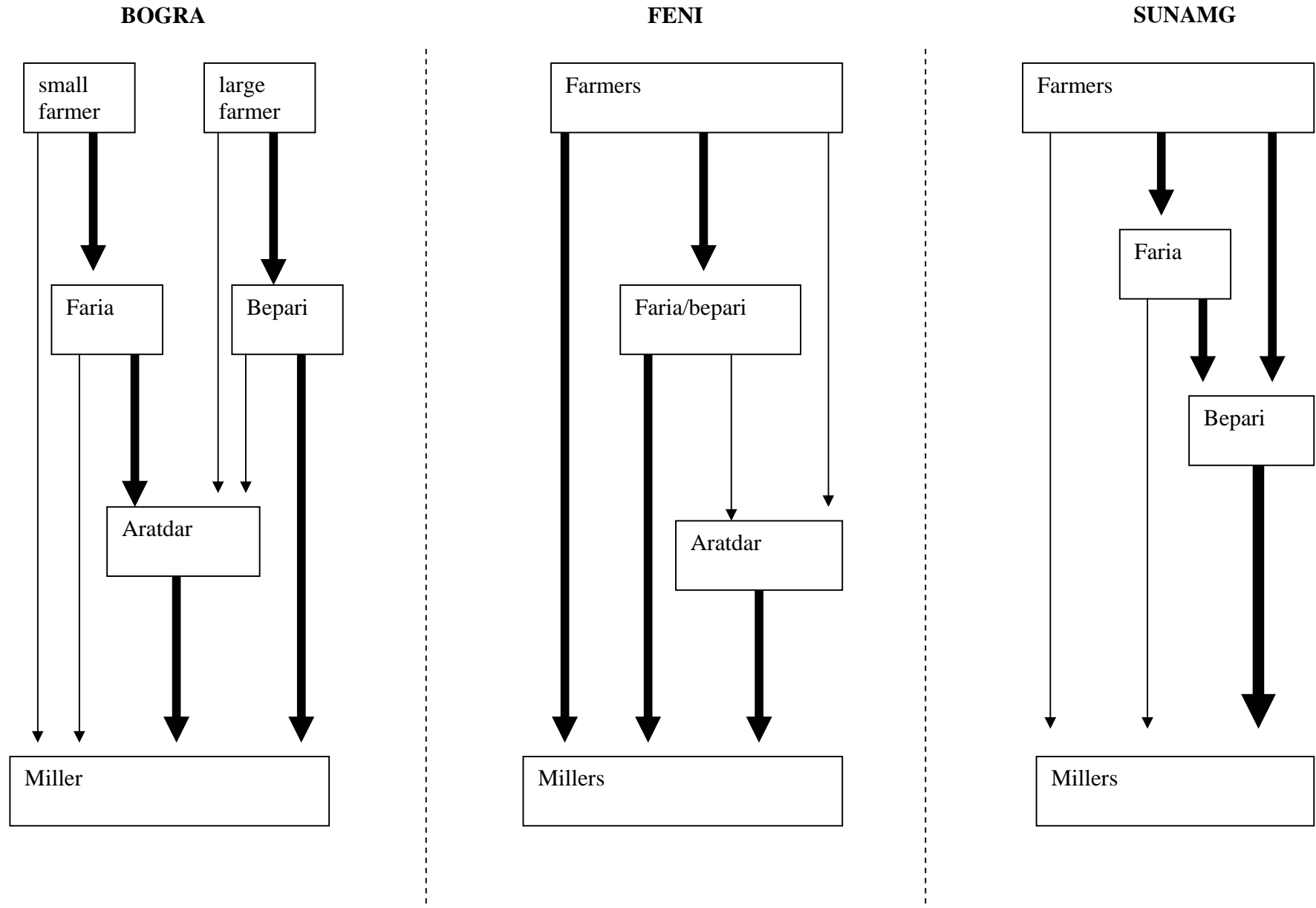
Aratdars:

There are no paddy or rice wholesalers in the Noakhali Bazaar area. The nearest wholesalers are located in Syhlet. This is largely because of the flooding during the harvesting season. In other areas, wholesalers play an important role in bulking up produce from farias and farmers before selling on to millers. In Sunamganj, farmers and farias cannot access the marketplace because of the transportation constraints due to flood waters. Beparis perform all of the bulking up functions in the marketing system, and there is no need for aratdars.

Government Procurement Centres.

There is a GPC in Sunamganj, however, according to the market participants interviewed during the survey, access to these centres is difficult. There are accusations of corruption, with access to GPCs (and the high prices they offer) being controlled by local political leaders. No farmers, traders or millers spoken to ever sell paddy or rice to the GPC.

Figure 1: Marketing channels in the survey districts



CONCLUSIONS

This was a very useful exercise in getting a grasp of the paddy marketing systems in the three areas of the country. Clearly, the volumes marketed are far higher in Bogra than they are in other two districts. And there are other differences between the districts as well as similarities.

The paddy marketing chains for the three survey areas are shown in Figure 1, which illustrates the importance of the main marketing channels. Market intermediaries play similar roles in the three areas. Farmers sell their paddy directly to millers and aratdars, though most of it is channelled through traders. In Bogra there is a clear distinction between farias and beparis, serving small and large farmers respectively. In Sunamganj farias and beparis play distinctive roles, with farias playing an assembly role and selling to beparis who bulk up further and transport to mills (and then market the rice). In Feni, although information was sketchy, it appears that farias and beparis play similar roles, though they trade on different scales. Aratdars play a similar role in both Bogra and Feni, bulking up paddy from farmers, beparis and farias and selling on to millers at a fixed commission. In Sunamganj there are no aratdars.

These differences in roles reflect the differing circumstances in the three areas which affect the production and marketing environment. In each area the marketing systems have evolved to fit with the local environment. Although the systems differ, they all appear to function well in terms of farmer access to markets, price transmission and fairness. More striking than the differences between the survey sites are the similarities. In all three areas, the marketing systems are characterised by liquidity shortages, informal credit arrangements, close relationships between market participants, and wide fluctuations in paddy prices. All of these market characteristics are interdependent to some extent. A final common characteristic is the failure of the government procurement system to improve prices for paddy producers.

Access to funds is a constraint to all market participants, and this is most acute for working capital in the periods following harvests when large volumes of paddy are being marketed. Millers and some aratdars have access to formal sources of credit, and farmers may have some access to NGO provided credit, but on the whole, formal sources of credit fall well short of demand. This has given rise to numerous informal credit arrangements between market participants in all tiers of the paddy marketing system. These normally take the form of cash advances and delayed payment for paddy and are a ubiquitous feature of the markets. These arrangements play an important role in distributing funds in the marketing system, though they do add to the total liquidity in the system, which remains low during the main marketing periods. Low liquidity in the market dampens demand and results in low prices. The dip in paddy prices following the aman and boro harvests is far more significant than the dip in rice prices. This suggests that to some extent the rice price and the paddy price become de-coupled during these periods, whilst at other times of the year they move together.

The informal credit arrangements also play a role in developing and maintaining trading relationships between market participants. Trust plays an important role in the paddy market. Repeat transactions are common and are a means of lowering transaction costs. Within the informal credit transactions trust is vital as in the event of default, the lender has little or no legal recourse.

The government procurement system is intended to offer high prices to paddy producers after harvest, and also to reduce the supply of paddy in the paddy market, thereby increasing prices in the market. On both counts it appears to fail.

SECTION 2: Findings of Market Intermediaries and Rice Millers Questionnaire⁴

METHODOLOGY

A questionnaire was developed using information gathered during the rapid market assessment and aimed at getting a better idea of the extent of observed market behaviour and marketing constraints within the paddy commodity system. The work was carried out at the end of the boro marketing season in November 2000. The data from these questionnaires was used to develop the findings of the rapid market assessment exercise.

FINDINGS

Farias

Paddy Buying Activities

During the last Boro marketing season, farias bought about 55% paddy from small farmers and 45% from large farmers. The average amount of paddy purchased by farias during one week in peak season was found to be about 94 maunds (with a range 10 to 400 maunds). Sometimes farias paid cash in advance to the farmers to purchase paddy. The major advantage of advancing money from the point of view of farias is that they guarantee access to paddy at harvest time, saving their time and costs in findings paddy sellers. They also pay less to the farmers for advancing money. However, there is risk involved as the paddy may not be available (to the extent of advanced money) from the farmers. For this reason, this type of arrangement normally only occurs when the faria knows the farmer well and can trust him to provide the paddy at harvest time.

Conversely, arrangements also exist where the farmers sell paddy to farias on credit, who sell it at the market and then pay the farmers according to market price. The advantage for farias in this case is that they don't need cash for purchasing paddy. Again, farmers will only enter into this arrangement with farias they know well.

Paddy Selling Activities

In Bogra, farias interviewed sold all of their paddy directly to millers while in Sunamganj almost all the paddy was sold to aratdars. A few farias also processed purchased paddy in mills and sold rice to consumers. In Feni, however, about half (47%) of the paddy was sold to the aratdars and of the remainder, about 27% was sold to beparis and 26% to millers. Farias prefer to sell directly to the mills if these are located within their reach in order to get a higher price – bypassing other market intermediaries.

About 38% of farias interviewed in Feni had arrangements with the aratdars and millers to supply paddy. In the case of Sunamganj, only one faria had an arrangement to supply paddy to an aratdars. These informal arrangements consist of supplying paddy to the

⁴ This report was compiled by Dr Jaim, from questionnaires completed by a team of social scientists from the Bangladesh Rice Research Institute, led by Dr M.A Jabbar.

aratdars or millers at a pre-agreed price. However, if the paddy price suddenly increases, farias will not receive higher price. However, if the paddy price suddenly falls the Farias will also lose out, as the millers and aratdars will adjust the price paid downwards as necessary (thereby breaking the agreement). The aratdars and millers are powerful in respect, and the faria is in a weak position as they are only dealing in relatively small quantities of paddy. Alternatively, aratdars and millers also make arrangements with farias to supply paddy on commission (Tk. 2 to 3 per maund). In this case farias get cash advances from aratdars and millers to purchase paddy on their behalf. Aratdars and millers benefit from passing the transaction costs of locating paddy sellers onto the farias. Again, this type of arrangement will only be conducted between parties well known to each other.

In Bogra there were no such prior arrangements between farias and millers. The main reason for these arrangements (from the aratdars' and millers' perspective) is to ensure adequate paddy supply. In an area with a paddy surplus like Bogra, larger traders operate (beparis) which are a more attractive option for aratdars and millers. The supply of paddy from farias (who deal in small volume of paddy) is not a big concern, whilst in Feni such type of arrangements were common as Boro paddy supply was limited due to the low production in that area.

Paddy Storage Activities

None of the farias interviewed stored paddy to benefit from seasonal price fluctuations, but they all stated that storing paddy is potentially profitable. The lack of capital was found to be the main constraint for storing paddy (as reported by 56% of the farias).

Access to Credit

Only one faria in Bogra (tk. 2000) and one in Feni (tk. 5,000) received credit for their paddy business (from Grameen Bank and PROSHIKA (a local NGO) respectively). None of the Farias interviewed in Sunamganj received any credit for paddy business.

Farias were asked whether they had experienced a shortage of funds during the boro paddy marketing season. In response, about 83% said that they had experienced shortages during the peak marketing post-harvest season. In response to a question as to what they would do in case of better access to credit, 95% said that they would expand their paddy businesses while 5% said that they would do other business. Due to cash shortages, the analysis further showed that about two-thirds of farias bought paddy on credit from the farmers. This credit is normally repaid within 2-3 days after selling the paddy (or rice).

Paddy Price Determination

The price of paddy offered by farias to the farmers was based on the prevailing market price. The purchase price per maund was normally Tk. 5 to 10 lower than market price, which ensured some profit after deducting marketing costs.

The prevailing market price is determined by farias by direct observation of current market prices in different markets as well as through discussion with other farias and paddy traders. In response to a question of how market price is determined, majority of

the Farias (73%) responded that the price was determined by the supply and demand situation. Some 5% of the farias felt that market price was determined (i.e. fixed) by the millers.

Most Important Problem Faced in Paddy Business.

The most important problem (as reported by 79% of farias) was the shortage of capital. However, unstable paddy prices and political unrest were also problems - mentioned by 14% and 7% of the farias respectively.

Beparis

Paddy Buying Activities

Beparis purchased paddy mostly from farmers. About 94% of paddy purchased was from farmers of which 54% were large farmers (over 5 acres) and 40% were smaller farmers (less than 5 acres). A small quantity (about 6%) was also purchased from farias. During the peak Boro marketing season last year, beparis on average purchased about 313 maunds of paddy per week. About 40% of the beparis bought paddy from farmers on credit, the condition was to repay the money immediately after selling the paddy (normally within 2-7 days). Conversely, 24% of the beparis advanced credit to the farmers prior to harvest to buy paddy from them at a price lower than the market price.

Paddy Selling Activities

About half of the paddy purchased by beparis was sold directly to millers with the rest sold to aratdars. In Bogra most of the beparis sold to millers while in Sunamganj beparis mostly sold to aratdars.

Only 3 beparis in Bogra (out of 15) had prior arrangements with millers or aratdars to supply paddy. Under these arrangements, beparis received cash advances from millers and/or Aratdars to purchase paddy. They received a fixed commission of Tk. 2.5 per maund of paddy supplied. From the point of view of millers and aratdars such an arrangement secures a large supply of paddy. However, sometimes beparis also sell paddy to the millers and aratdars on credit.

Paddy Storage Activities

During last Boro marketing season, about 24% of the beparis stored paddy for a month or more with the intention of making some profit from the increase in paddy prices in the 3 to 4 months after harvest. The amount of paddy stored on average was 392 maunds (with a range of 12 to 1000 maunds). These beparis wanted to store more paddy, but lack of capital was the main constraint for limiting their storage activities. All the beparis admitted that storing paddy was profitable; however lack of capital was found to be the major constraint to storage (as reported by 80% of the beparis).

Access to Credit

Access to credit facilities both from institutional and non-institutional sources for paddy business was found to be very limited for the beparis interviewed. Out of the 25 beparis

interviewed, only 7 received credit during the last boro season. One bepari in Bogra and one in Feni received credit from the Grameen Bank (tk. 5000), and the Commercial Bank (Tk. 30,000) respectively. In Sunamganj, 3 beparis received credit from millers and 2 from moneylenders (mohajans). The average amount of credit received per bepari from millers and mohajans was tk. 33,666 and tk. 32,500 respectively. In the case of credit from mohajans, the beparis had to give one-quarter share of their profits to the mohajans.

About 92% of the beparis said that they experienced a shortage of funds during the last boro marketing season. In response to the question of what they would do if they had better access to credit, 92% beparis said that they would extend their paddy businesses.

Paddy Price Determination

The price to be offered to the farmers by the beparis in purchasing paddy was determined mostly by the prevailing market price (as reported by 72% of the respondents). Direct observation of prices in both the local and the nearest big markets were considered. This price will be adjusted to ensure a profit for the bepari ranging from Tk. 5 to Tk. 10 per maund.

In Sunamganj, beparis purchase paddy and after husking it sell it as rice. So in their case, they calculate the price at which rice to be sold on the basis of purchasing price of paddy plus processing and other costs (transportation and related transaction costs). Further, in response to a question how market price is determined, almost all the beparis said that it depends on the supply of paddy and demand for it.

Most Important Problem Faced in Paddy Business

The most important problem faced by paddy beparis was found to be the lack of capital accompanied by the insufficient availability of bank loans (as reported by almost all the beparis (96%)). Only 4% of them reported problem related to the commission received in purchasing paddy on behalf of millers and aratdars.

Paddy Aratdars (Wholesalers)

Paddy Buying Activities

Aratdars purchased paddy mostly (58%) directly from farmers, particularly from large farmers (41%). A small amount of paddy (17%) was also purchased from smaller farmers. Further, percentages of paddy purchased from Beparis, Farias and other Aratdars were 16%, 12% and 13% respectively. The amount of paddy purchased during one week in the peak season was on average 1592 maunds, and up to maximum of 20,000 maunds. Out of the 30 aratdars interviewed, only two had arrangements with other smaller aratdars to supply paddy. In this case funds were provided to the smaller aratdars to purchase paddy for them on a commission basis. The commission per maund was Tk. 3 to 5. Ensuring paddy supply for the aratdars becomes easier through this arrangement.

About 70% aratdars reported that they bought paddy on credit. The main reason for doing this was the lack of cash for purchasing paddy. The credit was usually repaid within a few

days. Mutual trust between paddy sellers and aratdars is the main basis of such arrangement. Sometimes aratdars have to pay higher than market price for purchasing paddy on credit particularly when repayment is delayed. A few aratdars (13%) also advanced credit to the farmers. In return for receiving money from aratdars, farmers had to repay the loan in terms of paddy (usually at a lower market price).

Paddy Selling Activities

In Bogra, almost 100% of paddy purchased by aratdars was sold to millers. In the case of Feni, about 84% of the paddy was sold to millers while 10% was sold to other aratdars with the remaining 6% sold to beparis (to supply paddy to distant mills). In Sunamganj, 45% aratdars sold their paddy to mills while the rest (55%) paid for the paddy to be milled and sold rice to rice traders.

The analysis showed that about half of the aratdars had contracts with the millers to supply paddy on commission basis (earning tk.3-7 per maund). In this arrangement, millers provide funds for purchasing the paddy as well as bearing all the expenses related to transport and labour. The main advantage of such contracts from the perspective of aratdars is that contract ensures a buyer for their paddy at a fixed profit, thereby lowering the risks.

Paddy Storage Activities

About one-third of the aratdars stored boro paddy for a month or more since last boro harvest. The amount of paddy stored ranged between 500 maunds to 18,000 maunds; the average being 7305 maunds. Paddy was stored with the intention of selling later once prices increased.

Almost all (93%) the aratdars had their own stores while only a few (7%) rented storage. The analysis revealed that majority of the aratdars (73%) wanted to store more paddy but the lack of funds prevented them from doing so (91% reported this problem).

Access to Credit

Out of aratdars interviewed in Bogra, 4 received credit from banks, and one from his relatives. The amount borrowed per aratdar (who received credit from banks) was about tk.70,000. One aratdar in Sunamganj also received a bank loan of tk.15,000. However, no aratdars from Feni received any credit during the last boro season. (It may be recalled that in Feni, the volume of trade in the boro season is limited due to low production).

In response to a question of whether aratdars experienced a shortage of funds during the last boro marketing season, almost all of them (90%) reported that they had done so. If they had more funds, 93% of them said that they would purchase more paddy.

Paddy Price Determination

Paddy prices offered by the aratdars mainly depend on the prevailing market price which is collected from local markets. The prevailing market price of paddy is determined through demand and supply situations in the paddy and rice markets. A few aratdars (7%) also reported that prevailing market price of paddy is determined by the millers.

In response to a question on how the market price is determined, all of them except one responded that the price was determined through the supply and demand situation in the market as well as the price in the nearest markets. One aratdar said that it was fixed by the aratdars in the market.

Most Important Problem Faced in Paddy Business

The most important problem (as reported by 70% of the interviewed aratdars) was the shortage of funds coupled with the non-availability of bank loans. The other 30% Aratdars reported a variety of other problems including transportation problems, storage problems, commission related problems, the problem of unstable paddy prices, and problems arising from political unrest.

Millers

Paddy Buying Activities

Millers purchased more than half (53%) of their paddy from farmers of which 33% were large farmers while 20% were smaller farmers. About one quarter (26%) of paddy was bought from aratdars and 13% and 9% respectively from farias and beparis. When buying paddy, the decision about the price offered is dependent on the market price of rice as well as the bargaining power of the paddy sellers.

Rice Selling Activities

About 57% of the millers reported that they sold rice all year round. The main factor in influencing when to sell rice was the need to free up cash for purchasing paddy. Millers also timed their rice sales to get the maximum profit for the rice, which requires close scrutiny of rice market prices. Rice was sold mainly to rice Aratdars. Only one miller sold rice to the government.

Paddy and Rice Storage Activities

About 57% of the millers stored paddy. Among them, 53% mentioned that the lower price of paddy during post harvest period was the main reason for storing paddy. These millers bought up as much paddy as they could during this period. The remaining 47% of millers reported that their main objective was to run the mills for an extended period and when there is a shortage of paddy supply. Besides paddy, about 23% of the millers stored rice during the peak harvesting period (when rice price is low) with the expectation of higher price in the future.

About 87% of the millers reported that they had one paddy / rice store while 3% had two 3% had three storage houses and 7% had none. The average storage capacity was estimated at about 4752 maunds. About 70% millers said that their storage capacity for paddy was not sufficient to mill rice year round. Again, majority of them (62%) felt the need to enlarge their storage capacity, but shortage of capital was reported to be the main constraint in this respect.

Access to Credit

Out of 30 millers interviewed, only 5 received loans from commercial banks (at an average of Tk. 96,000 per loan) and one received credit (Tk. 25,000) from the government run Krishi (Agricultural) Bank. All of rest received credit in from other sources in connection with their milling business. Millers were asked what they would do if they would have better access to credit and all responded that they would increase the scale of their operations.

About 61% of the millers bought paddy on credit. Almost all of the millers said that shortage of capital was the main reason for buying paddy on credit. Generally, there is no interest to be paid on paddy bought on credit, but if repayment is delayed (usually beyond a few days) the millers have to pay extra to the loan provider.

Almost all the millers (97%) sold rice on credit to the rice aratdars. Mutual trust between millers and rice aratdars was the main basis for selling rice on credit. A cyclical payment system (i.e. repayment of previous credit and receiving new credit in terms of rice) prevails in selling rice by the millers to the rice aratdars.

Problems Faced in Milling Business

The maximum amount of paddy milled during the peak period was found to be 346 maunds per mill per week. More than 90% millers reported that they could not operate their mills at full capacity. It was found that about half of the mills (47%) were not in operation all year round. They mentioned a variety of reasons for this. However, the most important problem was shortage of paddy supply due to shortages in cash (mentioned by 46% of the millers). Bad weather conditions preventing the drying of paddy in rainy season was also an important reason for not running the mills at full capacity as reported by another 21% millers. Other reasons included the small-sized 'Chatals' (paddy drying space) (18%), maintenance problems of mills, electricity problems (frequent failure of power supply) and limited land for mills.

SECTION 3: The analysis of paddy and rice prices in Bangladesh

OBJECTIVES:

Two aspects of paddy prices were explored in this study.

1. Post harvest fluctuations of paddy prices. This study was undertaken to see whether farmers would gain from delaying the sale of their paddy.
2. The relationship between paddy and rice prices. This was conducted to see whether the gap between paddy and rice prices increases during the post harvest period, which would suggest that excessive profits may be made during that period.

Post harvest fluctuations of paddy prices

Results from the farmers' surveys conducted under this project show that smaller farmers tend to sell their paddy in the period immediately after harvest. They frequently complain that this is the time when paddy prices are at their lowest and that if they could delay their sales then they would benefit from higher prices. Although it is indisputable that paddy and rice prices dip at harvest time and then increase in the subsequent months, the size, predictability and consistency of this increase will have a considerable bearing on the benefits from delayed sales. In this study of prices, we have tried to shed more light on the characteristics of price fluctuations and the extent to which farmers may benefit from delayed sales. Of course, this also requires a consideration of the costs of storage, as farmers will only benefit if the costs of storage are less than the increase in prices – more on this below.

Methodology for Estimation of Seasonal Variation of Prices.

A multiplicative model was used to estimate the seasonal variation of wholesale paddy prices. Trends were estimated using a simple 12-months centered moving average method and seasonal indices were worked out by averaging the detrended series. Monthly prices of coarse paddy for 10 years from 1990 to 1999 in the markets of Bogra, Feni and Sunamganj were considered for analysing seasonal variation of wholesale price.

Sources for Macro Level Price Data

Secondary data were used to analyse seasonal paddy price movements during the last 10 years throughout Bangladesh as well as in the three selected districts (Bogra, Feni and Sunamganj). For analysing price data wholesale prices of two main types of paddy; Aman and Boro were considered. It may be mentioned that information on retail price of paddy and prices of different rice varieties was not available from published sources. Further, for price analysis, only coarse paddy has been considered which represents about 80% of total paddy production in Bangladesh.

Secondary data on monthly wholesale coarse paddy prices during 1989 to 1998 were collected from "Agricultural Statistics in Bangladesh" of the Bangladesh Bureau of Statistics. Again, wholesale coarse paddy price data for the selected districts of Bogra,

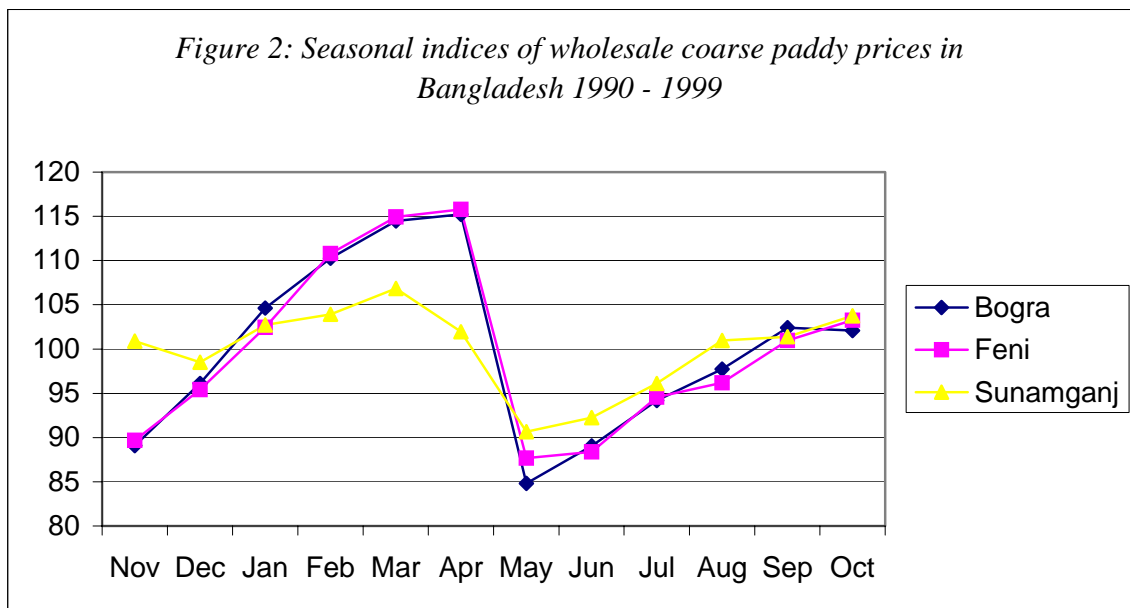
Feni and Sunamganj during the period of 1990 to 1999 were collected from the records kept by the Department of Agricultural Marketing, Dhaka.

Seasonal Wholesale Price Variation of Coarse Price

Figure 2 shows seasonal wholesale price of coarse paddy considering the period from 1990 to 1999. The figure shows that April and October are the two peak periods of paddy prices. These two months are just before harvesting of Boro and Aman paddy respectively. At the other extreme, the figure shows that paddy prices were the lowest in the months of May and November which were the beginning of harvest periods of Boro and Aman respectively. The figure further shows sharp increasing trend of paddy price after November up to April and again after May to October in all the three market places of Bogra, Feni and Sunamganj.

Table 1 Seasonal price variation of coarse paddy in different markets during 1990-1999

Months	Bogra	Feni	Sunamganj
January	104.64	102.45	102.72
February	110.25	110.80	103.93
March	114.40	114.92	106.86
April	115.20	115.77	101.97
May	84.82	87.66	90.66
June	89.03	88.39	92.25
July	94.18	94.57	96.12
August	97.73	96.17	100.95
September	102.40	100.95	101.38
October	102.08	103.25	103.73
November	89.09	89.66	100.91
December	96.11	95.41	98.51
Coefficient of Variation	10.10	9.84	4.82



Findings

The indices from Feni and Bogra are very closely matched. This is a reflection of the degree of spatial integration of prices in Bangladesh, as has been shown in previous research⁵. The Sunamganj indices varies from those of Feni and Bogra. Two explanations can be offered for this. Firstly, during the aman marketing season, the Sunamganj indices appears to bear little or no relation to the other districts. It must be remembered that very little aman is cultivated in Sunamganj during this season due to flooding and amount marketed is negligible and therefore price data for this period is not very reliable. During the boro marketing season which is the main marketing season for paddy in Sunamganj, the pattern is very similar to the other districts. Prices do not dip to the same extent as in Feni and Bogra, which can probably be explained by the relative remoteness of the area from the rest of the country. This increases transport costs which insulates the district from price changes in other parts of the country.

The most noticeable feature of the graph is the sharp drop in prices during the two main harvest periods for aman and boro (November and May respectively), and the subsequent increase of prices during the subsequent 4 months leading to peaks in March/April and September/October. On average over the period of investigation, prices of aman paddy in Bogra increased by 29.3 percent between November and April, and for the boro marketing season, between May and October, by 21 percent. In Feni, prices of aman paddy also increased by 28 percent between November and April, and for the boro season increased by 18 percent between May and October. For Sunamganj, the aman data can be disregarded as there was so little data, and for the boro marketing the price increased by 14 percent between May and October. All these figures are shown in table 2.

Table 2: Average percentage increases in wholesale prices of paddy, 1990-99

	Bogra	Feni	Sunamganj
Aman season (Nov – April)	29.3 %	29 %	Not applicable
Boro season (May – October)	21 %	18 %	14 %

The reasons for the boro paddy price increases to be less than for aman can be attributed to a number of factors. Firstly, the marketing season for boro is complicated by the aus harvest. Aus is becoming a relatively minor crop in Bangladesh, but still has some importance. It is grown between April and July and therefore enters the market mid way through the boro marketing season, dampening the price increase. Secondly, the need to sell paddy quickly after the aman harvest in order to pay for inputs for boro production (the costs of boro production are higher than for aman) may reduce the amount of paddy that is stored by farmers during this period, consequently influencing the prices. However, it should be added that farmer storage was found to be relatively insignificant

⁵ Baulch, B., Das, J., Jaim, W.M.H., Farid, N and Zohir, S (1998) The spatial integration and pricing efficiency of the private sector grain trade in Bangladesh: Phase I and II reports. IDS; Brighton

in both the aman and boro marketing seasons, so it's unlikely that this factor played a major role in the price fluctuation patterns.

Conclusions – returns to storage

The price fluctuations described and illustrated above lead to the question of whether there are potential benefits from storing paddy and if this is the case whether ways of increasing the capacity of small farmers to take advantage of these benefits should be explored.

Clearly, by delaying the sale of paddy farmers will get a higher price. Small resource poor farming households are prevented from delaying the sales of their paddy because of the demand for cash in the post harvest period to meet household expenditures, repayment of loans, and to purchase agricultural inputs. This demand for cash limits the amount of paddy farmers can store. However, if this cash constraint was somehow reduced (for example through the provision of loans), what would the benefit be to farmers? To answer this question requires a consideration of the costs and risks for a farmer pursuing a 'storage for profit' strategy.

Calculating the costs of storage for a farmer needs to take into consideration for the following:

- The opportunity cost of capital (in the case of the farmer using his own capital), or, alternatively, the cost of taking a loan for the storage (these costs will include both interest and other costs involved in obtaining a loan);
- Weight losses, due to storage losses (due to pests (insects and rodents) and diseases, and possibly theft), and also drying;
- Quality deterioration;
- Capital costs of storage – facilities and packing materials;
- The cost of storage pest and disease control;
- Labour costs.

Cost of capital.

This is likely to be the most significant cost for small farmers considering storage. Smaller farmers have limited funds, so would be dependent upon credit to fund their paddy storage. Sources of finance are extremely limited for small farmers. The commercial banking sector is very difficult for small farmers to access, though interest rates are fairly attractive (in the region of 16-20 percent per annum). However, the fixed costs of accessing this credit tend to be high, and banks tend to exclude small farmers, due to the lack of secure and easily seized collateral in the case of default, and perceived risks associated with agricultural lending. Furthermore, the banks are reluctant to lend when the size of the loan is relatively small, as this adds to their costs. In addition, farmers often complained of having to pay bribes to receive bank loans – bribes are reported to be between 10 and 15 percent of the value of the loan. A number of NGOs in Bangladesh operate credit schemes, the most famous being the Grameen Bank. These NGOs offer financial services that are targeted at poorer households. The extra costs of servicing the poor means that interest rates tend to be higher (normally around 20 percent

per annum). However, NGO schemes generally require weekly repayment installments and are therefore not suitable for agricultural cultivation or storage activities. Informal sources of credit from other farmers or moneylenders are far more accessible for poorer households, but interest rates are far higher – up to around 10 percent per month.

Weight losses.

Farmers interviewed who did store paddy claimed that storage losses (due mainly to insects and rodents) were relatively low – between 2 and 5 percent over a season (4 to 5 months). Loss of moisture due to drying is difficult to estimate. At harvest time when the grain is relatively moist, the moisture content is likely to be in the order of 15 to 20 percent of the weight. After several months storage, and depending on the storage facilities, moisture is likely to drop to around 5 to 10 percent. Therefore over a storage season it is reasonable to assume a weight loss due to drying of 5 to 10 percent, though this will be higher for the aman marketing season which occurs during the dry season. This is important as it is not taken into consideration in the paddy wholesale prices collected by the Department of Agricultural Marketing.

Other factors.

Quality deterioration, the capital costs of storage, the cost of storage pest and disease control, and labour costs are all likely to be low for small farmers. Storage is inexpensive, normally in clay pots inside farmers' houses. Labour costs and costs for pest and insect control are also minimal.

Returns to storage.

This section will focus on Bogra, where production is higher and therefore there is greater scope for storage.

i) Benefits from storage.

If it is assumed that the combination of storage losses (2-5%) and moisture losses (5-10%) as 10 percent, this means that the benefit in price increases (29.3 % for aman, 20.7 % for boro) will be reduced by 10 percent. Therefore a real benefit is:

For aman: $0.9 \times 1.293 = 1.164$ or 16.4 percent.

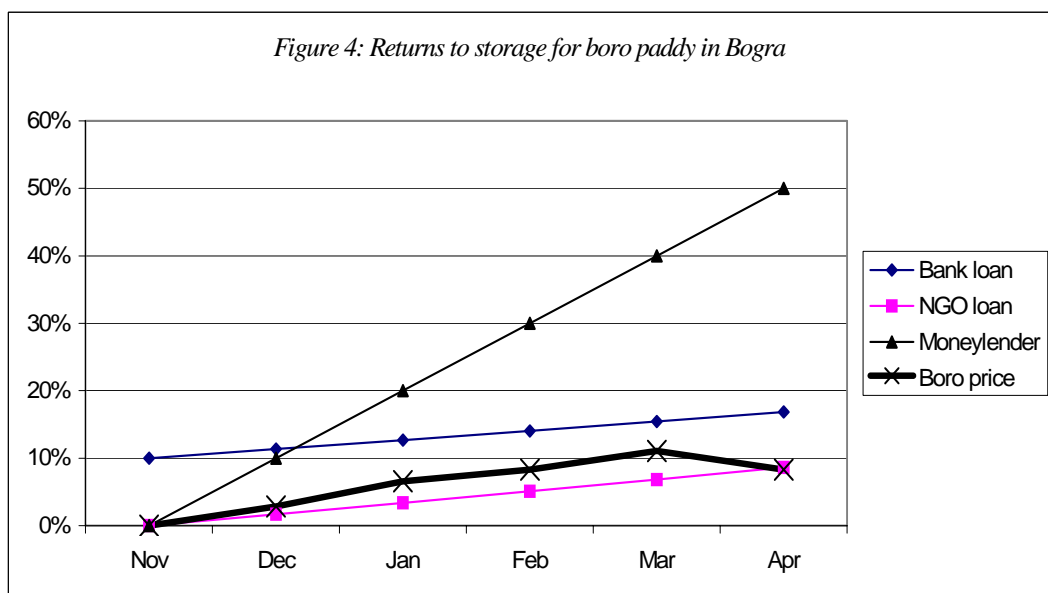
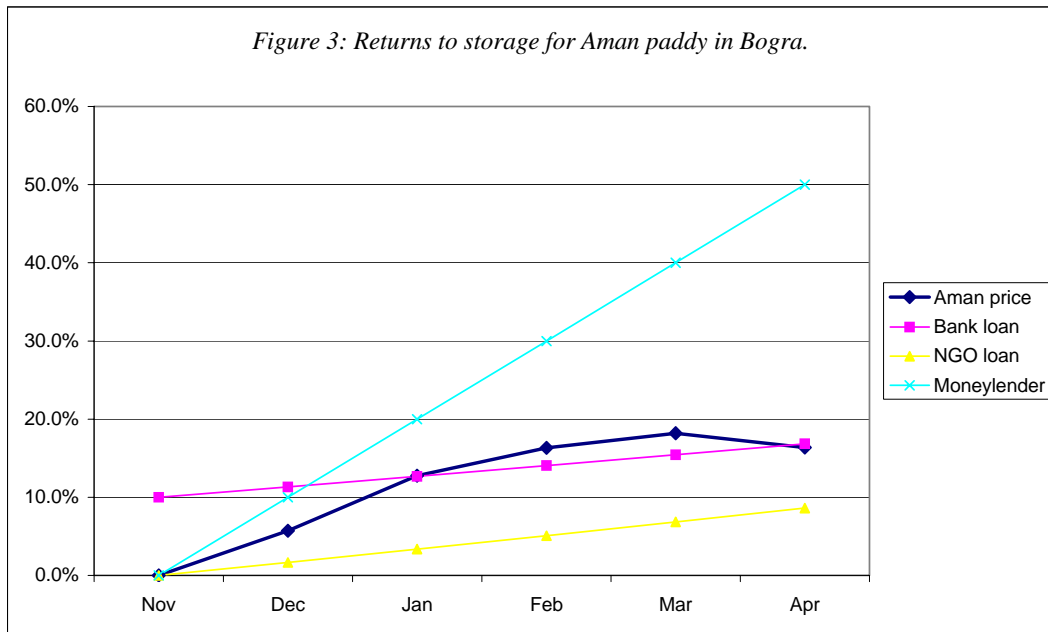
For boro: $0.9 \times 1.207 = 1.086$ or 8.6 percent.

ii) Costs of storage.

Keeping this simple and only focussing on the costs of capital, a number of different scenarios can be drawn for different sources of credit.

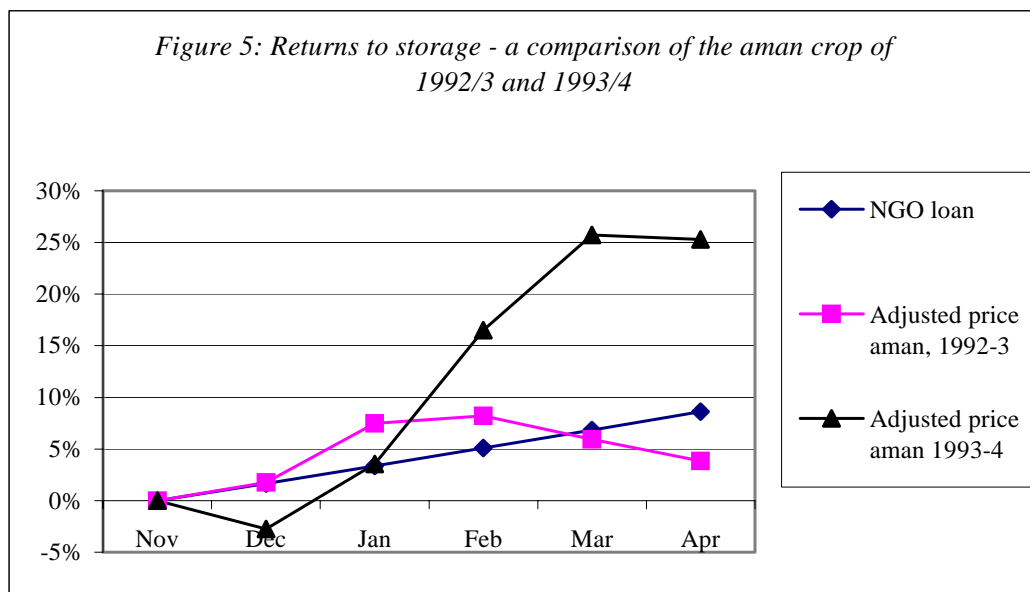
The figures 3 and 4 below show the potential returns to storage in Bogra for both aman and boro. Where the interest rates of loans are below the price of paddy (adjusted for storage and moisture losses), the farmers can benefit. For both aman and boro it can be seen that using informal sources of credit to finance storage is not profitable for farmers due to the high interest rates charged by moneylenders (on the graph the moneylender line is above the adjusted price line). For banks the calculation is more difficult because of the very widespread corruption in the banking system and the associated need to pay bribes to access finance (this was a frequently mentioned problem). To reflect this a 10

percent initial payment has been added to the curve. Therefore, for boro storage, banks are not a profitable source of funds (even if small farmers had access to the banks, which very rarely do). For aman, even with the 10 percent bribe included, there is some scope for profiting in February and March (after 3 and 4 months of storage) though the gains are very small. Only for NGO credit, which is frequently subsidized, is there a strong case for lending for storage gains, with possible benefits for farmers of around 10 percent in the Aman season, and 5 percent in the boro season.



From the evidence of the analysis there appears to be a case for cheap credit, probably channeled through NGOs to enable farmers to profit from storing paddy, particularly in the aman marketing season. However, there are additional factors to consider before this approach can be recommended.

Figure 5 demonstrates the difficulty of decisions facing farmers. Figure 2 above gives a false impression of the price fluctuations of paddy during the post harvest periods, as it only provides the average of price fluctuations over the 1990-99 period. In fact, the nature of fluctuation changes year on year, in scale and timing. Take the years 1992/3 and 1993/4 as an illustration of this. As can be seen in Figure 5 the post harvest price fluctuations in these two years were very different in character. In 1992/3 the price grew fairly steadily in December and January, remained constant into February and then fell back in March and April. Conversely, in the following year the price continued to fall in December, before increasing rapidly through January February and March. The interest rate typically available from NGOs is also included in the graph, which represents the approximate minimum costs of storage.



In the 1992/93 season, the most profitable time to sell paddy in storage would have been in January, when farmers could have achieved a profit of around 5 percent (above the costs of storage). In 1993/94 however, selling in January would not have made any profit for the farmers, though by waiting until March, farmers could have achieved a profit of nearly 20 percent. Conversely, if farmers in 1992/93 had held onto their paddy until March, they would have made a small loss, and a larger loss of 5 percent if they waited until April.

The conclusion from this discussion is that even if farmers had access to cheap credit, which in itself is very problematic, then profits from storage cannot be guaranteed. The amount of the profit from storage is dependent upon the farmer choosing the right time to sell his paddy, which is a difficult decision required very good knowledge of the market to be able to predict how the market price is likely to change in the future. A 'storage for profit' strategy is therefore risky. Is it a risk worth taking? Averaged out, the above analysis suggests that farmers will make approximately 10 percent profit over the price of paddy at harvest. In November 2000, the aman price dropped to a low of taka 239 per maund, so if farmers at harvest time thought it was going to be a typical marketing season they stood to make an extra taka 24 for each maund they stored and sold after 4 months. Farmers in Bogra sold an average of approximately 14 maunds of paddy, so if this was stored and sold they would have received taka 336 extra, not a large sum. However, small farmers in Bogra grew an average of 39 maunds of paddy. If a larger proportion of this was stored and sold, say 30 maunds, the profit from selling would have been taka 720. This is better, but does it risk and the effort of NGOs to set up the credit scheme (remember that the assumption here is that NGOs provide the credit at an annual rate of interest of 20 percent)?

One final point, which is taken up a far greater length in the social anthropological study, is that the above discussion assumes that farmers will make decisions purely on financial grounds. The work of the social anthropological team on the project found that the livelihoods of small resource poor farmers in the study areas are extremely complex, and that decisions on marketing are made in the context of a range of considerations, including the maintenance and building of social capital, which plays a vital role in livelihood strategies. Even if (and this is a big 'if') NGOs were able to provide credit for farmers to store, further investigations are required to determine whether farmers would decide to implement a storage for profit strategy.

The relationship between paddy and rice prices

It can be hypothesized that the paddy price will never rise above the rice price minus processing and marketing costs and margins of profit. However, the paddy price is not always fixed by the price of rice, as there is anecdotal evidence provided by millers that the absolute difference between the paddy and rice price fluctuates through the year. It is claimed that the price margin is narrow when the prices are high, the margin is wider when prices are low, just after harvest. This is potentially important, as this indicates that there may be excess profits in the marketing system after harvests.

If there are fluctuations in the paddy-rice price gap, it may be possible to identify why this market failure is occurring. One hypothesis about why paddy prices may fluctuate more than rice prices is that milling acts as a bottleneck between the two markets. If milling capacity is insufficient to process the paddy being produced at harvest, and there is insufficient storage (finance) to absorb the paddy in the market, prices will be depressed without affecting the rice market, which will be supplied at the constant rate of

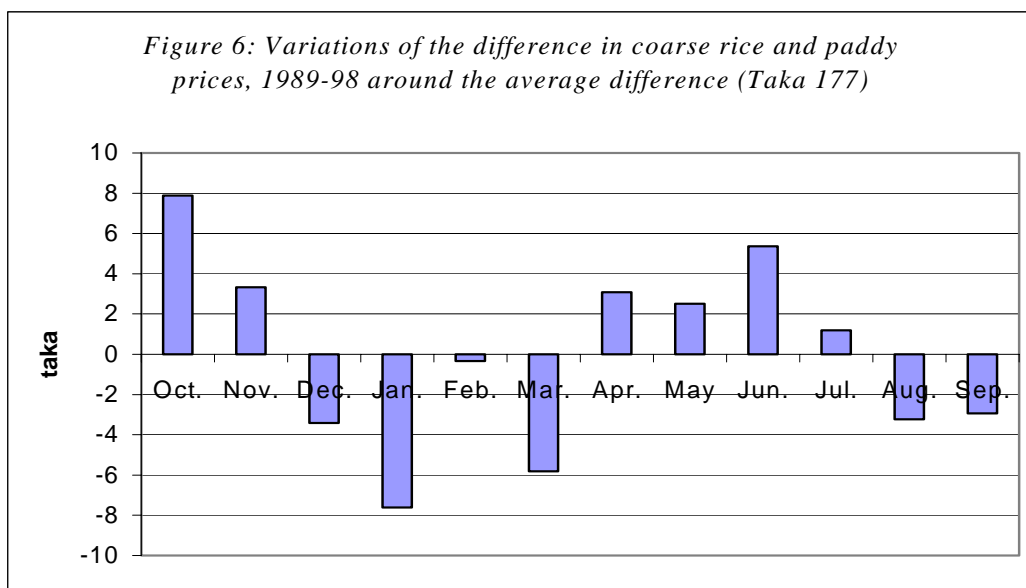
full milling capacity. If this is the case, rice prices may be expected to flatten out during the harvest period, and only pick again once mills are no longer running at full capacity and supply to the rice market is reduced. Paddy prices should show a far more pronounced dip. The research team therefore explored the relationship between paddy and rice markets to see how the relationship between paddy and rice prices varies through the year.

Sources of data.

As with the above analysis of paddy wholesale data, the data for this exercise came from the records of the Department of Agricultural Marketing. Data from 1989 to 1998 was used.

Table 3: Coarse rice and paddy prices, 1989-98

Months	Coarse Rice price (taka per maund)	Coarse Paddy price (taka per maund)
Oct.	435.08	250.4
Nov.	416.72	236.6
Dec.	423.28	249.9
Jan.	413.08	243.9
Feb.	428.76	252.3
Mar.	446.88	275.9
Apr.	451.28	271.4
May	424	244.7
Jun.	416.56	234.4
Jul.	422.28	244.3
Aug.	422.16	248.6
Sep.	430.96	257.1



In figure 6, bars above the axis show the period when the gap between paddy and rice prices increases, whilst the bars below the axis show when this gap closes. Our hypothesis was that the price gaps may increase during the post harvest period, say in the 2 months following the harvest, which would be from November to January for aman paddy and May to July for the boro season. If this was true, we would expect to see bars above the axis for these months. In fact, figure 6 is far from conclusive in this respect. In December and January the gap is smaller than the average, whilst in May and June it is only marginally larger than average.

There is therefore no firm evidence that the overall marketing margin between paddy wholesale and rice wholesale prices increases in the post harvest period, and therefore no evidence that there are excessive margins at this time. Furthermore, if the higher moisture content of the paddy in the post harvest period is also taken into account, then it would be reasonable to expect margins to increase during this period, which make the narrowing of the margin in December and January difficult to explain.

ANNEX 3

Paddy marketing and rural livelihoods in Bangladesh: Farmer survey findings

W.M.H. Jaim

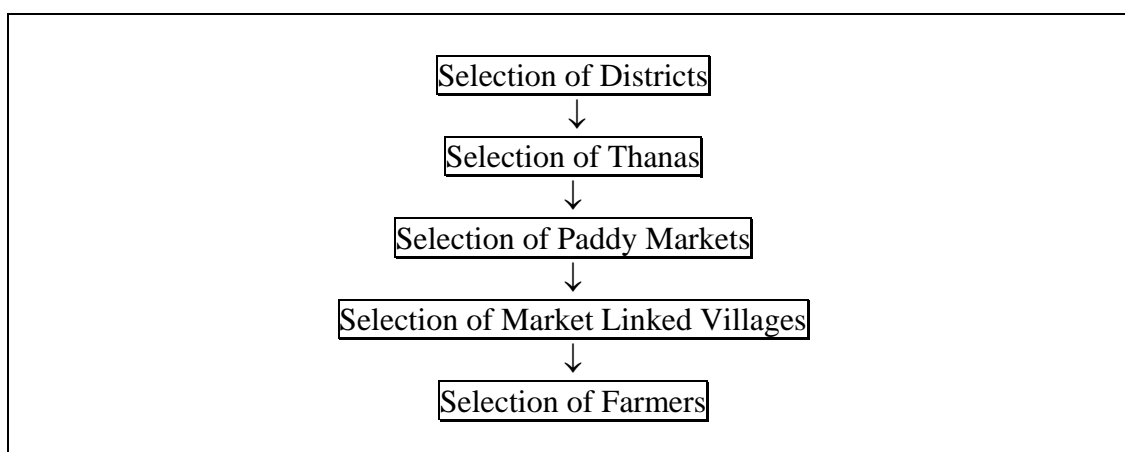
July 2001

INTRODUCTION

In order to understand small and medium farmers' marketing behaviour and identify their main problems in relation to paddy marketing, two questionnaire-based field surveys were conducted during the Aman and Boro¹ marketing seasons 2000². The questionnaires were conducted in three districts of Bangladesh located in different agro-ecological regions with diverse characteristics. A total of 120 farmers were selected for the survey, with all these farmers interviewed in both of the surveys. In the following sections, the methodology for selecting farmers as well as main findings from the field survey are discussed.

METHODOLOGY

The following steps were involved in the selection of farmers for conducting the paddy marketing survey:



Selection of Districts³

For the study, three districts namely Bogra, Feni and Sunamganj were selected. The criteria for the selection were to include both surplus and deficit situations in rice production, different agro-ecological conditions, and diversity of socio-economic conditions. The district of Bogra, located in the north-western region of Bangladesh, is the most intensively irrigated area in the country. The major part of this district is high land (free from floods) which has facilitated the production of all types of rice (i.e. Aman, Boro and Aus⁴) throughout the year. This has made this district surplus in rice production.

¹ The two most important paddy cultivation seasons in Bangladesh are Aman and Boro. Aman paddy is cultivated over the monsoon season from approximately July to November, when it is harvested. The main marketing season for Aman begins in November and continues until March or April. Boro is the dry season rice crop requiring irrigation, which is grown from approximately February until May. The marketing season for Boro lasts from May until August.

² This report was compiled by Dr Jaim, from questionnaires completed by a team of social scientists from the Bangladesh Rice Research Institute, led by Dr M.A Jabbar.

³ Bangladesh is divided into ?? Districts, which are the primary administrative unit of regional authorities. Districts are further sub-divided into smaller units called Thanas, normally centered around a market town.

⁴ Aus is a relatively minor rice crop grown in parts of the country between April and August.

On the other hand, the district of Feni which is located on the coast of the Bay of Bengal in the southern part of Bangladesh is deficit in terms of rice production. Rainfed local Aman is the main rice crop of the district and the production of Boro rice is very low as the district as a whole is less blessed with irrigation facilities, particularly due to the problem of groundwater salinity. The third selected district of Sunamganj, which is located in the 'Haor'⁵ area of north-east Bangladesh, has some distinctive characteristics compared to other parts of the country. Most of the district remains under deep water during the 'Monsoon' season when crop production is not possible. Production of crops is possible only in the dry winter season when mostly Boro rice is produced with irrigation facilities. However, at the end of Boro season there is always risk of flash floods originating from rivers in neighbouring India. The occurrence of floods is the decisive factor in determining whether in a particular year the district is surplus or deficit in terms of rice production.

Selection of Thana

From each of the three selected districts one Thana was selected; however, the basis of selecting Thana was different for each district in order to have a range of agro-ecological and socio-economic conditions represented in the survey. In the case of Bogra, a list of Thanas which are surplus in rice production was first prepared in consultation with the District Extension Officer and local persons. Then from that list one Thana named Dupchachia was selected randomly. Similarly from the list of deficit Thanas in Feni, Sonagazi Thana was selected randomly. In the case of Sunamganj, a list of vulnerable Thanas which are surplus or deficit depending on flood condition was first prepared and from that list Sunamganj Sadar Thana was selected randomly.

Selection of Paddy Markets

For selecting markets, a list was drawn up of the markets from which the Department of Agricultural Marketing (DAM) collects price information for each of the three districts. DAM collects price information not only on paddy and rice, but for all other agricultural commodities. Through the field survey it was found that except Bogra, the markets in Feni and Sunamganj from which DAM collects price information were not found to be important in terms of paddy marketing. Therefore, only in Bogra, one of the markets called Dhaperhat (under Dupchachia Thana) from which DAM collects price information was selected.

For selecting a paddy market in Feni under Sonagazi Thana, a list of important paddy markets was first prepared in consultation with the District Extension Officer and local persons and from that list Baktarmunshi Bazar was selected randomly. A similar procedure was followed in selecting market in Sunamganj where a market called Noakhali Bazar under Sunamganj Sadar Thana was selected.

Selection of Villages

After selecting markets, separate lists of the villages which are linked (in terms of paddy marketing) with these three selected markets of Bogra, Feni and Sunamganj were prepared. Then two villages for each of the three districts were selected randomly from those lists. Thus the villages Kathohali and Kolgram of Dupchachia thana under Chamrul Union of Bogra district; Sofarpur and Char Chandia villages under Number 8

⁵ Hoar is the name give to the areas of Bangladesh which flood severely during the monsoon season creating inland seas, where crop cultivation is only possible during the dry season.

Amirabad and Number 6 Char Chandia Unions respectively of Sonagazi Thana under Feni district; and the villages Noakhali and Kumurail under Joykolosh and Patharia Unions of Sunamganj Sadar Thana under Sunamganj district were selected for conducting the farmers' survey.

Selection of Farmers

For selecting farmers, first a list of all the farm households were prepared in the case of small villages while for big villages, two 'Paras'⁶ were selected randomly to make the household list. Then from that list, 40 farm households were selected randomly for each of the three selected districts. Thus, 120 farmers altogether were selected for the farm survey.

Two questionnaires were developed to collect information on a wide range of post harvest and marketing issues for farmers. The first questionnaire, for the Aman marketing period, was informed by initial informal discussions with farmers, which were held to obtain a sense of the most important issues. The first questionnaire was broad in its scope and included questions on a wide range of post harvest activities, including storage, processing and transportation, as well as questions specifically targeted at the current Aman marketing season. The survey also collected information on household and farm characteristics. This survey was completed in March and April 2000. The second questionnaire, for the Boro marketing season, collected information specific to the current Boro marketing from the same farmers interviewed in the first survey, but also picked up on some the more important issues which were identified in the first questionnaire, including sources of credit and selling arrangements with marketing intermediaries. The second survey was conducted in October and November 2000.

RESULTS AND DISCUSSIONS

Findings from the First Farmers' Questionnaire, March to April 2000

Family Structure, Farmers' Education and Religion

The average size of the selected households was found to be 8.80 persons which varied widely among the households in the three selected districts as can be seen from Table 1. The number of family members per family was found to be the highest in Feni followed by Sunamganj and Bogra. Average family members in Feni was found to be about double compared to that of Bogra. The Table further shows that adult family members (both male and female) constituted more than 50% of the total family members implying a good supply of working labour force.

⁶ Villages are typically spilt into sections known as 'Paras'. Larger villages may have more than 5 Paras.

Table 1 Household composition, farmers' level of education and religion

Particulars	Bogra	Feni	Sunamganj	All
Family composition (in number) :				
Adult male (above 14 years)	1.85	3.73	2.88	2.82
Adult female (above 14 years)	1.70	3.15	2.07	2.31
Children (10-14 years)	.78	1.50	1.62	1.30
Children (5 – 9 years)	.80	1.42	1.25	1.66
Children (under 5 years)	.68	1.08	.38	.71
Average family members	5.81	10.88	8.20	8.80
Level of education of the farmer (in %):				
Illiterate	12	10	30	18
Class I to V	50	43	53	48
Class VI to IX	15	20	3	16
SSC	15	17	12	15
HSS	5	-	-	2
Graduate	2	-	2	1
All	100	100	100	100
Religion (in %) :				
Muslim	93	93	70	85
Hindu	7	7	30	15
All	100	100	100	100

Regarding the education level of the selected farmers, it was found that 18 % had no education while about one-half (48%) of them had education up to Primary level (up to Class V). Most of the farmers had education below SSC level. Farmers having education above SSC level was found to be negligible (only 3 %). Among the three selected sites, farmers in Sunamganj were found to be less educated compared to Bogra and Feni.

With respect to religion, unlike Bogra and Feni, a considerable proportion (30%) of the families in Sunamganj were Hindus. In Bogra and Feni, only 7% families were Hindus and the rest were Muslims (Table 1). Besides land ownership; family structure, level of education and religion have implications on diversified nature of occupation of household members as was observed in the three selected districts.

Classification of Farms

Farmers were classified into three groups according to total land cultivated for production of Aman paddy during last season (1999). Total cultivated land included rented in / mortgaged in land in addition to owned land. The three groups were 'Small', 'Medium' and 'Large' who cultivated Aman paddy up to 2.50 acres, 2.51 to 5.00 acres and above 5.00 acres respectively.

On the basis of these categories, it was found that 90 % of the farmers both in Bogra and Sunamganj fell under Small Farm category while in both the districts only 10 % fell under Medium Farm category and none was under Large Farm category (Table 2). The situation in Feni was found to be somewhat different where the percentage of Large Farms was found to be 7 % while the percentages for Small and Medium Farms

were 68 % and 15 % respectively. Table 2 also shows average size of Aman cultivated land of the farmers in the selected three districts by farm categories. On average, farmers in Bogra, Feni and Sunamganj cultivated Aman in 1.34, 2.83 and 1.85 acres of land respectively.

Table – 2: Farmers in different farm size categories and average Aman cultivated land by districts

Size Categories	Bogra		Feni		Sunamganj	
	No. of farms	% of total	No. of farms	% of total	No. of farms	% of total
Small (upto 2.5 acres)	36 (1.12)	90	27 (1.54)	68	36 (1.19)	90
Medium (2.51 to 5.00 acres)	4 (3.31)	10	6 (3.40)	15	4 (3.19)	10
Large (above 5.00 acres)	- (-)	-	7 (7.33)	17	- (-)	-
All	40 (1.34)	100	40 (2.83)	100	40 (1.85)	100

Note : Figures in the parentheses indicate average land cultivated (in acres) for producing Aman crop.

However, farmers' livelihood status cannot be assessed only from information on land cultivated in one season. Among other factors it depends mostly on crops grown throughout the year as well as varieties of crops grown, and alternative sources of income. It may be recalled that most of the farmers in Bogra district produce rice throughout the year while farmers in Feni mostly produce one rice crop, Local Aman and in Sunamganj farmers also produce mostly one rice crop, HYV Boro. Table 3 confirms this showing that in Bogra, land under cultivation for producing Aman and Boro is almost the same while in Feni, land under Aman cultivation was more than double compared to that of Boro. On the other hand, in Sunamganj, land under Boro production was 70% higher than that of Aman land.

Land devoted for production of other crops was found to be of minor importance in Aman and Boro seasons in all the selected areas. The distribution of cultivated land by crops can be seen from the Table 3. The table further shows that total land cultivated by the sample households was the highest for Sunamganj (5.00 acres) followed by Feni (4.25 acres) and Bogra (2.83).

Table 3 Land under cultivation per farm for producing Aman, Boro and other crops by district

Crops	Bogra		Feni		Sunamganj	
	Acres	% of total	Acres	% of total	Acres	% of total
Aman	1.34	47	2.83	67	1.85	37
Boro	1.32	46	1.16	27	3.15	63
Other crops	.17	3	.26	6	.00	0
Total	2.83	100	4.25	100	5.00	100

Production of Aman Paddy by Farm Category

Production of Aman paddy per farm was found to be the highest (87 maunds) in Feni followed by Bogra (43 maunds) and Sunamganj (22 maunds) (Table 4). This means per farm production in Feni was about double compared to that of Bogra although farmers in Feni devoted more than double the amount of land for Aman production. Again per farm production in Bogra was about double compared to that of Sunamganj although average cultivated Aman paddy land in Bogra was much less compared to that of Sunamganj.

The inter-district variations in Aman production was mainly due to differences in proportion of land devoted to Local and High Yielding Varieties (Table 4) in addition to total land cultivated (Table 2). Production per farm indicated substantial possibilities of marketing of Aman paddy particularly by the farmers in Feni and Bogra. However, low production of Aman for the farmers in Sunamganj indicated limited marketing activities. Aman production by farm size categories can also be seen from Table 4 which implies that all types of farms, particularly in Bogra and Feni, had sufficient production for selling in the markets.

Table - 4 Production of Aman paddy by farm category and by district

Size Categories	(In maunds per farm)								
	Bogra			Feni			Sunamganj		
	LV	HYV	Total	LV	HYV	Total	LV	HYV	Total
Small	7.06	29.53	36.59	23.96	32.78	56.74	16.63	4.64	21.27
Medium	20.00	80.50	100.50	42.10	70.57	112.67	23.25	2.25	25.50
Large	-	-	-	127.36	56.29	183.65	-	-	-
All	8.53 (20%)	34.63 (80%)	43.16 (100%)	44.78 (51%)	42.50 (49%)	87.28 (100%)	17.29 (80%)	4.40 (20%)	21.69 (100%)

Figures in the parentheses indicate percentages of total production by variety for each district.

Marketing of Aman Paddy

Participation of Market Intermediaries and Point of Paddy Sale

Farmers sold paddy to different intermediaries mostly at the markets. Paddy sold at farm gate was found to be negligible both in Feni (7 %) and Sunamganj (6%). However, in Bogra quite a good number of farmers (18 %) sold paddy at the farm gate. In Bogra and Feni, differences in prices per maund of paddy for selling at markets instead of farm gate were about Tk 8 for Local Aman and Tk. 7 for HYV Aman. The differences were higher in the case of Sunamganj where for Local and HYV these were Tk. 10 and Tk. 8 per maund respectively.

Table 5 Aman paddy sold to different market intermediaries at farm gate and at markets by districts

(In Maunds / farm)

Market Intermediaries	Bogra		Feni		Sunamganj	
	Sold at farm gate	Sold at Market	Sold at farm gate	Sold at Market	Sold at farm gate	Sold at Market
Other farmers	1.15 (47%)	.25 (2%)	.35 (42%)	-	-	.75 (47%)
Faria	-	-	-	-	.08	.60 (38%)
Bepari	1.30 (53%)	6.41 (57%)	.48 (58%)	10.36 (100%)	-	.25 (15%)
Wholesaler	-	-	-	-	-	-
Miller	-	4.57 (41%)	-	-	-	-
All	2.45 (100%)	11.23 (100%)	.83 (100%)	10.36 (100%)	.08	1.6 (100%)

In Bogra and Feni, among the market intermediaries linked with farmers, ‘Beparis’⁷ played a significant role for purchasing paddy from the farmers both at the farm gate and in the markets. Farmers in Bogra also sold directly to the millers (41 % of total sale) as there are a large number of mills within a few kilometers from the selected villages. On the contrary, in Sunamganj where a small amount of Aman paddy was marketed, the incidence of Beparis directly linking with farmers was not so prominent (Table 5). This was mainly due to farmers’ problems of transporting small amounts of paddy for marketing. Even in the market places farmers mostly sold paddy to other farmers (47% of paddy sale) and to Farias⁸ (38%). Further, it was found that in all the three places farmers did not have any direct links with the paddy wholesalers (‘Aratdars’) in selling Aman paddy. The analysis in this section indicates that the involvement of market intermediaries in both Bogra and Feni was much less compared to Sunamganj.

Weekly Sale of Aman Paddy after Harvest

Table 6 shows weekly pattern of paddy marketing after Aman harvest by district. Among the three districts, in the selected villages of Sunamganj, only a small amount of paddy was marketed (1.96 maunds per farm) as Aman production in this area was very low. On the other hand, Aman was the main rice crop in the selected area of Feni and although total production per farm in Feni was about double compared to that of Bogra, farmers in Bogra marketed more paddy compared to farmers in Feni (Table 5). This was due to the fact that the farmers in Feni try to store more Aman paddy to ensure year-round domestic rice consumption while farmers in Bogra sell more Aman paddy as they satisfy the need for domestic rice consumption both from Aman and subsequent Boro crops. It may also be noted that consumption need for the households

⁷ Beparis are relatively large scale traders. They generally operate out of marketing centres and use motorised vehicles to collect and transport paddy and rice. Smaller scale traders are termed ‘Farias’, who generally operate out of villages and use pedal powered transport (rickshaws and vans).

⁸ See footnote 7 above.

of Feni was much higher than that of Bogra as the family size of the former was found to be about double compared to that of the latter (Table 1).

Table - 6 Per farm amount of Aman paddy sold at different periods by district

Weeks	Bogra		Feni		Sunamganj	
	Amount (maunds)	% of Total	Amount (maunds)	% of Total	Amount (maunds)	% of Total
Nov. 3 w – Dec	8.81	64	3.13	26	0.82	42
2 w	4.32	31	2.58	21	.57	29
4w	1.49	11	.50	4	.25	13
Dec. 1w	.55	4	.05	1	.00	-
2w	2.45	18	.00	-	.00	-
Dec 3w – Jan 2	3.73	27	5.67	47	0.63	32
w	2.13	16	3.93	33	.38	19
4w	1.03	7	.62	5	.25	13
Jan 1w	.37	3	.12	1	.00	-
2w	.20	1	1.00	8	.00	-
Jan 3w – Feb	1.25	9	3.25	27	0.51	26
2w	.85	6	3.25	27	.38	19
4w	.13	1	.00	-	.13	7
Feb 1w	.27	2	.00	-	.00	-
Total	13.79	100	12.05	100	1.96	100

Note : W = Week

It can be seen from Table 6 that in Bogra, after Aman harvesting commenced in mid-November, 80 % of the marketing of paddy took place only in five weeks (starting from 3rd week of November to 3rd week of December). Further, about one third (31%) of Aman paddy was marketed in the first week after harvesting of Aman paddy. The corresponding figures for Feni and Sunamganj were 21 % and 29 % respectively. This indicated the extent of cash needs by the farmers irrespective of regional differences in Aman production. Farmers in Feni completed marketing of Aman paddy by the 3rd week of January while the Sunamganj farmers continued up to the end of January. Considering all the areas, it was found that about 69% of Aman paddy was marketed within 5 weeks of the start of harvesting. This confirms the general statement that the farmers sell paddy immediately after harvest.

Price of Aman Paddy during Harvest Season

Price Variation by Major Varieties

Variations in Aman paddy prices were observed across the regions (three selected areas) during the period of Aman marketing. In general, price of Aman paddy was found to be higher in Feni compared to Bogra and Sunamganj. However, price per maund of Aman paddy was slightly higher in Sunamganj compared to Bogra. The main reason for higher prices both in Feni and Sunamganj is that the local variety of Aman mostly grown in these areas has prices which normally remain higher than HYV varieties. On the other hand, in Bogra farmers mostly produce HYV varieties the price of which is lower than the local variety. The differences in prices of local and HYV Aman can be seen in Table 7. More than two-thirds of the sampled farmers reported that they devote more land for HYV paddy cultivation as its yield is higher although the price is slightly lower than the local variety.

Table 7 Price of Aman paddy by major varieties at peak harvest time

(Tk. Per maund⁹)

Variety	Bogra	Feni	Sunamganj
Local Variety	239	264	246
HYV (BR – 11)	226	260	Not available
Pajam	242	258	Not available

Variation of Price by Weeks

In all the three sites, as the time passes after the Aman harvest, an increase in prices of paddy was observed (Table 8). In Bogra, paddy prices increased by about 23% in only 7 weeks time from the 3rd week of November when Aman harvesting started.

However, after that paddy price decreased, but still it was higher by about 14% in the 2nd and 3rd week of January.

In Feni, gradual increase of Aman paddy price was also observed. The price increased by about 20% in about two months time beginning from 3rd week of November. In Sunamganj the increase in price was about 14% in 6 weeks time beginning from mid November. The paddy price however, decreased by the end of January, but still it was higher by about 9% compared to beginning of the season. The findings suggest that selling Aman paddy just after 6 to 8 weeks would have substantially benefited the farmers from increased paddy prices. However, this needs to be considered with the costs of storage, and the increase in price does not necessarily mean that farmers would increase their returns.

*Table - 8 Price of Aman paddy sold at different weeks by districts
(Price per Maund in Taka (see footnote 9))*

Weeks	Bogra	Feni	Sunamganj
Nov. 3 w	236	262	242
4w	242	-	250
Dec. 1w	227	-	-
2w	244	-	-
3w	271	269	275
4w	273	290	275
Jan 1w	290	305	-
2w	268	305	-
3w	269	313	263

Note: Blank spaces indicate that price information was not available or very few observations

⁹ The exchange rate at the time of the research was Taka 78 to £1.

Reasons for Sale of Aman Paddy Immediately after Harvesting

About 80 % of the farmers in Bogra reported that they sold paddy immediately after harvesting of Aman due to their cash needs to meet family consumption as well as to meet the production expenditure of the subsequent crop, Potato. The remaining 20 % of the Aman paddy sellers said that repayment of loan, mortgaging land, and the avoidance of storage losses (due to insects) were the main reasons for selling paddy shortly time after the harvest. In Feni and Sunamganj, almost all the farmers reported that cash needs to meet family expenditure was the main reason of paddy sale immediately after harvest.

Aman Paddy Selling and Buying Behaviour

Four categories of farmers were identified according to the paddy selling and rice purchasing behaviour of the sample farmers. The categories are :

- (i) Farmers who sold Aman paddy immediately (within 2 months) after Aman harvest but need to buy rice before the next harvest.
- (ii) Farmers who did not sell paddy and need to buy rice before the next harvest.
- (iii) Farmers who sold paddy and do not need to buy rice before the next harvest.
- (iv) Farmers neither sold paddy nor need to buy rice.

The percentage of farmers who sold Aman paddy at the beginning of the season and need to buy rice later on in the same season was found to be higher in Feni (40%) compared to Bogra (35%). Again, in Feni the percentage of net buyers of Aman paddy who did not sell rather need to purchase was 23% which was very close to that of Bogra (20%). The situation in Sunamganj was found to be quite different compared to Bogra and Feni. In Sunamganj, only 5% of the farmers were involved in both buying and selling activities while 75% of the were net buyers of Aman paddy who did not sell Aman paddy. The reason is, most of the Sunamganj area is not suitable for Aman production; as a result they have little scope in selling Aman paddy.

Table 9 Percentage of farm households involved in selling and buying activities

Particulars about Aman paddy sale and buy	Bogra		Feni		Sunamganj	
	No. of Farmers	% of Total	No. of Farmers	% of Total	No. of Farmers	% of Total
(i) Sold in the harvest season but need to buy later on.	14	35	16	40	2	5
(ii) Did not sell rather need to buy later on.	9	23	8	20	30	75
(iii) Sold in the harvest season and does not need to buy later on.	11	27	15	38	2	5
(iv) Did not sell in harvest season and also need not to buy later on.	6	15	1	2	6	15
All Farmers	40	100	40	100	40	100

It can also be seen from Table 9 that the percentages of surplus Aman producers (who only sold paddy and do not need to buy) were 27%, 38% and 5% in Bogra, Feni and Sunamganj respectively. Further, the percentages of self-sufficient farmers who neither sold Aman paddy nor need to buy it again during the year were 15% in Bogra, 2% in Feni and 15% in Sunamganj. The analysis shows that in Aman producing areas of Bogra and Feni more than one-third of the farmers sold paddy immediately after harvest knowing that they will have to buy it again later on (at a higher price).

Table 9 further shows the percentage of the farmers by farm category who need to purchase paddy during the year. It shows that 58% farmers in Bogra, 60% farmers in Feni and 80% of the farmers in Sunamganj need to purchase paddy to meet their whole year consumption need. Again, by farm category, it was found that 61% of the small farmers and 25% of the medium farmers in Bogra need to purchase paddy (Table 10). In the case of Feni, the corresponding percentages for small, medium and large farm categories were found to be 73%, 20% and 57% respectively. The percentage of large farmers who need to buy paddy was found to be quite high in Feni which was mainly due to the fact that they had very little scope to produce the subsequent Boro paddy. In Sunamganj, 81% of the small farmers and 75% of the medium farmers need to buy paddy during the year. It may be recalled that the scope of producing Aman paddy in Sunamganj area is very limited as mentioned earlier. Further, it may be mentioned again that there was no farmer under large category both in Bogra and Sunamganj.

The magnitude of purchasing paddy (by the deficit farmers) before next Aman season can also be seen from Table 10. The figures for Feni and Sunamganj were found to be quite high compared to Bogra as the farmers in Bogra have good opportunity for producing both Aman and Boro while farmers in both Feni and Sunamganj mostly grow single rice crop (either Aman or Boro). Further, the consumption needs of rice for the households in Feni and Sunamganj were also higher compared to Bogra as the average family sizes of the selected households in Feni and Sunamganj were found to be much larger than that of Bogra.

Table 10 Percentage of households need to purchase paddy during the year and amount of paddy to be purchased

Particulars	Bogra :			Feni :				Sunamganj :		
	by Farm Category			by Farm Category				by Farm Category		
	Small	Medium	All	Small	Medium	Large	All	Small	Medium	All
% of farmers need to purchase paddy	61	25	58	73	20	57	60	81	75	80
Amount of paddy to be purchased per farm during the year (in Maunds)	5.95	2.50	5.80	11.32	8.00	15.50	11.20	22.36	24.00	22.52

Marketing Activities, Facilities and Constraints

Storage

Storage Facilities and Extent of Aman Paddy Stored

About 90% farmers in Bogra, 95% farmers in Feni and 70% farmers in Sunamganj stored Aman paddy from their production. The amounts of Aman paddy stored per farm were found to be 12.77 maunds in Bogra, 25.98 maunds in Feni and 12.02 maunds in Sunamganj. In all the districts more than 90 % of the farmers reported that storage facilities were available in their houses (table 11) and about 95% of the farmers reported that they did not have any problems with storage facilities.

Table 11 Storage facilities and amount of Aman paddy stored per farm household

Particulars	Bogra	Feni	Sunamganj
% of farmers stored Aman paddy	90	95	70
Amount of Aman paddy stored per farm (in maund)	12.77	25.98	12.02
% of the farmers reported storage facilities were available	93	95	97

Purposes for Storing Paddy

Aman paddy was stored mainly for consumption purpose followed by marketing and seed purposes. Out of total Aman paddy stored by the farmers the percentages for consumption purpose were 77% in Bogra, 75% in Feni and 86% in Sunamganj (Table 12). Farmers in the selected area of Bogra stored 14% of Aman paddy for future marketing. The corresponding figures for Feni and Sunamganj were 16% and 7% respectively. As Aman is a minor rice crop in Sunamganj area, the scope for marketing of this paddy is also limited there. Further, it was found that 7 to 9% of the Aman paddy were stored as seed by the farmers in the study areas.

There were also variations in the amount as well as variety of Aman paddy stored by the farmers in the three selected areas (Table 12). Total amount of Aman paddy stored per household in Feni was about double compared to that of Bogra and Sunamganj. This was mainly because Aman is the main rice crop in this area and there was much less scope to produce the subsequent Boro crop. Further, it was found (Table 12) that proportions of Local variety of Aman in both Feni and Sunamganj were much higher compared to Bogra. This confirms the earlier findings that adoptions of HYV Aman in Feni and Sunamganj were much lower than Bogra.

Table - 12 The purposes and extent of Aman paddy stored per farm by districts

(Quantity in maunds per farm)

Particulars	Bogra : Stored for			Feni : Stored for			Sunamganj : Stored for		
	Consum- ption	Seed	Marketing	Consum- ption	Seed	Marketing	Consum- ption	Seed	Marketing
	-----	-----	-----	-----	-----	-----	-----	-----	-----
Local Variety	2.94	.26	.94	12.16	1.10	3.80	8.23	.74	.08
HYV	6.91	.85	.90	8.04	1.27	.62	2.13	.14	.75
Total	9.85	1.11	1.84	20.20	2.37	4.42	10.36	.88	.83
% by purposes	77%	9%	14%	75%	9%	16%	86%	7%	7%

Causes and Extent of Storage Loss

Most of the farmers (95%) reported that they had no storage problems. However, although they didn't perceive it as a major problem, the farmers did incur some storage losses, which were 5% in Bogra and 4% in Feni (Table 13). However, In Sunamganj, the storage loss was found to be 10%, which was relatively high. The main reason for storage loss in Bogra was found to be attack by the insects while in Feni and Sunamganj it was due to spoilage by rats. Accordingly, the measures taken for preventing the loss were somewhat different in Bogra compared to Feni and Sunamganj areas (Table 14). However, in all the areas, measures were taken mostly to prevent loss from rats (Table 14).

Table -13 Causes and extent of storage loss per farm

Causes of storage loss	Extent of storage loss		
	Bogra	Feni	Sunamganj
Rats (in maund)	.23	.92	.82
Insects (in maund)	.46	.13	.27
Damp (in maund)	-	-	.06
Total (in maund)	.69	1.05	1.15
% of storage loss	5	4	10

Table - 14 Measures taken to prevent storage loss

(% of respondents)

Measures	Bogra	Feni	Sunamganj
Closed the mouth (opening) of container ('Motka') tightly / Kept paddy in bags and put it up from floor making 'Matcha'	43	-	12
Used Medicine for killing rats	37	80	76
Used local instrument to kill rats	20	20	12
Total	100	100	100

Processing

Loss of Aman paddy stored due to damp was negligible (Table 14) because for Aman paddy drying was not a major problem as reported by 90% of the farmers in Bogra, 100% farmers in Feni and 87% farmers in Sunamganj (Table 15). It may be mentioned that Aman is harvested in dry season which prevails quite a few months after harvest.

Table - 15 Farmers responses about drying problem of Aman paddy

Farmers responses about drying problem : whether existed or not	(% of total responses)		
	Bogra	Feni	Sunamganj
Yes	10	0	13
No	90	100	87
Total	100	100	100

Farmers usually do not parboil paddy for marketing; they mostly parboil it for consumption. However, in Sunamganj, only 5% farmers reported that they parboil paddy for marketing. It may be noted that unlike Bogra and Feni, people in Sunamganj prefer non-parboiled rice for their consumption and the millers in Sunamganj also do not have parboiling facilities. On the other hand, most of the millers in Bogra and Feni have parboiling facilities. Further, about 95% farmers reported that they did not have any problems parboiling paddy.

Again, all the farmers reported that they clean paddy for marketing and price of clean paddy is higher by Tk. 10 per maund compared to that of uncleaned. Most of the farmers do not think that cleaning of paddy is a problem; but some of them (9 %) reported that availability of labour and lack of space are their major constraints for cleaning paddy.

Transport and Market Access

About 25% to 35% of the selected farmers in Bogra, Feni and Sunamganj reported various transportation problems related to Aman paddy marketing. The nature of the problems in the three selected areas varied widely as can be seen in Table 16. Bad road conditions ('Kuntcha' (un-metalled roads) and traditional modes of transport were reported as the main problems of Aman paddy marketing for the farmers in Bogra (Table 16). The main mode of transportation in the selected villages of Bogra was either 'Rickshaw'¹⁰ or 'Van'¹¹. In the rainy season using these types of transportation in 'Kuntch' road becomes very difficult. Even these are not always available, particularly in the rainy season. Timely availability of 'Rickshaw' or 'Van' has also been reported as the main problem of transporting paddy in the selected villages of Feni.

¹⁰ Tricycle with passenger seat.

¹¹ Large tricycle for transporting loads.

The nature of the problems in Sunamganj were somewhat different compared to Bogra and Feni. As the selected villages in this district were located in the ‘Haor’ areas, there was no road communication directly from the village to the markets. About half of the farmers reported that this was their main problem of transporting paddy particularly in dry season. Again in the rainy season, although boats are used as the main mode of transport, hiring of boats sometimes become difficult as reported by one of the farmers. The second most important problem in this area as reported by three of the farmers was ‘Kuntch’ road which becomes unusable in rainy season. Further, ‘Rickshaws’ or ‘Vans’ are not always timely available as reported by another farmer (Table 16).

Table – 16 Difficulties experienced by the farmers in transporting paddy

Type of Difficulties	Bogra		Feni		Sunamganj	
	No. of respondents	% of total	No. of respondents	% of total	No. of respondents	% of total
‘Kuntcha’ (un-metalled) road	6	46	1	7	3	30
‘Van’ / ‘Richshaw’ are not timely available particularly in rainy season	6	46	12	86	1	10
There is no road from village to the market	1	8	1	7	5	50
Hiring boat become sometime difficult	-	-	-	-	1	10
Total	13	100	14	100	10	100

Market Information

Market information is important for the farmers for selling paddy at a higher price or to take decisions about the timing of paddy sales. More than half (56 %) of the farmers interviewed said that they need price information and they use the available price information for selling paddy. Again, about half of those who were not so concerned about price information, reported that they did not use price information as the quantity of paddy sold was small.

Credit¹²

Credit for farmers, particularly for small and medium farmers is very important to meet consumption and production expenses. It was found that during the period of data collection (in last Boro season) about half (46 %) of the farmers had loans to the extent of Tk. 8273 on the average ranging from Tk. 500 to Tk. 50,000 (Table 17). Compared to Bogra and Sunamganj, the percentage of farmers who took loans from others was the lowest for Feni (33 %) but the amount per family was found to be the highest (Tk. 13000). On the other hand, in Bogra, although the percentage of the farmers who took loans was the highest, the amount of credit per farm was the lowest compared to the other two districts.

¹² Exchange rate at the time of the research was Taka 78 to £1

Table 17 Percentage of the farmers received loan and amount of loan per farm at the time of survey by districts

Particulars	Bogra	Feni	Sunamganj	All
% of the farmers who received loan from others	55	33	50	46
Amount of loan per family (in Tk.)	4795	13000	9500	8273
Range (in Tk.)	(500 – 20000)	(2000 – 50000)	(2000 – 22000)	(500 – 50000)

Farmers received loan from different sources among which Agricultural ('Krishi') Bank¹³ plays a very important role as can be seen from Table 18. About half of the farmers received loan from Agricultural Bank and among the three selected sites, farmers in Sunamganj had more access to this source. Few farmers also received loan from Commercial Banks, Grameen Bank, NGOs. Next to Agricultural Bank, major sources of loan were found to be relatives and money lenders (Table 18). The importance of money lenders and relatives as sources of loan was found to be dominant in Feni compared to other two districts. However, the overall findings suggest that farmers access to institutional sources of loan has increased substantially and on the other hand, role of money lenders are of minor importance in some places like in Bogra and Sunamganj.

Table 18 Percentage of the farmers received loan by sources and by districts

Sources of loan	(% of farmers received loan)			
	Bogra	Feni	Sunamganj	All
Commercial Banks	18	-	-	7
Agricultural Bank	32	39	67	46
Grameen Bank	4	-	-	2
NGO	5	8	5	6
Money lenders	9	23	13	14
Relatives	18	22	15	18
Others ('Somity' / society)	14	8	-	7
Total	100	100	100	100

Regarding the schedule of loan repayment, about 80 % of the farmers in Bogra and Feni and about 60 % farmers in Sunamganj reported that they would repay the loan after Boro harvest. The rest of the farmers reported that they would repay the loan at other times of the year or through several installments. On the average 92% of the farmers were supposed to repay loan in terms of cash while the rest 8% of the farmers were supposed to repay loan in terms of paddy. In the case

¹³ This is a state owned bank lending specifically to the agriculture sector.

of cash repayment, interest rate varied between 16% to 20% per annum for institutional sources (including NGOs) while for non-institutional sources it was as high as 10% per month. In the case of repayment in terms of paddy, the most common arrangement in Bogra was repayment of 2 maunds of paddy as interest for borrowing Tk. 500 for three months. In Feni, the arrangement was to repay 13 Kg. of paddy for borrowing Tk. 50. In the case of Sunamganj, no specific arrangement was traced for repayment in paddy.

Table 19 Mode of repayment of loan by districts

Particulars	(Farmers' responses in %)			
	Bogra	Feni	Sunamganj	All
Mode of loan repayment :				
In cash	95	82	94	92
In terms of paddy	5	18	6	8
Whether sell of paddy is needed in the case of repayment in cash :				
Yes	54	27	56	46
No	46	73	44	54

Farmers were asked whether they need to sell paddy to repay loan in cash. On the average about half of the farmers ((46 %) reported that they need to sale paddy for loan repayment. However, the percentage of the farmers need to sell paddy for loan repayment was found to be the lowest (27 %) in the case of Feni (Table 19).

Public Intervention in Rice Marketing

Sale to Government Procurement Centres

In order to provide benefit to the rice producers, Government has a programme to purchase paddy after harvest at a price which is higher than the prevailing market price during the post harvest period. However, instead of farmers, traders and local people with influence (known as 'musclemen') are the main suppliers of paddy to the procurement centres, and it is these people who actually benefit from the higher paddy price. It was found that less than 2 % (only 2 farmers out of 120) of the farmers interviewed sold paddy to the Government procurement centres. Farmers reported a variety of reasons for not selling paddy to the procurement centres as can be seen in Table 20.

Table 20 Reasons for not selling paddy by the farmers in the Government Procurement Centres

Reasons	(% of farmers responded)		
	Bogra	Feni	Sunamganj
a) Problems of transporting paddy to the procurement centres as these are located too far.	34	50	67
b) Non-farmers (local influentials / 'muscelmen') creates problems.	29	8	-
c) Procurement centres do not purchase small amount of paddy.	20	22	25
d) Others	17	20	8
Total	100	100	100

The main problem of selling paddy to the procurement centres was transportation, as these were located too far from the villages. It may be mentioned that procurement centres are located at the thana and district headquarters where the actual purchase is made. Farmers also reported that procurement centres do not purchase paddy in small quantities which was found to be the second most important reason for not selling paddy to the procurement centres.

Further, problems created by the traders and local influentials / musclemen were also reported by the farmers particularly in Bogra as one of the important reasons for not selling at the procurement centres. Farmers complained that the local influentials / musclemen purchase the farmers' paddy by force and sell it to the procurement centre. The traders also purchase their paddy for supplying it to the procurement centres and get higher price. Other reasons for not selling to the procurement centres were problems in getting money for their paddy to the procurement centres because of the complex system followed by the procurement centres in purchasing paddy. It may be mentioned that a prior booking is needed to sell paddy to the procurement centres and money is paid through banks, increasing the number of trips that need to be made to the thana or district headquarters, and hence increasing costs. Small and medium scale farmers do not want to face these problems when selling a relatively small amount of paddy (even if their paddy is purchased).

Participation in Government Welfare Programmes for Food Distribution

Government has a number of welfare programmes to help the rural poor to survive. One of these programmes is Food for Works Programme. Under this programme, the labourers get rice or wheat for their work, particularly earth work for constructing or repairing village roads. It was found that only 6% of the farm households surveyed participated in this programme and worked for 10 days under this programme. It may be mentioned that this programme is mainly for the landless households who get employment opportunities in the lean period. The percentages of the households participated in Food for Works Programme in Bogra, Feni and Sunamganj were 2%, 10% and 5% respectively.

The Government has also a programme of open market rice sell for the poor when rice price goes up. The survey showed that only 3 households out of 120, purchased rice (6 Kg. per household) from open market sale. None of the sample households received benefits from other programmes such as Food for Education. Therefore, it was evident from the survey that these government welfare programmes had little effect on the livelihoods of the farm households.

Findings from the Second Farmers' Questionnaire, October to November 2000

Production of Boro Paddy

Production of Boro paddy per farm in the selected districts of Bogra, Feni and Sunamganj largely depended on area cultivated and variety used for Boro production. Average cultivated lands per household for Boro production were found to be 1.50 acres in Bogra, 0.77 acres in Feni and 2.48 acres in Sunamganj (Table - 21). About three-quarters of the Boro cultivated land was owned by the farmers themselves while the rest were under rental and mortgage arrangements. Cash rental was dominant in Bogra while renting land through share cropping arrangements was dominant in Feni and Sunamganj.

It may be recalled (from the Aman season survey) that Boro was the main crop in Sunamganj while land suitability and irrigation facilities limited Boro cultivation in Feni. On the other hand, farmers in Bogra were in advantageous position of cultivating both Boro and Aman paddy. Farmers in Bogra were also found to cultivate other crops during the Boro season, and average amount of land under other crops was found to be 0.20 acres.

Table 21 Boro paddy cultivated land per household by land ownership pattern
(Land in acres)

Land ownership type	Bogra	Feni	Sunamganj	All
Own land	1.01 (67 %)	.61 (79 %)	1.81 (73 %)	1.14 (73 %)
Rented in land (cash rental)	.40 (27 %)	0 (0 %)	.15 (6 %)	.18 (11 %)
Rented in land (share cropping)	.03 (2 %)	.16 (21 %)	.38 (15 %)	.19 (12 %)
Mortgaged in land	.06 (4 %)	0 (0 %)	.14 (6 %)	.06 (4 %)
Total cultivated land for Boro	1.50 (100%)	.77 (100%)	2.48 (100%)	1.57 (100%)

Note : Figures in the parentheses indicate percentages of total Boro cultivated land.

Per farm production of Boro paddy in the districts of Bogra, Feni and Sunamganj were found to be 64.04 maunds, 36.45 maunds and 103.03 maunds respectively (Table – 2). Farmers cultivated different varieties of Boro which also varied across the three selected districts. BR – 1 variety was the most dominant variety in Bogra contributed to about 84 % of total Boro production. In Sunamganj, BR – 19 and BR – 29 were the two most dominant varieties contributed to about 42 % and 40 % of total production respectively. Farmers in Sunamganj also produced local variety of Boro paddy which contributed to about 11 % of total production. On the other hand, in Feni, the most dominant variety was Purbachi followed by BR – 2 and IR – 8 contributed to 41 %, 28 % and 25 % respectively of the total production. As a result of varietal differences prices of paddy varied widely in the three districts as was revealed in the subsequent analysis.

Table - 22 Boro paddy area and production per farm by variety

(Area in acres and production in maund)

Variety	Bogra		Feni		Sunamganj		All	
	Area	Production	Area	Production	Area	Production	Area	Production
BR – 1 (Chandina)	1.23	53.84 (84%)	-	-	-	-	.43	17.94 (26%)
Br – 2 (Mala)	-	-	.22	10.15 (28%)	-	-	.07	3.38 (5%)
BR – 19	-	-	-	-	1.02	43.3 (42%)	.34	14.43 (21%)
BR - 28	.08	3.78 (6%)	.03	1.55 (4%)	-	-	.04	1.78 (3%)
BR – 29	-	-	.01	.50 (1%)	.87	40.98 (40%)	.29	13.83 (20%)
76 (Purbachi)	.04	2.05 (3%)	.32	15.07 (41%)	-	-	.12	5.70 (8%)
IR – 8	-	-	.19	9.17 (25%)	-	-	.06	3.06 (5%)
Pariza	.15	4.37 (7%)	-	-	-	-	.05	1.46 (2%)
Other BRRIDHAN	-	-	-	-	.20	7.33 (7%)	.06	2.44 (3%)
Local variety	-	-	-	-	.37	11.43 (11%)	.12	3.81 (6%)
Total	1.50	64.04 (100%)	.77	36.45 (100%)	2.46	103.03 (100%)	1.59	67.84 (100%)

Note : Figures in the parentheses indicate percentages of total production by variety.

Disposal of Boro Paddy

On average, about 45% of the total Boro production was utilized for domestic consumption while 46% was marketed. Only 2% of the production was retained as seed and the remaining 7% of the production was disposed mostly for the purposes of share cropping payment (Table 23). The amount of Boro paddy still in storage was found to be negligible as Aman harvesting already started when data was being collected (November).

It was revealed from the analysis that on average, domestic consumption and marketing constituted about 91% of total production, although there were substantial differences in the composition of these two components in the three districts as can be seen from the Table 23. About two thirds (66%) of Boro production in Bogra was marketed while only 31% was used for domestic consumption. This is because in Bogra, both Boro and Aman are equally important and farmers can ensure sufficient domestic consumption of paddy from production of paddy in both the seasons. On the other hand, in Feni, production of Boro was very low and whatever the farmers produced was mostly (65%) consumed by themselves. Only 21% of the total Boro production was marketed. On the contrary, Boro was the main rice crop in Sunamganj, as a result of which both consumption and marketing were more or less equally important. It was found that about 42% of total Boro production in Sunamganj was marketed while 47% of the production was used for domestic consumption.

Table 23 Disposal of Boro paddy for different purposes by districts

(Figures in maunds per farm)

Disposal of paddy	Bogra	Feni	Sunamganj	All
Domestic consumption	20.05 (31%)	23.76 (65%)	48.10 (47%)	30.63 (45%)
Marketed	42.09 (66%)	7.63 (21%)	43.70 (42%)	31.14 (46%)
Retained for seed	.87 (1%)	.80 (2%)	1.95 (2%)	1.21 (2%)
Gifts	.25 (>1%)	.08 (<1%)	.50 (<1%)	.28 (>1%)
Share cropping payment	.75 (1%)	4.18 (11%)	8.78 (9%)	4.57 (7%)
Still in storage	.03 (>1%)	0 (0%)	0 (0%)	.01 (>1%)
Total	64.04 (100%)	36.45 (100%)	103.03 (100%)	67.84 (100%)

Boro Paddy Storage and Processing Activities

Storage

Farmers reported that they stored paddy for the purposes of consumption, marketing and seed preservation. The period of storage continued from the harvesting season of Boro up until the Aman harvesting period. In addition to paddy, farmers also stored rice, particularly in Bogra. Since Boro is an important rice crop for both Bogra and Sunamganj, the problems of storage and processing have been identified mainly with respect to these two districts ignoring Feni where Boro is not so important.

About 58% of the farmers both in Bogra and Sunamganj reported that they had problems of Boro paddy storage. The rest of the farmers did not find any problem of storage. Attack by insects was found to be the main problem of paddy storage as reported by 65% of the farmers in Bogra. The other problems were spoilage of paddy by rats, lack of in-house paddy storage facilities and problem of paddy drying as reported by 22%, 9% and 4% of the farmers respectively. In Sunamganj on the other hand, all farmers reported two main problems of Boro paddy storage to be spoilage by rats and difficulty in drying.

Drying

Drying of Boro paddy as a problem was reported by 70% farmers in Bogra, 25% farmers in Feni and 36% farmers in Sunamganj. Most (more than 60%) of the farmers in Bogra and Feni reported that rain and the lack of sunshine during the post-harvest period of Boro was the main problem for drying paddy. It should be mentioned that this is the period when there is frequent rainfall in Bangladesh. On the other hand, the majority of the farmers (64%) in Sunamganj reported that lack of available labour for drying paddy was their main problem. The scarcity of drying space and wet land in the open space during the post harvest period were also reported by about one-third (34%) of the farmers.

Milling

All the farmers in Bogra and Feni milled Boro paddy in commercial mills for household consumption. However, about one-third of the farmers in Sunamganj milled the paddy within the village using small engines (which are often used for other purposes such as power tilling and irrigation water pumping). Farmers in Feni were also observed milling rice within the village (although those farmers were not included in our sample). It may be mentioned that there is a variation in the quality of rice depending on how it is milled. Rice husked in commercial mills is of better quality than that of husked in the village which has implication on rice price. Rice milled through traditional methods or locally using small engines is not of good enough quality to sell in the market, though may be sold within the village.

Farmers normally sell un-husked paddy; only 7% of the farmers in Bogra milled Boro paddy to sell as rice. Farmers were asked why they sell paddy, and not rice. The majority of the farmers in Bogra (57%) replied that selling of rice instead of paddy involves extra cost and time. The lack of processing facilities in their villages was also one of the important reasons for selling in the form of paddy (as reported by 27% of the farmers in Bogra).

Marketing of Boro Paddy

Type of Intermediaries Involved in Boro Paddy Sale

Farmers sold paddy both at the 'farm-gate' as well as in markets. About 39% of total Boro paddy marketed was sold at 'farm-gate' while the remaining 61% was sold in the market places. Beparis were the main buyers of paddy from the farmers both at the 'farm-gate' and the markets (Table 24). In fact, Beparis purchased about 83% of total paddy from the farmers while Farias and millers purchased only 8.45% and 7.69% respectively. Farmers sold paddy to Farias mostly at the farm-gate while at the market they sold mostly to the Beparis. The selling of Boro paddy to other farmers and wholesalers was found to be negligible (less than 1%).

Table 24 Magnitude of Boro paddy sale to different market intermediaries at farm gate and at markets

(Figures in maund per farm)

Market intermediaries	Sold at farm gate	Sold at market	Total sale	% of total
Other farmers	0	.06	.06	.20
Faria	2.50	.03	2.53	8.45
Bepari	9.14	15.80	24.94	83.33
Wholesaler	.10	0	.10	.33
Miller	0	2.3	2.3	7.69
Total	11.74 (39%)	18.19 (61%)	29.93 (100%)	100

About half (54%) of the farmers who sold Boro paddy to Farias said that they sold to Farias because they personally knew them or they were familiar in the village. About one-quarter (23%) of the farmers said that availability of ready cash was the main reason for selling to Farias. Again, about 15% of them replied that no transportation cost was involved in the case of selling paddy to Faria as they normally buy at farm gate. About one-third of the farmers sold to Beparis as they were the only available market intermediary. Some Beparis were personally known to the farmers which was also the main reason to sell paddy to them as reported by 29% of farmers who sold paddy to Beparis. Again, about one-quarter (24%) of the farmers who sold to Beparis said that the reason for selling paddy to Beparis was the availability of ready cash.

Table 25 Reasons for sale to Faria, Beparis and Miller

Reasons	(% of respondents)		
	Faria (N = 13)	Beparis (N = 84)	Miller (N = 12)
Easily available / Millers are available at close proximity	0	8	67
No transportation cost involved	15	8	0
Only available intermediary in the market	0	30	0
Ready cash money is available	23	24	25
Better weight & no cheating	8	1	0
Familiar in the village / personally known	54	29	8
Total	100	100	100

Note : N means number of respondents.

The supply to millers largely depends on the proximity of mills. The availability of ready cash was also one of the main reasons for selling paddy to millers (Table 25).

Seasonal Distribution of Boro Paddy Sale

The fortnightly distribution of Boro paddy sold per farm after harvesting can be seen in Figure - 1. Although magnitudes of sale of Boro paddy per farm were found to be different for the three districts, they followed similar trends. The Figure shows that the marketing of Boro paddy was concentrated mostly during the period from the first half of May to the first half of July. Again, it can be seen from Table 26 that during this two and half month period after the Boro harvest, on average about 70% of paddy was marketed. In the cases of Bogra, Feni and Sunamganj the corresponding percentages were 84%, 86% and 67% respectively. After reaching peak sale during the period of the first half of May to the first half of June, the sale of Boro paddy sharply decreased. Subsequently, a very small amount of Boro paddy was marketed which continued up until September (Figure - 1). It may be mentioned that from October to beginning of November when harvesting of next rice crop, Aman, starts, the marketing activity related to Boro paddy was negligible.

Table 27 Percentage of Boro paddy sold per household at different periods during Boro marketing season

Period	Bogra	Feni	Sunamganj	All
2 nd half of April	1	0	7	3
1 st half of May	15	12	20	16
2 nd half of May	19	13	13	15
1 st half of June	22	22	15	18
2 nd half of June	15	16	8	11
1 st half of July	11	9	11	10
2 nd half of July	9	14	4	7
1 st half of August	6	5	9	7
2 nd half of August	2	3	3	3
1 st half of September	0	6	5	3
2 nd half of September	0	0	4	5
1 st half of October	0	0	1	0
Total	100	100	100	100

Seasonal Pattern of Boro Paddy Price by Districts

As expected the price of Boro paddy was found to be inversely related to volume of sales. The price of Boro paddy was found to be the lowest during the month of May, which is just after the Boro harvesting period. Table 28 and Figure – 2 show that although substantial differences in prices in the districts of Bogra, Feni and Sunamganj prevailed, the seasonal pattern of paddy price during Boro marketing season followed the same trend. On average, Boro paddy price started at Taka 225 per maund in the month of May, and gradually increased up to Tk. 273 in the first half of October, 2000. The increase of paddy price during this four and half months period was Tk. 48 per maund on the average. This was highest for Bogra (Tk. 53 per maund) followed by Sunamganj (Tk. 48) and Feni (Tk. 41) respectively.

During this short span of time, there are benefits of retaining paddy (up to four to five months after harvest) to get a higher price. However, the analysis showed that just in one month after harvest (when the price remains at the lowest level), one third of the paddy was sold. Again, in one and half months time about 50% of paddy was sold and in two and half months time about 70% of paddy was sold. Thus, farmers in general could not access these higher prices of paddy.

Table 28 Price of Boro paddy sold at different periods by districts

(Figures in Taka per maund)

Period	Bogra	Feni	Sunamganj	All
2 nd half of April	240.0	Na	232.0	232.7
1 st half of May	240.8	203.5	230.4	226.6
2 nd half of May	236.5	205.9	231.2	225.2
1 st half of June	242.5	210.1	239.5	231.8
2 nd half of June	261.2	213.6	246.5	239.1
1 st half of July	268.2	218.2	247.0	244.8
2 nd half of July	270.7	224.8	249.7	246.8
1 st half of August	278.5	230.3	252.6	253.0
2 nd half of August	276.7	233.0	256.3	251.7
1 st half of September	280	245.0	258.8	253.2
2 nd half of September	290	Na	265.0	269.2
1 st half of October	Na	Na	272.5	272.5
Range (Taka)	237 - 290	204 - 245	230 - 278	225 - 273

Use of Money received from Selling Boro Paddy.

To discover why farmers sold paddy immediately after harvest, they were asked how they utilized their money selling paddy. The main reason for selling paddy was found to be cash needs to meet household consumption expenditures (Table 29). The second most important reason for selling paddy was to meet expenses for crop cultivation (more specifically Aman paddy). Selling paddy to repay loan was not found to be as prevalent as expected, though selling paddy to bear educational expenses was found to be important.

Table 29 Most important uses of money from Boro paddy sales at different periods
(% of responses)

Period of paddy sale	Purposes for which money was used			
	household expenditures	For crop cultivation	To repay loan	educational expenses
1 st half of May	54	-	32	-
2 nd half of May	64	10	13	-
1 st half of June	35	28	-	22
2 nd half of June	39	16	-	25
1 st half of July	59	25	-	10
2 nd half of July	52	12	-	15
1 st half of August	63	20	-	9
2 nd half of August	58	-	-	33
1 st half of September	55	27	-	9
2 nd half of September	50	50	-	-
1 st half of October	50	50	-	-

Access to Credit

Sources of Credit

The sale of paddy immediately after harvest clearly indicated farmers' shortage of cash to meet household and production expenditures and repay loans. Therefore, access to credit for the farmers was investigated. It was found that out of forty farmers interviewed in each of the villages in Bogra, Feni and Sunamganj; only 2 farmers in Bogra, 4 farmers in Sunamganj had access to institutional credit. That means on average only about 5% of the farmers (none from Feni) interviewed had access to institutional credit.

The major source of non-institutional credit in Sunamganj was money lenders from whom 8 farmers (29%) received credit while in Bogra informal societies called "Somity" were the main source from which 9 farmers (23%) received credit. Somities are formed mostly by a group of young people which conduct informal lending in the village. The interest rate for money lenders and for Somities is normally around 10% per month. NGOs also provided credit to only two farmers in Bogra. Amount of money received per farm from different sources varied widely (Table 30) depending on purpose of loan.

Table 30 Amount (in Taka) of credit received per farm during Boro season by sources

Sources	Bogra	Feni	Sunamganj
Bangladesh Krishi Bank	4000 (N = 1)	-	9250 (N = 4)
Commercial Banks	4000 (N = 1)	-	-
Grameen Bank	4000 (N = 1)	-	-
Other NGOs	3000 (N = 1)	-	-
Money lender	1500 (N = 1)	-	3500 (N = 8)
Informal Societies	4444 (N = 9)	-	-

Note : 1 . N means number of observations.

2. Farmers in Feni did not receive any credit during last Boro season.

Use of Credit

The credit utilization pattern was found to be different in the three selected districts. Sources of credit seemed to have some influence on credit utilization. It can be seen from Table 31 that in Sunamganj, most of the farmers (67%) used credit for productive purposes like crop production, bullock purchase and power tiller purchase. It may be recalled that out of 12 farmers who received credit, 4 received institutional credit in Sunamganj. On the other hand, farmers in Bogra who had access to various credit sources used credit for multiple purposes ranging from agricultural activities to business (Table - 11). The analysis in this section clearly indicated that farmers needed credit both for consumption and productive purposes even immediately after harvest

Table – 31 Use of loan by purposes in different districts

(% of responses)

Use of loan	Bogra	Feni	Sunamganj
Business	37	-	-
Crop production	28	-	25
Family consumption	21	-	17
Bullock purchase	7	-	25
Purchase of power tiller	-	-	17
Loan repayment	7	-	8
Purchase of land	-	-	8
Total	100	-	100

CONCLUSIONS

The findings of farmers' survey in relation to paddy marketing showed that there were variations in the magnitude of production as well as marketing in the three selected districts. Farmers in all the three selected sites mostly sold paddy in the markets, however the presence of market intermediaries was found to be more in the 'Haor' area of Sunamganj where transporting paddy to the market was difficult. On the other hand, with relatively good transport and milling facilities, direct linkages between farmers and millers were found in a rice surplus area like Bogra which ensured higher price for the farmers.

Despite of regional differences in production and marketing, one common characteristic in all the areas in relation to paddy marketing was immediate sale of most of the Aman and Boro paddy (about 70%) after harvest at a low price. The analysis showed that delay in paddy sales by only about 6-8 weeks would potentially benefit the farmers depending upon the costs of storage. However, cash needs for consumption and production of subsequent crops mostly compel them to sale paddy immediately after harvest although a considerable proportion (more than one-third) of households have to buy rice later in the season. This implies that small farmers may need credit immediately after harvest and supply of credit even after harvest may allow them to get the benefits of higher prices through deferred sale (by about 2 months) of their paddy.

Among marketing activities, drying, cleaning, processing (e.g. parboiling) and storing were not found to be major problems for Aman or Boro producers. However, transporting paddy from the villages to the market places was one of the major problems of marketing paddy in all the places although the nature of transportation problem particularly in Haor area of Sunamganj was somewhat different from that of Bogra and Feni. Improvement of village roads and creating facilities to make local transport available would substantially benefit the farmers to get access to paddy market.

The analysis further showed that farmers had almost no access to Government Procurement Centres which in fact benefiting traders and local influentials. Small farmers are particularly being deprived from this programme as procurement centres do not purchase small amounts of paddy and it is also costly for them to transport paddy to the centres which are mostly located in Thana or District headquarters; quite far from the villages. Impact of other welfare programmes like open market sale of rice, Food for Education Programme was also found to have negligible impact on small farmers' livelihoods.

ANNEX 4

Paddy Marketing and Rural Livelihoods in Bangladesh: Papers presented at the final workshop

Organised by:

Natural Resources Institute (United Kingdom)
Bureau of Socio-economic Research and Training, Bangladesh
Agriculture University
Bangladesh Rice Research Institute

Funded by: Crop Post Harvest Research Programme, DFID

Hotel Abakash, Dhaka, Bangladesh

7 April 2001

Paddy Marketing and Rural Livelihoods in Bangladesh

Hotel Abakash, Dhaka

Saturday, April 7, 2001

Schedule

09:30	Welcome and Participant Introductions
10:00	Introduction to the Project <i>Andrew Goodland</i>
10:20	Paddy prices and marketing behaviour of small farmers <i>W.M.H. Jaim</i>
10:50 – 11:00	<i>Coffee break</i>
11:00	Social anthropological issues and farmer interaction with markets <i>Rabeya Rowshan</i>
11:30	Structure, conduct and performance of paddy markets <i>Andrew Goodland</i>
12:00	Government intervention to support farmers in paddy markets <i>Andrew Goodland</i>
12:30	Discussion of findings
1:00 – 2:00	<i>Lunch at Hotel Abakash</i>
2:00	Summary of key project findings and possible options <i>Andrew Goodland</i>
2:30	Group discussions (details to be announced)
3:15 – 3:30	<i>Tea break</i>
3:30	Group feedback session
4:00	Concluding session
4:30	Close

Discussion Paper 1: Introduction to the project and conceptual framework

Andrew Goodland

In October 1999 the Crop Post Harvest Research Programme funded by the Department for International Development in the United Kingdom (DFID) approved the project, 'Marketing constraints to increasing financial returns to small and medium scale rice paddy producers in Bangladesh'. The project started in February 2000 and concludes in May 2001. The project was conceived following previous work which identified a lack of knowledge of farmer related issues in paddy markets. The target group for this project is therefore the small and medium scale farmers who have some interaction with paddy markets. Our initial feeling was that this would include many resource poor farming household, and this was confirmed in our work. We wanted to explore how these households interact with the market and to also investigate how the paddy market operates and the impact this has on our target households.

The central concept in the research is the 'exchange rate' at which these farm households dispose of their paddy. This includes, though is not restricted to, the 'normal' marketing of paddy, when a farmer sells paddy directly onto the paddy market and receives an amount of cash in return dependent upon the agreed price. In this case, the exchange rate is the price per maund (roughly 37.5 kilograms) of paddy received by the farmer.

In addition to this 'normal' marketing of paddy, farmers also dispose of their paddy through a number of alternative channels. For example, paddy marketing may be linked to other markets - land, labour, capital and agricultural input markets – with paddy used to repay loans, rent land, pay for labour or purchase other agricultural inputs. Earlier research has discovered that the 'exchange rate' in these types of 'interlocked' market transactions are lower than prevailing market prices for paddy (Crow and Murshid, 1994), though it would be expected that the level of the exchange rate should at least be influenced by prevailing market prices. It is also wrong to consider these transactions as one-off, spot exchanges. Typically, exchanges are conducted over a period of time (such as credit arrangements), or consist of a number of related transactions, or form a sequence of transactions. Built into many exchanges are concepts of risk and trust, of social obligations, of expectation of reciprocity.

This project aimed to throw some more light on these transactions, and particularly to determine the factors, which influence the 'exchange rates' that poorer households receive for their paddy. This is an important area of study. Much of the previous research on the rice sub-sector in Bangladesh has focussed on production issues, with marketing issues largely neglected. How and why households dispose of their paddy is a vital area for research as it closely linked to production issues and is a key determinant of rural livelihoods.

We tackled this issue from two angles: firstly, from the farmer household perspective, exploring what factors influence the households' marketing decisions; and secondly, understanding more about how the market operates, and how this affects paddy marketing households. Bringing these two areas together will lead to a greater understanding of the current role of paddy in rural livelihoods, and the potential enhanced role of paddy marketing for income generation.

Specifically, the research hypotheses were as follows.

1. The first hypothesis relates to the functioning of paddy markets. It is hypothesised that inefficiencies in paddy markets result in lower producer prices.

2. The second hypothesis addresses resource poor paddy producing households' access to paddy markets, as expressed in the exchange rates realised for their paddy. It is hypothesised that economic, political and social constraints prevent small and medium scale farmers from achieving better exchange rates for their paddy.
3. The third and final hypothesis concerns government support policies for farmers, and in particular the paddy and rice procurement and distribution system. It is hypothesised that the government policies intended to support small producers in marketing paddy fail in both design and implementation to support these farm households.

Approach and Activities

At the conception of the project, a decision had to be taken as to the most suitable approach to take to tackle the above hypotheses. What was clear from the outset was the essentially qualitative nature of much of the information to be collected. The research team was aware of previous research and was keen to minimise duplication and add a new angle to complement existing research findings. Much of the previous research into paddy marketing has been done by large-scale questionnaire survey (eg. Islam et al, 1987) which yielded a vast amount of valuable quantitative information. Many of the issues under investigation in this project are less easy to quantify, and required a different approach to the research. Questionnaire surveys were included, though sample size was relatively small (120 farmers and 110 traders and millers). Alongside these questionnaire surveys, less formal research tools were employed to try and get to the bottom of the complexity of paddy markets and farmers' interaction with these markets. The research team consisted of both agricultural economist and social anthropologists, with both disciplines approaching the same issues from different entry points (broadly speaking with the economists more concerned with the financial returns and the social anthropologists with the nature of relationships between market players). The team conducted a number of research activities between February and December 2000¹. Activities included:

1. a review of literature of previous research conducted in relevant subject areas;
2. questionnaires of 120 farm households in three contrasting districts of Bangladesh, querying post harvest and marketing issues;
3. focus group discussions with the same farm households to explore market interaction;
4. in depth repeat interviews with selected farm households to develop detailed case studies of market interaction;
5. surveys of traders and millers in the paddy marketing systems of the three districts; and,
6. the review and analysis of secondary price data on paddy and rice prices in the three districts.

Study areas:

Three districts were selected for fieldwork. The objective in survey site selection was to choose three areas contrasting in terms of socio-economic and agro-ecological conditions. It was hoped that by looking at similar issues in contrasting situations would deepen our understanding of these issues. The three districts selected were Bogra, Sunamganj and Feni. Bogra is one of the major rice production areas of the country with very high cropping intensity. All sizes of farmers are able to cultivate both aman and boro paddy. There is also a large marketable surplus of paddy, and a well developed marketing infrastructure including a high concentration of mills. Sunamganj suffers from annual floods which prevent the

¹ The team consists of Andrew Goodland, Andrew Long and Barbara Adolph (Natural Resources Institute (UK)), Professor W.M.H Jaim from the Bureau for Socio-economic Research and Training at the Bangladesh Agricultural University, a team led by Dr M.A. Jabbar at the Agricultural Economics Department of the Bangladesh Rice Research Institute, and a team led by Rabeya Rowshan, a social anthropologist consultant.

cultivation an aman crop in most areas. It is therefore dependent upon boro production, though even this is at risk from flash flooding. Marketing infrastructure is far less developed than Bogra, and the area itself is remote, especially during the monsoon season when the area is largely dependent upon boat transport. Sunamganj has a relatively large Hindu community. Feni, in direct contrast to Sunamganj, is nearly completely dependent upon aman production and has only small boro and some aus production. In the southern part of the district, where our survey villages were located, only a small area of land is irrigated and water salinity is a hazard. The area is politically volatile, and we were not able to complete all of our intended fieldwork here.

Developing a conceptual framework for the research

Designing research activities and analysing and interpreting research findings requires a conceptual understanding of the issues under investigation. As the project is looking at both market efficiency and household relations and market linkage, both economic and social concepts needed to be consulted. The result was that three different approaches to understanding markets and market access were drawn upon in the project: neo-classical economics analysis of markets; new institutional economics analysis of market behaviour; and the sustainable rural livelihoods framework currently being developed by DFID, UNDP and others. These three can be fused to develop a holistic conceptual framework for understanding marketing issues.

Neo-classical economics market analysis.

This approach considers markets as agents of development, potentially providing the means for the efficient allocation of resources to ensure the highest value production and maximum consumer confidence. Markets generate prices in liberalized economies. If markets are perfectly competitive, producers will maximize their profits and incomes by producing those commodities which consumers most desire and can pay for, and they will do so at least cost. Likewise, all market participants will act 'rationally' and attempt to maximize profits whilst minimizing cost. The conditions for perfectly competitive markets include assumptions of a sufficient number of buyers and sellers, freedom of entry, absence of monopolies or monopsonies, perfect and equal access to information. The absence of any of these assumptions will lead to market inefficiencies with potentially negative consequences for producers and consumers. Improvements in efficiency will reduce the cost of marketing and the marketing margins of participants thus increasing producer prices and/or lowering consumer prices. This implies that storage, transport and processing costs equate with the differences between prices in time, form and space.

The performance of a marketing system can be viewed in terms of economic efficiency. Although this is difficult to measure accurately, it can be assumed that high levels of competition in a market should provide the incentives to improve firm level and system wide efficiencies. For the purposes of this project, an assessment can be made of the degree to which the conditions for competition are being met in the paddy market, which will give an indirect measure of market efficiency.

This will include:

- relative numbers and sizes of different types of trading enterprises in paddy markets;
- barriers to entry into different levels of the paddy market;
- the availability of market information;
- barriers to capital and labour entering the market; and
- facilitating conditions such as reliable communications and means to enforce contracts

New Institutional Economics

Many of the assumptions made in neo-classical economics do not hold, especially in developing countries, and the approach is considered as irrelevant to analyzing markets. New Institutional Economics (NIE) offers an alternative explanation of market transactions. The central concept of NIE is transaction costs. These are those costs associated with conducting transactions, such as gathering information about the other party in the transaction and the goods or services being exchanged and the costs of monitoring and enforcing a contract. With respect to paddy markets, the transaction costs for a farmer selling their paddy would include the costs associated in identifying a buyer, discovering an appropriate price for the paddy, and, if the transaction involves some future action such as a delayed payment for the paddy, ensuring that the purchaser honours the agreement.

The NIE concept argues that institutions and linkages between market participants have arisen as a response to transaction costs and are an attempt to minimize these costs. For example, costs involved in identifying an appropriate buyer for paddy will obviously be lower when something is already known about the buyer. The level of trust between parties is critical in determining the level of transaction costs. The more trust there is between parties, the less the need to invest in information gathering. For this reason, many exchanges take place between parties (people or organizations) which are known to each other, either from repeated exchanges or from personal relationships such as friends, kin, caste or tribe.

Transaction costs are therefore a result of the cost of information. Transaction costs would be zero in a world of perfect and costless information, though clearly this is never the case. However, there is a difference in different market participants' access to information. This leads to information asymmetries when one party in an exchange has 'better' (in quantity or quality) information than the other. This position can be exploited in the transaction. For instance a farmer selling paddy may have less information about prices than the middlemen he is selling to, and the latter may take advantage of this by negotiating a lower price than the prevailing market price. Trade and specialization increase transaction costs because more detailed information is required about the product or good, and the other party in the exchange may be unknown and require information gathering.

For the purposes of this project, transaction costs are likely to be significant due to both imperfect information and the lack of formal means to enforce contracts. The research therefore will consider:

- the level of transaction costs in paddy markets; and
- how these costs have shaped the structure of the marketing system, and in particular the linkages between market participants.

Sustainable rural livelihoods framework

"... livelihood systems comprise a complex and diverse set of economic, social and physical strategies. These strategies are realized through activities, assets and entitlements which individuals make a living." (UNDP website)

The focus of the project is the exchange of paddy, which is a key activity in peoples' livelihood strategies. This includes farmers, traders and millers. The assets of households, individuals and firms are central to determining the exchange rate for paddy. Assets include:

- natural/biological assets (i.e. land, water, common-property resources, flora, fauna);
- social and political (i.e. community, family, social networks);

- financial assets (i.e. cash, savings)
- human (i.e. knowledge, skills); and,
- physical (i.e. land, water, roads, markets).

All of these assets impact on exchange. The exchange rate of paddy may be linked to access to natural/biological and financial assets, for instance to land, irrigation water, power tillers for ploughing, and credit. The exchange rate will certainly be influenced by physical assets such as transport and marketing infrastructure. And crucially, social and political assets may have an enormous bearing on paddy disposal in that they affect the nature of relationships between market participants. This links with New Institutional Economics, in that social relationships are crucial in shaping market structure and behaviour. Political assets, or power, is manifested in the control of the means of production, and is related to a range of privileges and connections which ultimately result in unequal access to markets, and differentiated market exchange rates, with the more powerful benefiting to the detriment of the less powerful.

Pulling the concepts together

Borrowing from each of these three approaches leads to a loose framework for the research. The framework recognises that paddy markets are driven by market forces within a relatively free market, though subject to a number of imperfections which influence the efficiency of the market and consequently the producer and/or consumer prices. However, market forces alone do not explain the structure and performance of the market nor the behaviour of market participants. This requires a more sophisticated understanding of the factors influencing the evolution of market institutions and the terms of exchange, and an understanding of how individual households meet their livelihood needs, and the nature of transactions throughout the marketing system.

Workshop

This workshop is an opportunity for the research team to present and discuss the findings from the research. A series of discussion papers have been prepared which summarise the research. These papers do not intend to capture all of the detail of the research, rather, they attempt to condense the essential elements into brief papers drawing from the larger body of research findings. The final report from the project will be prepared by the end of June 2001, and will include the discussions from this workshop. In this respect, this workshop is seen both as an opportunity for the presentation of research findings, but also as a research activity in itself by gaining the views of experts and practitioners in the area. The final report of the project will be completed by the end of May 2001.

Paddy Price and Marketing Behaviour of the Small Farmers in Bangladesh

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Paddy Price and Marketing Behaviour of the Small Farmers in Bangladesh

W. M. H. Jaim

1. Introduction

The crop sector of Bangladesh agriculture is dominated by rice which occupies about 80% of the total cropped area. Farmers' livelihoods or more specifically small farmers' livelihoods mostly depend on the magnitude of paddy production and price of paddy received by the farmers. Although farmers do not have any control on the market price of paddy, several factors influence the price of paddy that they receive. These include : the time of sale, who the farmer sells to, where the farmer sells, and the specific conditions of the selling transaction. This paper looks at how these different aspects of paddy marketing behaviour affect the price that farmers receive for their paddy. Using data collected from questionnaire surveys with farmers in three diverse districts in Bangladesh, together with secondary price data, the research aims to develop a better understanding of the returns to paddy marketing and the constraints and factors which influence farmer marketing behaviour.

The specific objectives of this paper are :

- i) To illustrate the buying and selling patterns of small paddy producing households in the three areas under investigation.
- ii) To identify the importance of different factors which influence farmers' returns from selling paddy.
- iii) To analyse paddy prices for the whole Bangladesh as well as in the selected districts over the last 10 years in order to determine the impact of seasonal fluctuations and trends on farmers' returns.

2. Methodology

Sources of data for Micro Level Data - For collecting primary data, field survey was conducted in the districts of Bogra, Feni and Sunamganj which were selected purposively considering a number of factors like surplus / deficit in rice production, different agro-ecological conditions, etc. After selecting districts; specific thana from each district, important paddy market in the Thana and ultimately two villages linked with the markets were selected following some selection criteria (discussed in main report). Finally, farm household lists for each of the selected villages were prepared and 40 farm households for each of the three districts were selected randomly. Thus, altogether, 120 farm households were selected for conducting farmers survey. The farmers were interviewed twice during the year 2000; one during the Aman marketing season (during the months of March and April) and other one during the Boro marketing season (during the months of November and December). Location of the selected areas can be seen in Map – 1.

Sources for Macro Level Price Data - Secondary data were used to analyse seasonal paddy price movements during the last 10 years throughout Bangladesh as well as in the three selected districts (Bogra, Feni and Sunamganj). For analysing price data wholesale prices of two main types of paddy; Aman and Boro have been considered. It may be mentioned that

information on retail price of paddy as well as prices by different varieties was not available from published sources. Further, for price analysis, only coarse paddy has been considered which represents about 80% of total paddy production in Bangladesh.

Secondary data on monthly wholesale coarse paddy prices during 1989 to 1998 were collected from published sources (Agricultural Statistics in Bangladesh) of the Bangladesh Bureau of Statistics. Again, wholesale coarse paddy price data for the selected districts of Bogra, Feni and Sunamganj during the period of 1990 to 1999 were collected from the records kept by the Department of Agricultural Marketing, Dhaka.

Analytical Techniques used – For estimating seasonal variation of wholesale paddy price using time series data over last 10 years, a multiplicative model was considered. Trend was estimated by simple 12 months centered moving average method and seasonal indices were worked out by averaging the de-trended series. In case the of cross sectional data from field survey, tabular and graphical techniques were used.

3. Results and Discussions

3.1 Farmers Behaviour in Paddy Selling and Buying

Classification of Farms - Farmers were classified into three groups according to total land cultivated which included rented in / mortgaged in land in addition to owned land. The three groups were ‘Small’, ‘Medium’ and ‘Large’ who cultivated land up to 2.50 acres, 2.51 to 5.00 acres and above 5.00 acres respectively.

On the basis of these categories, it was found that 90 % of the farmers both in Bogra and Sunamganj fell under Small Farm category while in both the districts only 10 % fell under Medium Farm category and none was under Large Farm category (Table 1). The situation in Feni was found to be somewhat different where the percentage of Large Farm was found to be 7 % while the percentages for Small and Medium Farms were 68 % and 15 % respectively.

Table - 1 Farmers in different farm size categories in Bogra, Feni and Sunamganj

Size Categories	Bogra		Feni		Sunamganj	
	No. of farms	% of total	No. of total farms	% of	No. of total farms	% of
	-----	-----	-----	-----	-----	-----
Small (up to 2.5 acres)	36	90	27	68	36	90
Medium (2.51 to 5.00 acres)	4	10	6	15	4	10
Large (above 5.00 acres)	-	-	7	17	-	-
All	40	100	40	100	40	100

Production of Aman and Boro Paddy and Extent of Marketing – The allocation of land for Aman and Boro paddy by the farmers widely varied in the selected areas in Bogra, Feni and Sunamganj (Table 2) which was mainly due to differences in agro-ecological conditions as well as differences in access to irrigation facilities. As a result, production of Aman and Boro paddy by the farm households in the selected districts of Bogra, Feni and Sunamganj also varied widely (Table 2).

Table - 2 Extent of acreage, production and marketing of Aman and Boro paddy per farm

Particulars	Bogra	Feni	Sunamganj
<u>Aman paddy</u>			
Area cultivated (acre)	1.34	2.83	1.85
Production (maund)	43.16	87.28	21.69
Marketed (maund)	13.68	11.19	1.68
% of paddy marketed	31.70	8.94	7.75
<u>Boro paddy</u>			
Area cultivated (acre)	1.50	.77	2.48
Production (maund)	64.04	36.45	103.03
Marketed (maund)	42.09	7.63	31.14
% of paddy marketed	65.72	20.93	30.22

Again, proportion of Aman and Boro paddy marketed also varied widely in these three districts (Table 2) which was due to a variety of reasons like amount of total paddy production throughout the year, amount needed for domestic consumption and other uses (seed, payment of land rental charge in terms of paddy, etc.). Table 2 shows that among the three selected districts, the percentage of paddy marketed (out of total production) was the highest in the case of the farmers of Bogra. In the case of Feni, marketing of Aman paddy in absolute term was higher than Boro paddy. Just reverse situation was observed in the case of Sunamganj (Table 2) the reasons for which have already been explained.

Paddy Selling and Buying Behaviour - Based on field survey in last March-April (which was during Aman marketing season), four categories of farmers were identified according to paddy selling and buying behaviour of the sample farmers. The categories were :

- | | |
|-------|---|
| (i) | Farmers who sold Aman paddy immediately (within 2 months) after harvest but need to buy again later on. |
| (ii) | Farmers who did not sell Aman paddy rather need to buy paddy later on. |
| (iii) | Farmers who sold Aman paddy and do not need to buy paddy again. |
| (iv) | Farmers who neither sold Aman paddy nor need to buy paddy again. |

The first two categories of farmers may be termed as deficit farmers (in terms of rice production) while the third and fourth categories of the farmers may be termed as surplus and self-sufficient farmers respectively. Accordingly, 58% of the farmers in Bogra were found to be deficit farmers of which 23% farmers were net buyers of paddy while 35% farmers sold paddy immediately after harvest and later in the season again need to buy paddy (Table 3).

The percentage of farmers who sold Aman paddy at the beginning of the season and need to buy back again later on in the same year was found to be higher in Feni (40%) compared to Bogra (35%). Again, in Feni the percentage of net buyers of Aman paddy who did not sell rather need to purchase was 23% which was very close to that of Bogra (20%). The situation in Sunamganj was found to be quite different compared to Bogra and Feni. In Sunamganj only 5% of the farmers were involved in both buying and selling activities while 75% of the were net buyers of Aman paddy who did not sell Aman paddy. The reason is, Sunamganj is not an area of Aman production; so they have little scope in selling Aman paddy.

It can also be seen from Table 3 that the percentages of surplus Aman producers (who only sold paddy and do not need to buy it) were 27%, 38% and 5% in Bogra, Feni and Sunamganj respectively. Further, the percentages of self-sufficient farmers who neither sold Aman paddy nor need to buy it again during the year were 15% in Bogra, 2% in Feni and 15% in Sunamganj. The analysis shows that in Aman producing areas of Bogra and Feni more than one-third of the farmers were in vulnerable condition who were forced to sell paddy immediately after harvest knowing that they will have to buy it again later on at a higher price.

Table 3 Percentage of farm households involved in selling and buying activities

Particulars about Aman paddy sale and buying paddy	Bogra		Feni		Sunamganj	
	No. of Farmers	% of Total	No. of Farmers	% of Total	No. of Farmers	% of Total
(a) Sold in the harvest season but need to buy later on.	14	35	16	40	2	5
(b) Did not sell rather need to buy later on.	9	23	8	20	30	75
© Sold in the harvest season and does not need to buy later on.	11	27	15	38	2	5
(d) Did not sell in harvest season and also need not to buy later on.	6	15	1	2	6	15
All Farmers	40	100	40	100	40	100

Further, it can be seen from Table 3 that the percentages of surplus Aman producers (who only sold paddy and do not need to buy) were 27%, 38% and 5% in Bogra, Feni and Sunamganj respectively. Further, the percentages of self-sufficient farmers who neither sold Aman paddy nor need to buy it again during the year were 15% in Bogra, 2% in Feni and 15% in Sunamganj. The analysis shows that in Aman producing areas of Bogra and Feni, more than one-third of the farmers were in vulnerable condition who were forced to sell paddy immediately after harvest knowing that they will have to buy it again later on at a higher price.

Table 4 further shows that 61% of the small farmers and 25% of the medium farmers in Bogra needed to purchase paddy. In the case of Feni, the corresponding percentages for small, medium and large farm categories were found to be 73%, 20% and 57% respectively. The percentage of large farmers who needed to buy paddy was found to be quite high in Feni which was mainly due to the fact that they had very little scope to produce the subsequent Boro paddy. In Sunamganj, 81% of the small farmers and 75% of the medium farmers need to buy paddy during the year. It may be recalled that the scope of producing Aman paddy in Sunamganj area was very limited. The magnitude of purchasing paddy before next Aman season was also estimated by farm size as can be seen in Table 4.

Table 4 Percentage of households need to purchase paddy during the year and amount of paddy (in Maund) to be purchased

Particulars	Bogra :		Feni :			Sunamganj :	
	by Farm Category		by Farm Category			by Farm Category	
	Small	Medium	Small	Medium	Large	Small	Medium
	All		All			All	
	-----	-----	-----	-----	-----	-----	-----
	-----		-----			-----	
% of farmers need to purchase paddy	61 58	25	73 60	20	57	81 80	75
Amount of paddy to be purchased per farm during the year (in Maunds)	5.95 5.80	2.50	11.32 11.20	8.00	15.50	22.36 22.52	24.00

3.2 Factors Affecting Paddy Price

Several factors affect price of paddy which farmers receive. The factors are time of paddy selling, to whom paddy is sold, the place where it is sold and the variety as well as quality of paddy. These ultimately have bearings on farmers' income and their livelihoods.

3.2.1 Time of Selling – Paddy prices both at farmers' level and at macro level for the country as a whole have been analysed to examine seasonal variations of prices which have direct effect on farmers' income. In addition to this extent of storage by the farmers have been analysed in relation to time of paddy selling.

(a) Analysis of Farmers' Level Price Data :

Paddy Price and Seasonal Pattern of Aman Paddy Marketing - Extent of Aman paddy marketing in Sunamganj was found to be negligible (Table 2). Therefore, seasonal pattern of Aman paddy marketing as well as seasonal price variations have been discussed in relation to other two selected districts; Bogra and Feni. Table 3 shows that in Bogra, farmers sold about 90% of paddy within one and half month after harvesting of Aman. The Table further shows that just within 15 days after harvest farmers in Bogra sold about 42% of Aman paddy. The rate of paddy sale after Aman harvesting was found to be a bit slower in Feni compared to Bogra. Still, farmers in Feni sold about a quarter of paddy just within 15 days of Aman harvest and in two months time they sold three-fourth of paddy. Both in Bogra and Feni, Aman paddy sale was completed in two and half months time after harvest (Figure 1). This confirms the general statement that the farmers sale paddy immediately after harvest.

Table 3 Cumulative percentage of Aman paddy sale and price in different periods in Bogra and Feni

Period	Cumulative % of paddy sale in Bogra	Cumulative % of paddy sale in Feni	Paddy price in Bogra (Tk/maund)	Paddy price in Feni (Tk./ maund)
2 nd half of November	42	25	239	262
1 st half of December	64	26	236	Not available
2 nd half of December	87	64	272	280
1 st half of January	91	73	279	305
2 nd half of January	100	100	269	313

In general, price of Aman paddy was found to be higher in Feni compared to Bogra. This was mainly due to variations of Aman paddy varieties and supply of paddy in the markets in these two districts. Farmers in Feni mostly produced local varieties of Aman while farmers in Bogra mostly produced HYVs and the price of local variety normally remains higher than HYV. However, in both the areas, a general increasing trend of Aman paddy price was observed. In Bogra, Aman paddy price increased by Tk. 40 per maund or by 17% only in 2 months time In Feni also, Aman paddy increased by about 16%. in two months time after Aman harvest. The findings suggest that selling Aman paddy just after 4 to 6 weeks would substantially benefit the farmers from increased paddy price (Table 3).

Paddy Price and Seasonal Pattern of Boro Paddy Marketing - Fortnightly distribution of Boro paddy sold per farm after harvesting can be seen in Figure - 2. Although magnitudes of Boro paddy sale per farm were found to be different for the three districts, they followed similar trend. The Figure shows that marketing of Boro paddy concentrated mostly during the

period from 1st half of May to 1st half of July. Again, during this two and half months period after Boro harvesting on the average, about 70% of paddy was marketed. In the cases of Bogra, Feni and Sunamganj the corresponding percentages were 84%, 86% and 67% respectively. After reaching peak sale during the period of 1st half of May to 1st half of June, the sale of Boro paddy sharply decreased. Then a very small amount of Boro paddy was marketed which continued maximum up to September (Figure - 2). It may be mentioned that from October to beginning of November when harvesting of next rice crop, Aman starts the marketing activity related to Boro paddy was almost negligible.

As expected, price of Boro paddy was found to be inversely related to volume of sale at different periods. Price of Boro paddy was found to be the lowest during the month of May which was just after Boro harvesting period. Figure – 3 shows that although substantial differences in prices in the districts of Bogra, Feni and Sunamganj prevailed, seasonal pattern of paddy price during Boro marketing season followed almost the same trend. On the average, Boro paddy price starting from Taka 225 per maund in the month of May gradually increased up to Tk. 273 in the 1st half of October, 2000. On the average, the dispersion of paddy price during this four and half months period was found to be Tk. 48 per maund for these three selected districts. This was the highest for Bogra (Tk. 53 per maund) followed by Sunamganj (Tk. 48) and Feni (Tk. 41) respectively.

During this short span of time, there was sufficient justification of retaining paddy up to four to five months (after harvest) to get quite a high price. However, the analysis showed that just within one month after harvest (when the price remained at the lowest level), one third of the paddy was sold. Again, in one and half months time about 50% of paddy was sold and in two and half months time about 70% of paddy was sold. Thus, farmers in general could not avail high price of paddy although delayed sale of paddy could give them much higher returns.

(b) Historical Price Analysis for Bangladesh and for the Selected Districts

General Trend of Seasonal Variation of Paddy Price in Bangladesh Over the Last 10 Years – Figure 3 shows monthly variations of wholesale coarse paddy (Boro and Aman) price considering the period from 1989 to 1998. It can be observed from the figure that the lowest paddy price prevailed in the month of June and again in November. This is simply because of large volume of paddy supply (in relation to demand) in the market immediately after harvesting of Boro and Aman paddy respectively. During Boro marketing season (from May to October), after depressed price in June paddy price starts increasing and reaches highest level in the month of September. The difference in price during this three months period was found to be Tk. 22.7 per maund which means an increase of 9.68%. In addition to Boro paddy, supply of Aus paddy in the market during the months of July and August somehow controlled Boro paddy price from sharp increase. Still, increase in price by about 10% in three months period is quite substantial considering income from alternative investment opportunities of the small farmers in Bangladesh.

Compared to Boro marketing season, sharp increase in paddy price was observed in Aman marketing season (from November to April). During this period, highest paddy price was observed in the month of March which continued in the month of April also with slight decrease. The difference of lowest and highest paddy price during the months of November to March was found to be Tk.39.3 per maund which means an increase of 16.6% during four months period. This is quite substantial increase indicating high margin justifying storage activities. Further, it can be observed from the Figure that just delaying paddy sale by one

month (i.e. selling paddy in the month of March instead of February), farmers could make extra profit by Tk. 23.6 per maund.

The figure also indicate that during the whole year there are distinct two peak as well as two slack periods when prices of paddy remain very high and very low respectively. Further, it indicated that paddy price sharply decreased immediately after harvest and just after two to three months paddy price again increased sharply which also prevailed only for about two months. Therefore, delaying paddy sell just by a month or two after peak harvesting period could substantially benefit the farmers with return.

General Trend of Seasonal Variation of Paddy Price in the Selected Districts Over Last 10 Years – Seasonal wholesale price variations of coarse paddy (Boro and Aman) during last 10 years period from 1990 to 1999 in the selected districts of Bogra, Feni and Sunamganj were also examined (Figure 5). Although there were differences in prices of paddy in the three districts mainly due to differences in production / supply of paddy and its demand, the pattern of seasonal variations in price throughout the year followed almost the same trend as was found for the nation as a whole (Figure 4). However, the range of price variation was found to be the highest in Bogra followed by Feni and Sunamganj. This indicated that after harvest paddy price depresses more sharply in the areas of high production compared to those of low production areas. This is due to over supply of paddy in the market in high production areas compared to those of low production areas.

(c) Extent of Storage

Storage Facilities and Extent of Paddy Stored – Analysis in the previous section confirmed that delaying paddy sell by one or two months can benefit the farmers through achieving higher prices of paddy. Therefore, storage is closely linked with time of paddy selling. Data from field survey showed that farmers stored paddy mostly for future consumption (until next harvest) and a small amount is stored for marketing and seed preservation purposes. Further, in all the three districts more than 90 % of the farmers reported that storage facilities were available in their houses and very few reported that they had constraint of storage facilities. Therefore, timing of paddy sale is normally not limited due to insufficient storage facilities.

However, about 58% of the farmers both in Bogra and Sunamganj reported that they had problems of Boro paddy storage. Attack by insects was found to be the main problem for paddy storage as reported by 65% of the farmers in Bogra. The other problems were spoilage of paddy by rats, lack of in-house paddy storage facilities and problem of paddy drying. In Sunamganj on the other hand, 100 % of the farmers reported two main problems of paddy storage which were spoilage by rats and paddy drying problem. However, storage loss due to all these factors was found to be only about 5%. Therefore, storing paddy for selling after sometime is dictated mostly by future price increase and farmers' ability to hold paddy for deferred sale rather than technical constraint of storing.

3.2.2 Market Participants for Selling Paddy and Point of Sale

Participation of Market Intermediaries and Point of Paddy Sale – Price of paddy received by the farmers is also related with the factors: to whom paddy is sold and the place where it is sold. Involvement of more market intermediaries in the marketing chain of paddy

implies less price for the farmers. In Bogra and Feni, among the market intermediaries linked with farmers, 'Beparis' played a significant role for purchasing paddy from the farmers both at the farm gate and in the markets. Farmers in Bogra also sold directly to the millers (41 % of total sale) as there were large number of mills within a few kilometers (2/3 km.) from the selected villages. On the contrary, in Sunamganj, the role of Bepari directly linked with farmers was not so prominent. This was mainly due to farmers' problem of transporting small amount of paddy for marketing. Even in the market places farmers mostly sold paddy to other farmers and to Farias. Further, it was found that in all the three places farmers did not have any direct link with the paddy wholesalers / 'Aratdars' in selling Aman paddy. The analysis in this section indicated that involvement of market intermediaries in both Bogra and Feni was much less compared to Sunamganj.

Farmers were found to sell paddy to different intermediaries mostly at the market places. However, sale of Boro paddy at the farm gate was found to be relatively higher compared to Aman paddy. It was found that about 39% of total Boro paddy marketed by the farmers took place at farm gate while the rest 61% was sold in the market places. The price of paddy varied substantially depending on whether it is sold at the farm gate or at the market places. For example, compared to price at the markets, farm gate price of Aman paddy was found to be Tk. 7 to 8 per maund less in Bogra and Feni while in Sunamganj it varied between Tk. 8 to 10 per maund.

3.2.3 Variety and Quality of Paddy

Variation of Paddy Price due to Variety and Quality – Price received by the farmers also depends on variety of paddy sold. For example, price of local Aman is normally higher than that of HYV as the later variety is coarse type. This was one of the main reasons for lower price of Aman paddy in Bogra compared to Feni and Sunamganj. Compared to farmers in Feni and Sunamganj, farmers in Bogra produced more HYVs of Aman which also contribute higher yield. In Bogra, price of local Aman paddy was found to be higher by Tk. 13 per maund compared to HYV (BR-11).

The quality of paddy (i.e. less moisture content, better grain formation, cleaned paddy, etc.) also ensures higher paddy price for the farmers. However, most of the farmers sell paddy immediately after harvest when moisture content in the paddy remains at a very high level. This is more important particularly for Boro paddy as it is sometimes difficult to dry paddy due to lack of adequate sunshine.

4. Conclusions

Despite of regional differences in production and marketing activities in the three selected districts, one common characteristics which was found in all the areas was: sale of paddy immediately after harvest when the price remains at a very low level. The analysis showed that delay in paddy sale (both Aman and Boro) by only a few weeks (about 6-8 weeks) after harvest would substantially benefit the farmers. However, cash need for consumption and production of subsequent crops mostly compel them to sale paddy immediately after harvest although a considerable proportion of them (more than one-third) has to buy rice again at a higher price later in the season. This implies that small farmers need credit not only in off season but also immediately after harvest. Therefore, supply of credit even after harvest may allow them to get benefit of higher price through deferred sale of

paddy. However, the credit suppliers on the contrary press the farmers to repay their loan immediately after harvest. In this context at least the institutional credit suppliers could delay a little bit to realize their money from the small farmers which could give an opportunity to the farmers to sell their paddy later on to get higher price.

Now, the critical question is if credit is available to the farmers immediately after harvest whether storing paddy for two to three months (after harvest) would benefit the farmers after paying interest to the suppliers of credit. This however, would depend on extent of increase of paddy price with passing of time after harvest and the interest rate to be paid to the suppliers of credit. The seasonal price analysis showed that only after 6-8 weeks after harvest increase in Aman paddy price was 17% in Bogra and 16% in Feni which are less than the interest rate of informal sources (which is normally 10% per month) but much higher than those of institutional sources (which is normally 16% per annum) and NGOs (which is maximum 20 - 25% per annum). Therefore, credit from institutional and NGO sources to the small farmers for retaining paddy just for about 6-8 weeks after harvest would benefit the small farmers substantially. The relation between paddy price after harvest and scope for storing paddy considering payment of interest by sources of credit can be seen in the Figure 6. It shows that it is worth for the farmers to borrow money for storing paddy for short term (2 to 3 months) from institutional sources or from NGOs. Therefore, government or NGOs may explore the possibility of providing 'After Harvest Short Term Credit' to the small farmers in order to save them from distress sell of paddy immediately after harvest.

Discussion Paper: Summary findings of the anthropological study

Rabeya Rowshan

Introduction

This discussion paper presents a summary of the findings of the anthropological fieldwork conducted under this project. The fieldwork was conducted in two phases. While the first phase focused on gaining a general understanding of the social organisational aspects of the production and marketing of paddy/rice, the second explored in more detail the constraints associated with the social dynamics of market transactions within the context of both pre- and post harvest activities. This study used the sustainable rural livelihood (SRL) framework to analyse the anthropological information obtained from the field (more details of the SRL approach are included in the main report).

Objectives

1. To understand the role of paddy in the livelihoods of rural households, and to present this using the sustainable rural livelihoods framework.
2. To identify the constraints preventing farmers from achieving higher returns from paddy marketing through better access to these markets.
3. To identify a range of options to improve access to marketing opportunities for resource poor farming households.

Methodology

A number of anthropological fieldwork techniques were used to carry out the survey work, including the use of simple PRA exercises, such as ranking and diagram drawing exercises. Focus group discussions were held in the same villages as the farmer questionnaires were conducted, and with the same respondents. The information from these activities was used to select households for detailed case studies. A total of 10 households were chosen to achieve a diverse range of rural households representative of specific livelihood strategies. In addition to interviews with paddy producers, the team also carried out checklist guided interviews with local NGOs operating in the study areas. The aim was to find out about their perceptions of farmers' marketing constraints, and their projects and programmes in the fields of finance and credit.

Findings:

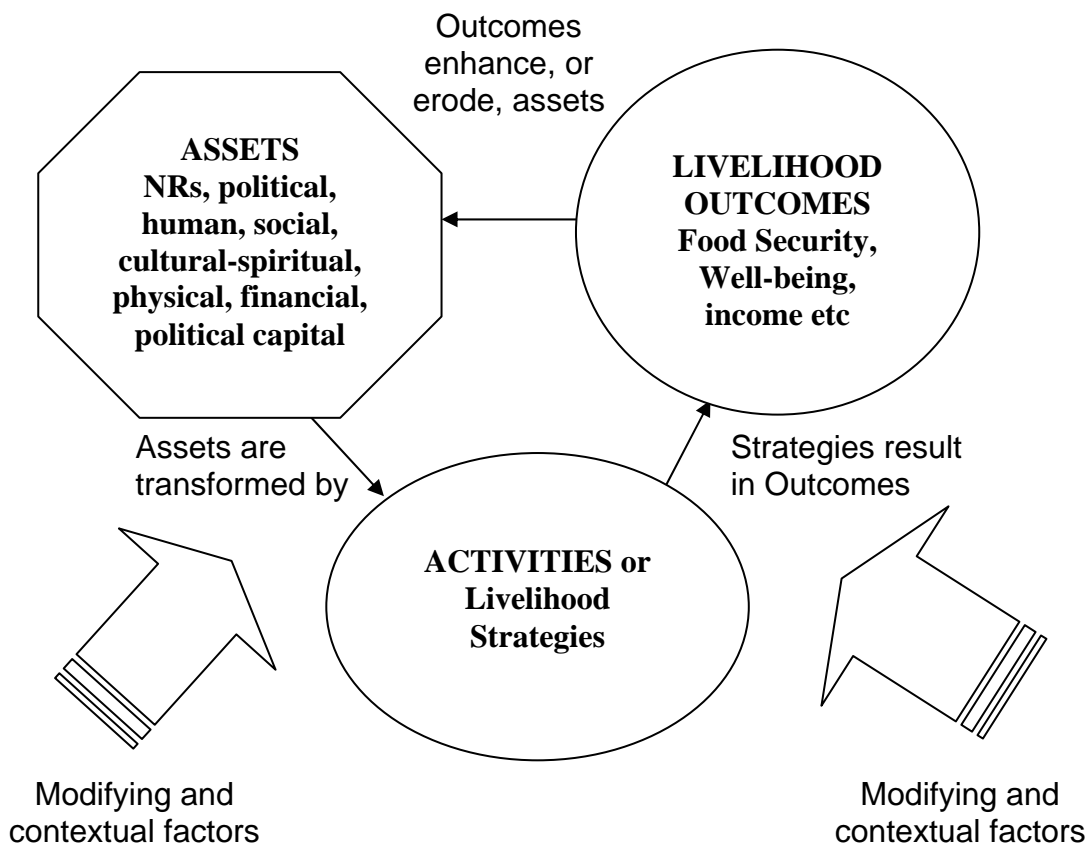
Paddy and the Sustainable Rural Livelihood Framework:

The SRL framework starts with an assessment of people's strength and opportunities by focusing on the assets available to them. According to Carney (1998), people draw upon five different types of assets to build their livelihoods.

- Natural Capital
- Social Capital
- Human Capital
- Physical Capital
- Financial Capital

The livelihood strategy used by an individual or a household is determined by the level of these assets, the desired livelihood outcome, and a range of external factors summarised in

the framework as ‘transforming structures and processes’. These include the vulnerability context (trends, shocks, and local cultural practices which affect livelihoods), the structures (organisations, government institutions, private sector, etc.) and the processes (policies, laws, incentives) which define people’s livelihood options. Marketing strategies of farmers are part of their overall livelihood strategies and are, like all livelihood strategies, dependent on the asset base and external factors generally beyond the control of the individual. The livelihood outcomes feedback into changes in the level of assets, and the basic loop is completed: assets levels influence strategies to achieve outcomes which influence the level of assets. The progress from assets to strategy to outcomes to assets is conditioned by a range of external factors. This basic cycle is illustrated in figure 1 below.



(after Mike Morris, NRI-SEDD, November 2000)

This basic representation of peoples’ livelihoods can be extended to include greater detail on the ‘modifying factors’ as is shown in figure 2. Figure 2 shows how the SRL framework can be used to analyse the key issues of this study. In the figure, the capital assets of paddy producing households are central. The following key points can be taken from the framework:

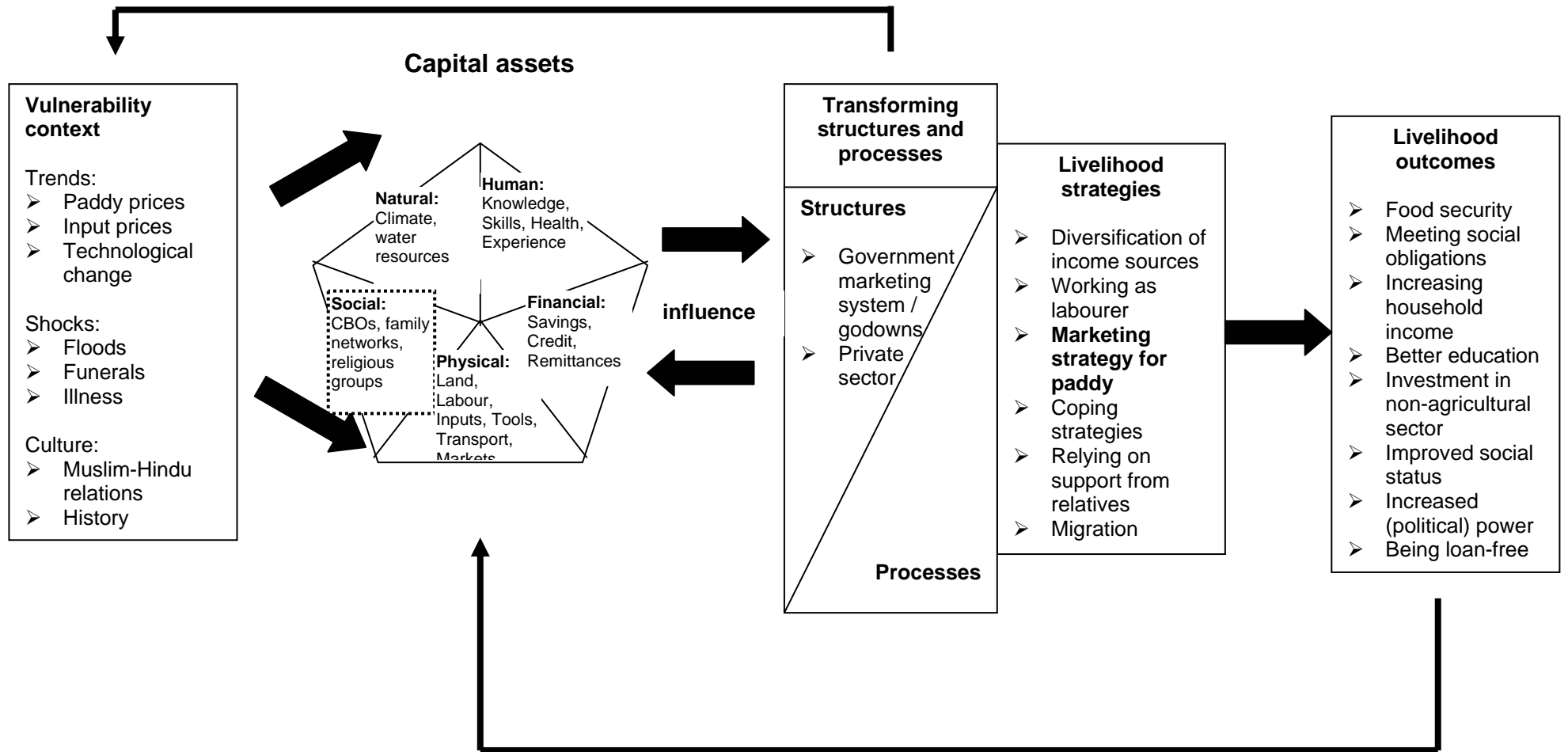
The desired livelihood outcomes for households surveyed cover a range of possible outcomes. The research found that these outcomes varied according to the individual circumstances of households. What is important to note is that maximising household income is just one of several desired outcomes. Social capital related outcomes are also desired, including meeting social obligations, improving social status, and increasing power.

Strategies for achieving these outcomes are also varied – selling paddy is just one of a range of possible options available to households. Again, the choice of strategy to achieve outcomes will vary according to the individual household. Paddy producers in the survey areas generally rely on a variety of income sources for their livelihood. Partly this is due to the fact that paddy production alone is not sufficient to provide a family with enough food and income to survive, especially for farmers with small areas of land and in areas which experience frequent floods. In addition to paddy production, most families are involved in other farm activities, notably vegetable cultivation, small-scale poultry rearing, as well as small-scale goat, and cattle production. Among the off-farm activities, cottage industries (net and mat weaving, pottery, etc.) are common, as well as different types of services.

The focus of the study was on the disposal of paddy and the role this plays in rural livelihoods. However, this cannot be fully understood without an appreciation of the other activities of the household and their livelihood strategy. Farmers frequently choose to sell different proportions of their paddy at different times of the year to different outlets. Even small farmers with low production volume might choose to diversify their marketing outlets so as to meet their livelihood outcome. Even if the financial returns are attractive, farmers might choose to dispose of their paddy in a different way, because of social obligations, debt, and other constraints. Factors influencing the marketing channel include:

- *Linked transactions*: paddy may be linked to input markets, such as land, irrigation water or credit.
- *Season*. Generally farmers in areas with a poor road network prefer to sell at the farm gate during the rainy season, because access to the *hut* (market) is difficult. At the same time, the frequency with which traders visit the village decreases during the month after harvest, leaving no choice to farmers than to sell to the *hut*.
- *Infrastructure and distance from hut*. If the *hut* is far and roads poor, farmers are more likely to sell at the farm gate. However, the same factors might prevent traders from reaching the villages, which would force farmers to sell at the *hut*.
- *Alternative sources of income*. Farmers with lucrative off-farm income generally prefer to sell at the farm gate in order not to lose time by going to the market.
- *Amount of paddy to sell*. If the amount is very small, selling at the *hut* is not profitable because of the *hut* tax and other fees that the seller has to pay.
- *Other business at the market*. Whenever a farmer has other business to do at the *hut*, he is likely to sell his paddy there as well, as it does not involve additional transport costs. Farmers frequently use the money from paddy sales to buy other household goods on the same day.

Figure 2 Sustainable rural livelihoods and paddy marketing: Framework



The role of social capital in paddy marketing

According to Carney (1998), Social Capital is “the social resources (networks, membership of groups, relationships of trust, access to wider institutions of society) upon which people draw in pursuit of livelihoods”. These resources are particularly important to small and medium scale paddy producers in Bangladesh, because sufficient and good quality social capital can partly substitute for the lack of other assets (especially physical and financial capital). Small farmers rely heavily on their social network to have access to means of production, credit, employment. Access to these markets in turn condition the access to paddy markets.

An example of the importance of social capital is its role in accessing financial capital. People with good connections to moneylenders, bank officials, or with well-off relatives are in a much better position to secure a loan than people without such connections. For example, one of the case study farmers, who worked as a small scale *faria*, borrowed money from his well-off brother, who was a big *bapari* and the main customer for the paddy bought by him. In this case, there are both a business interest and a family interest involved. Families and even neighbours often help each other with small amounts of money without charging interest.

Likewise, social capital is closely associated with farmers’ access to land, technology and other production inputs. Personal relationships that farmers’ household members have with other households, including larger farmers and service providers (moneylenders, landlords, irrigation water providers) have a large influence on the freedom and control that households have over the paddy that they produce. This will include greater freedom in when and who they sell their paddy to.

Key issues and constraints to market access

There are a number of themes and issues, which were referred to repeatedly by informants in all three study sites. In many ways these confirm what is already known and documented for paddy marketing by small and medium farmers in Bangladesh. There are a number of issues, which have, however, not been addressed in any detail in earlier studies. In this section we provide a summary of the key findings of this research, as well as some recommendations for clearly targeted practical and policy oriented interventions.

Firstly, achieving what is commonly known to be the best price (i.e. the government procurement price) is unobtainable for small and medium farmers. Government procurement centres are only accessible to very well connected farmers, generally larger farmers. Smaller farmers are excluded from these centres by a number of factors. The quantities that the government agents are prepared to buy also exceed the capacity of most small and medium farmers. The government centres are only willing to buy large quantities. In addition it is reported that government officials expect to be given some form of ‘sweetener’ or bribe before accepting ordinary farmers’ paddy. They often make the excuse that the paddy is not dry enough or it is not the required/stated quantity. In some cases small farmers’ paddy is really sometimes not dry due to their space constraints, but our selected farmers as a problem in their cases have not reported it. The *bapari*, in collaboration with the government agents, maintain a monopoly over sales at the government *go-down*.

The second most significant recurrent theme is the extent to which small and medium farmers

have pressing cash needs at the time of harvest. Their cash needs cover a range of things, including the need to pay for household expenditure, school children's educational costs, medical treatments, and for meeting the costs of weddings etc. Their most important cash need however, relates to the organisation of their paddy production. To produce *boro* paddy farmers need to purchase inputs. These are principally the costs of paying for irrigation, fertiliser, and pesticides. Many, if not most farmers take loans either from *mahajan* or NGOs to meet these input costs. Some take loans from banks, but this is less common as often the farmers do not have the collateral required (usually large areas of land). To reduce the interest payments on these loans, and to avoid the risk of having their land taken away from them by the moneylender on a mortgage basis, farmers will sell their paddy immediately after the harvest in the most convenient way possible. Farmers generally prefer to sell to people who make payments immediately on the sale of paddy and they can then pay off their loans.

The third theme relates to the costs of agricultural technologies, which appear to be monopolised by the richer farmers. In some cases, even though middle farmers could afford to purchase shallow well irrigation pumps, they do not do so under threats from the rich farmers. In some cases these threats are of violence, in others they are threats to withdraw access to other technologies needed, for example, power tillers and mechanised threshing.

There is a close relationship between the costs of agricultural technology, and more broadly HYV paddy inputs and the need for credit. Sales of paddy immediately at harvest time are vital to meet the costs of credited inputs and loans. In a sense many small farmers are effectively caught in a vicious cycle of debt, paddy production and repayment. It is almost impossible for them to get out of this cycle, since they can never produce enough surplus to provide a buffer against the need to realise cash to pay off their debts as soon as the harvest is in and the needs for further investment in cultivation. Most farmers recognise that if they store paddy and wait until later in the season they would realise a better price. Many farmers also have the facilities to store quite large quantities of grain, but cannot do so for the above reasons.

The extent to which farmers are dependent on loans is not evenly spread across the study sites, since the amounts produced and the buffer between immediate cash needs for agricultural production and household needs varies considerably between districts, and even between different households in the same village. Feni is by far the most marginal area for production, suffering natural disasters and having poor saline soils. Bogra is the biggest surplus area and has relatively fertile soils. Shunamganj is located in a flood plain area means that parts of it are seasonally inaccessible and farmers face great difficulties not being able to realise any choice in terms of paddy sale options.

Discussion paper: Paddy markets in Bangladesh

Andrew Goodland

Introduction

Paddy markets play a vital role in the livelihoods of farmers in Bangladesh. Nearly all farmers are involved in paddy production and our research has found that a substantial proportion of these farming households sell a proportion of this paddy for income, including those households classified as 'deficit'. The cash earned from paddy sold onto the market is frequently one of the most important sources of income for rural households and the level of this income is dependent upon the price received. The price received by farmers for their paddy is related to a number of factors which this project has been exploring. One of these areas is the efficiency of the paddy-rice marketing system. Previous research in this area has tended to focus on the rice (post-milling) market (see for example Baulch et al 1998), whilst the paddy market has been relatively neglected by researchers.

Even though paddy and rice markets are obviously closely related, there are key differences between them which make each worthy of study in their own right. On the whole, participants in the paddy and rice markets are different. There are exceptions to this, especially for larger scale traders (beparis) and some wholesalers, who play a similar role in both markets, but generally participants deal exclusively in paddy or rice. Supply in paddy markets is far more 'lumpy' than in rice markets, as limited on-farm paddy storage results in peaks in paddy supply coinciding with harvests. Paddy markets are also generally far more localised than are rice markets. Overall, it is wrong to think of paddy and rice markets being mirror images of each other: the former collecting from a large number of producers; the latter distributing to a large number of consumers; with mills as the pivotal point between the two. What this research has attempted to do is to determine how paddy markets are structured and how they operate. The justification for this is that firstly, little information is currently available, and secondly, that constraints within the paddy marketing system could impact negatively on the prices that farmers receive for their paddy, and thereby contribute to rural poverty.

Previous research into paddy markets in Bangladesh has tended to focus on identifying participants in paddy markets and their roles. However, the main thrust of this research has been on institutional relationships with the markets, drawing upon New Institutional Economics to investigate how transaction costs and alternative institutional relationships influence the behaviour of market participants. This includes participants' relationships between each other, and also their relationships with external agencies providing services to paddy markets, such as the government procurement centres and financial institutions (formal and informal). The objective of this was to identify areas for intervention to improve the operation of paddy markets to the benefit of small, poor farming households.

A note on methodology.

The work was conducted in all three of the project districts: Bogra, Feni and Shunamganj. Two approaches were used to acquire the information. Firstly, semi-structured checklists were used to conduct individual and group discussions with a range of market participants. These discussions yielded substantial information and provided guidance to the second approach: a follow-up questionnaire with individual participants.

Findings and Discussion

The first task of this discussion paper (and of the research) is to identify participants and their activities in the paddy market. This work confirmed previous research and brief definitions of participants are listed below.

Farias:

The term *faria* is applied to small scale traders providing a linkage role in paddy markets, normally between smaller farmers and wholesalers or millers. Farias are restricted to trading in small volumes of paddy by transportation and financial constraints, for example they typically can only afford to use a bicycle with which they can trade around 6-7 maunds of paddy per day. They operate relatively close to primary and secondary marketplaces, again due to transportation restrictions.

Beparis:

Beparis are traders who may operate in both the paddy and rice markets. Within the paddy market, they act as market intermediaries between farmers and wholesalers and millers. They are larger in scale than farias, often with access to trucks and are therefore able to move much larger quantities of paddy. In practice, they play different roles depending upon their size. Smaller scale beparis perform a very similar role as farias, purchasing directly from farms and transporting produce to markets (either wholesalers or directly to millers). Larger scale beparis operating with trucks have a much larger scale of operation and can cover a far wider geographical area than farias or small-scale beparis. They are therefore able to exploit spatial differences in paddy prices.

Paddy Wholesalers (Aratdars):

Paddy wholesalers are generally located in larger marketing centres. They have fixed premises, with some storage space and weighing facilities. They purchase paddy from farmers, or farias, or beparis and sell wholesale to millers.

Millers:

All paddy destined for the rice market is milled commercially. Households may mill some paddy themselves for domestic consumption, either through traditional milling techniques or by using power tillers, however this rice is not of sufficient quality to be sold in markets. Mills range in types of ownership (owned and leased), milling capacity and storage capacity. Storage capacity is important, as only those mills with large storage capacity are able to mill throughout the year. Smaller mills may shut down completely for periods.

Market behaviour

The focus of our research was to understand the incentives and constraints which influence the behaviour of the participants listed above, and how they link together to form the paddy marketing system. In neo-classical economic theory, transactions are based purely on price: both parties in a transaction are assumed to have access to perfect information on prices, and the seller selects the buyer with the highest price so as to maximise the seller's profit. While the basic premise that participants will try to maximise their benefits generally holds good, the situation is far more complex than simply seeking the highest price. In the paddy markets studied during this research, a number of different factors drive the buying and selling behaviour of market participants.

The basic incentive driving all participants is to maximise the returns from their activities. However, this means more than just trying to get the highest possible price for their paddy. Traders and millers are in their business for more than one season – fixed assets, such as

milling equipment, and weighing equipment are specific to the paddy-rice sector, and other assets such as trucks and wholesaling premises are also most suited to the paddy-rice sector. These investments effectively tie-in traders and millers to the rice sector, and mean that marketing behaviour needs to be seen in the context of long-term business planning, and not necessarily merely for short-term gain. Another important aspect of increasing returns is to increase the volume of trade. In a sector which is competitive, margins on any transaction are likely to be relatively small. In response to this, there is an incentive running through the marketing chain to increase both the scale and frequency of transactions. Increasing the scale of transactions potentially allows traders to benefit from increasing economies of scale, for instance in transportation costs. Increasing the frequency of transactions implies that the time taken to buy, transport and/or sell paddy is kept to a minimum. This further implies that traders will prefer to know where and from who they will purchase paddy, where and to who they will sell paddy, and have control over how paddy is transported.

The major constraints cited by the vast majority of market participants surveyed in this research has been access to finance, both investment and working capital. Investment capital is required for traders to purchase capital assets in order to increase the scale of their operations, for instance to increase milling capacity or transport capacity. Working capital is necessary for the day to day operations and will influence the volume and frequency of transactions. Working capital is critical to participants, and with access to formal sources of credit (banks, NGOs etc.) severely limited, alternative sources need to be found. In addition to access to credit, access to information is a further constraint facing market participants. There is a range of information needs of participants, including information of prevailing market prices for different varieties of paddy, information on quality of paddy, and, critically, information on the location and reputation of trading partners. This last point is particularly important, as there are opportunities within the marketing system for exploitation, for instance by rigging weighing scales, hiding poor quality paddy or by offering prices which diverge significantly from prevailing market prices.

Taken together, these incentives and constraints have shaped the paddy marketing systems that we explored in this research. Our research reveals that the main factors driving market behaviour are as follows:

1. maximising price;
2. minimising transaction costs;
3. developing informal financial arrangements with trading partners;
4. increasing the scale of operation;
5. increasing the number and frequency of transactions.

1. Maximising price

This is self explanatory, as all participants have a desire to maximise the price they receive for paddy. However, the interesting finding here is that this is not the sole motive driving paddy transactions, with the factors below also playing a significant role in determining how the market operates.

2. Minimising transaction costs.

Transaction costs are those costs involved with finding a buyer/seller, and ensuring their reliability in completing the transaction. In paddy markets these costs will be mainly in terms of the time it takes for buyers and sellers to seek out reputable people to conduct trade in paddy. The level of these costs will be higher if the time taken to collect information is longer, or if the time used is of a higher value. For example, for a village-based faria who is

not very familiar with traders in a market, the time taken to select an appropriate buyer may be longer than a town-based bepari with good local contacts. Buyers and sellers therefore may try to minimise transaction costs by trading with people who are known to them, and who they trust. Repeat transactions between the same participants are therefore a common feature of paddy markets. For example, millers often enter into informal arrangements with wholesalers to provide them with paddy with a fixed ‘commission’ for each maund supplied.

3. Access to informal sources of credit

With repeated difficulties in accessing bank loans, participants in the paddy marketing chain are forced to look elsewhere for working capital. The result is that a complex set of arrangements between participants has replaced formal sources of credit (see Box 1). Buying on credit and forward buying are commonplace in the paddy markets and exist between all tiers of the system. These arrangements help to reinforce long-term business relationships, and contribute to reducing transaction costs by developing trust between market participants.

Box 1: informal credit arrangements in paddy markets

Millers to beparis: millers may provide short term cash advances to beparis to purchase paddy, which are deducted from the proceeds when the beparis sell the paddy to the miller.

Wholesalers to millers: wholesalers may only receive part payment for the paddy they sell to millers, the remainder being paid later in the season. This constrains the operating capital of wholesalers.

Farmers to wholesalers: wealthier farmers without immediate cash demands may sell paddy to wholesalers on credit, with the price received for the paddy being the prevailing market price when the credit is repaid.

Millers to farmers: millers may provide loans to farmers shortly before harvest. Such forward buying is restricted to cases where the miller and farmer in question have a close and trusting relationship, possibly through kin or built up through repeat business.

Farias to farmers: up to 75 percent of the value of paddy may be loaned to farmers prior to harvest (up to 1 month before harvest).

Farmers to farias: one faria we spoke to estimated that he receives paddy on credit from around 25 percent of the farmers he bought from. For this, he would pay 50 percent interest over a 2-3 month period.

4. Increasing the scale of operation.

Trading in larger quantities generally reduces the costs per unit of produce. Fixed marketing costs include labour and transportation – a half-full truck will cost nearly as much to run a fully laden truck. Profits are increased by dealing in larger quantities of paddy. Milling fixed costs are fairly high (paying for equipment, or renting mills) and throughput needs to be maintained at a high level to justify these outlays and to increase profits.

5. Increasing the number and frequency of transactions:

Paddy markets appear to be competitive in all the research areas we examined. Barriers to entry were relatively low, with little evidence of market power distorting the performance of the markets. Although no detailed information was gathered on marketing margins, the surveys did not reveal any evidence of excessive profits being made in the market. Without large margins of paddy transactions, increasing business turnover is critical to increasing returns. This is even more the case when liquidity constraints are significant, as was found in our research. Traders, wholesalers and millers are constantly trying to sell their stock of paddy (or rice) to free up the capital to purchase more. For this reason, storage of paddy is relatively low, except in the milling sector where millers try to maintain a level of stocks so as to keep their mills operating for as long as possible.

Marketing systems in the three research areas.

The paddy marketing chains for the three survey areas are shown in Figure 1, which illustrates the importance of the main marketing channels. Market intermediaries play similar roles in the three areas. Farmers sell their paddy directly to millers and aratdars, though most of it is channelled through traders. In Bogra there is a clear distinction between farias and beparis, serving small and large farmers respectively. In Sunamganj farias and beparis play distinctive roles, with farias playing an assembly role and selling to beparis who bulk up further and transport to mills (and then market the rice). In Feni, although information was sketchy, it appears that farias and beparis play similar roles, though they trade on different scales. Aratdars play a similar role in both Bogra and Feni, bulking up paddy from farmers, beparis and farias and selling on to millers at a fixed commission. In Sunamganj there are no aratdars.

These differences in roles reflect the differing circumstances in the three areas which affect the production and marketing environment. In each area the marketing systems have evolved to fit with the local environment. Although the systems differ, they all appear to function well in terms of farmer access to markets, price transmission and fairness. More striking than the differences between the survey sites are the similarities. In all three areas, the marketing systems are characterised by liquidity shortages, informal credit arrangements, close relationships between market participants, and wide fluctuations in paddy prices. All of these market characteristics are interdependent to some extent. A final common characteristic is the failure of the government procurement system to improve prices for paddy producers.

Conclusions

Access to funds is a constraint to all market participants, and this is most acute for working capital in the periods following harvests when large volumes of paddy are being marketed. These arrangements play an important role in distributing funds in the marketing system, though they do not add to the total liquidity in the system, which remains low during the main marketing periods. Low liquidity in the market dampens demand and results in low prices. The dip in paddy prices following the aman and boro harvests is far more significant than the dip in rice prices.

The informal credit arrangements also play a role in developing and maintaining trading relationships between market participants. Trust plays an important role in the paddy market. Repeat transactions are common and are a means of lowering transaction costs. Within the informal credit transactions trust is vital as in the event of default, the lender has little or no legal recourse.

Is there a shortage of liquidity in the paddy marketing system?

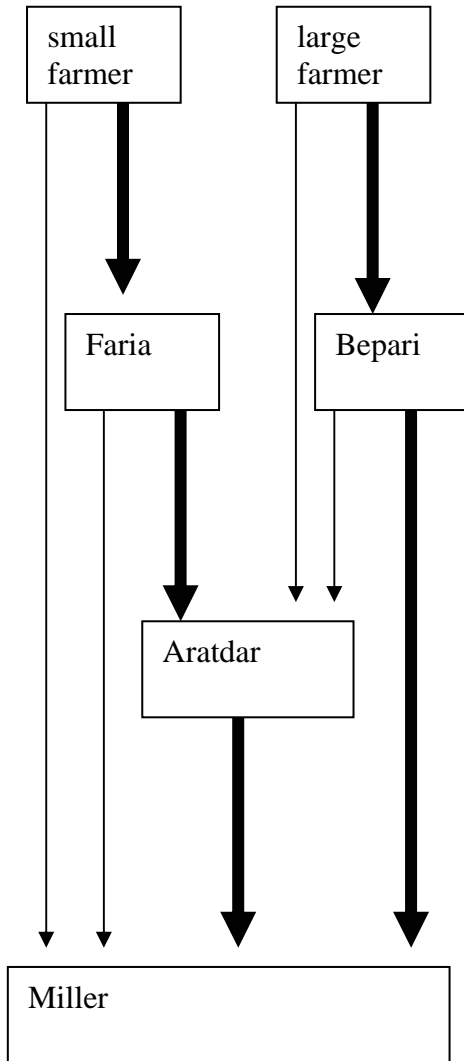
This is an important question to ask. Shortages in the aggregate volume of liquidity can dampen demand and lead to lower producer prices. A credit scheme in the Philippines targeted at rice traders resulted in an increase of paddy prices in the area by over 7 percent. Virtually all traders, wholesalers and millers in our survey listed credit as their number one constraint, suggesting that liquidity may indeed be a problem, particularly during the post harvest period when the majority of paddy trading takes place. However, just because paddy market participants face working capital shortfalls does not necessarily indicate a liquidity problem, and in fact it may prevent the concentration of market power in the hands of a few, and encourage more entrants into the market. Certainly, no farmers reported an absence of buyers in the market.

Having said that, increasing credit availability of credit for market participants could have benefits for farmers, by enabling traders to store paddy. This would reduce the supply of paddy going to mill and into the rice market, and could push up producer prices, and generally smooth both producer and consumer prices. Many of the wholesalers and larger traders spoken to during the survey were keen to increase the volume of paddy they store, which indicates that storage is a profitable option.

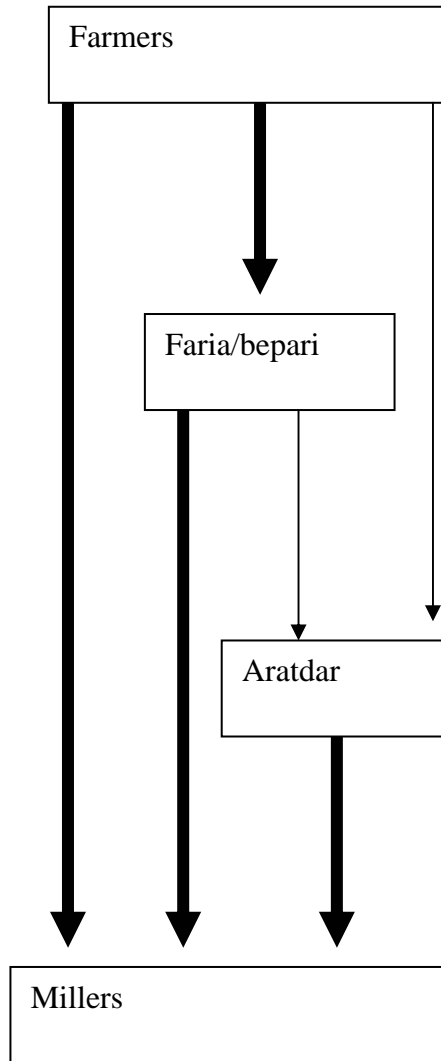
Is there evidence of excessive profits in paddy marketing?

No analysis was conducted on marketing margins or on individual participants costs and benefits. However, proxy indicators can be used to determine whether excessive profits are likely in markets. One of the most useful is to consider barriers to entry into different levels of the marketing chain. Barriers to entry can take many forms. Capital requirements can act as a barrier, for instance for a faria trying to grow into a bepari. Transaction costs can also act as a barrier, with limited access to information. Whilst these two previous barriers can be viewed as legitimate, the exercising of market power by individuals or groups to exclude new entrants is illegal and potentially has serious repercussions for the efficiency of the marketing system. There is some anecdotal evidence of exclusion, with traders from outside a particular area being prevented from trading, but this is not supported by other evidence which suggests a competitive market with numerous participants. In addition, previous research has found markets in Bangladesh to be spatially integrated which also casts doubt on the existence of market power, or collusion in setting prices.

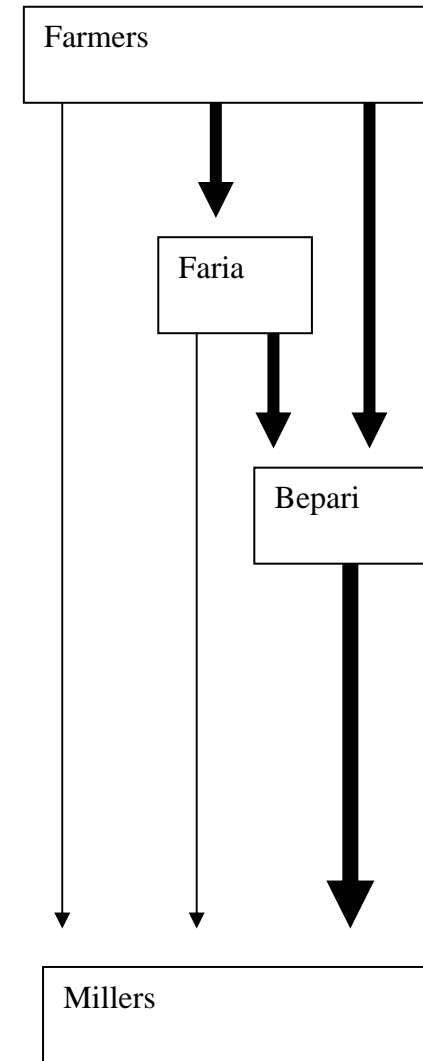
BOGRA



FENI



SUNAMGANJ



Discussion paper 5: Government intervention in paddy markets.

Andrew Goodland

Introduction

The attention of this discussion paper is on public intervention in paddy markets, and the actual and potential affect of this intervention on small paddy producers. The extent and nature of government involvement in markets has changed considerably in recent years. Since the late 1980s, The Government of Bangladesh has undertaken extensive reforms to liberalise its grain markets. On the input market side, subsidies and trade restrictions on most agricultural inputs have been removed, with the removal of restrictions on irrigation equipment in particular leading to a major increase in the irrigated area and the growth of importance in the *boro* rice crop. On the output marketing side, the extent of public sector procurement and distribution of rice has been reduced, and is now less than 5 percent of total the paddy/rice market.

There is general agreement that liberalisation has been good for the rice sector. It has contributed to the rise of private sector involvement and increased market integration. Rice markets have become more spatially integrated since market liberalisation, suggesting that prices are being more efficiently transmitted between wholesale rice markets in different parts of the country, and that rice traders are able to respond to price differentials relatively rapidly. Furthermore, there is evidence that the paddy-rice marketing chain has shortened since liberalisation, i.e. marketing intermediaries are being by-passed, which suggests greater market efficiency with a reduction of transaction costs. This shortening of the marketing chain has been facilitated by low barriers of entry into the marketing system, suggesting a competitive market.

Although technology advances and the government public food distribution programme led to reduced price variations in the 1980s, the volatility of rice market prices has increased in the 1990s, which could be attributable to reduced government intervention in the rice market. The lack of coordination of private and public rice imports in recent years has contributed to domestic gluts and shortages and price volatility. In addition, sudden announcements of changes in state procurement and distribution policy also appear to destabilise markets as this dissuades private sector involvement (Baulch et al, 1998).

Does the government still have a legitimate direct intervention role to play in the paddy-rice market? Should the government intervene in markets with the explicit objective to support paddy marketing households, and if so, how should it intervene?

Objectives:

The objective of this discussion paper and of this section of the project is to consider how successful current government interventions are in achieving a positive impact on paddy marketing households, and to consider how interventions might be improved to better benefit these households. Two public programmes are considered: the paddy and rice procurement system; and the SHOGORIP inventory credit scheme.

Findings and discussion

Paddy and rice procurement programme.²

The Government of Bangladesh operates a procurement and distribution system for paddy and rice, which has multiple objectives of stabilising producer and consumer prices, providing a food security reserve which can be called upon in times of short supply, and providing an subsidised marketing channel for small scale producers. A number of Government Procurement Centres (GPCs) are distributed throughout the country, though they are concentrated in the major producing districts such as Bogra. Officially, the GPCs buy from both farmers and millers. The scale of procurement varies year on year, and between the different GPCs, though the aggregate procurement volume has been declining in recent years and now accounts for less than 5 % of total paddy and rice trade.

For the paddy marketing household, the main benefit from the programme is in price support. Producer prices for paddy are supported both directly and indirectly. One objective of the procurement system is directly provide a marketing outlet for producers. The prices for paddy and rice purchased by the procurement centre are typically considerably higher than the prevailing market prices, especially during the immediate post harvest period, which obviously makes it an attractive option for farmers. However, farmers typically face difficulty in selling paddy to these centres: transport costs to the centres may be high with no guarantee of being able to sell; ‘musclemen’ outside the centres may prevent farmers from reaching the centre and force farmers to sell to them instead; and paddy may be rejected on quality grounds. The farmer questionnaire which was conducted under this project revealed that only two of the 120 farmers interviewed sold their paddy to procurement centres, and these were relatively large scale farmers.

The government procurement system is also intended to support producer prices indirectly by reducing the supply of paddy to the market, though whether it achieves this either in design or implementation is questionable. Firstly, by purchasing large volumes of rice the assumption is made that the increased demand created in the rice market feeds through to paddy prices. This is debatable and depends on the linkage between the rice and paddy markets. Secondly, the purchasing period normally extends over three months after the harvest. The smaller (poorer) farmers tend to face constraints which force them to sell directly after harvest, causing a pronounced depreciation in paddy prices for one or two months. With limited quantities of paddy bought over a three-month period the impact on prices is negligible. At one procurement centre we visited there was also the problem of storage space, with the godown full of paddy and rice from the previous harvest preventing the centre from meeting procurement targets.

So it appears that the system is failing on two counts: farmers are neither benefiting from direct sales at higher prices, nor are they benefiting from increased paddy prices resulting from increased demand in paddy and rice markets. Instead, it appears that benefits are being captured by those who are able to sell to procurement centres – well-connected millers and traders.

² This has been the subject of much recent research, in particular by the IFPRI-Ministry of Food led ‘Food Management and Research Support Project’. Over the past two years the IFPRI-Ministry of Food project has completed a comprehensive review of the government procurement system, yielding very useful information on its performance. It was not the intention of this project to duplicate the work conducted under the IFPRI-Ministry of Food project. Our objective was primarily on farmers’ access to the procurement centres, though we also touched on more general issues relating to the procurement system.

The findings of our survey work are consistent with those found in other work into the government procurement system, including the work under the IFPRI-Ministry of Food project. The recent project report (Shahabuddin & Islam, 1999) also concluded that farmers' participation in the government procurement programme is "negligible", due to range of factors including the long distances to procurement centres, 'unofficial payments', quality problems and excessive formalities – findings which our study confirmed. However, in terms of policy recommendations, there are differences between our studies. The IFPRI-Ministry of Food project makes many recommendations related to improving the participation of farmers in the scheme. These include: re-organising the system to reduce 'unofficial' payments; improving the fairness of the slip distribution to the benefit of farmers; minimise the harassment of farmers at GPCs; and reduce weighing irregularities. On the infrastructure side, recommendations are made for creating extra drying 'chatalas' for farmers, creating extra storage at the procurement centres and re-introducing union level procurement centres. Whilst these recommendations would undoubtedly result in an improvement in the scheme, there are difficulties in implementation. Developing infrastructure and de-centralizing procurement would be expensive for the government, and could result in a much lower procurement price being offered, or increased government expenditure, which would receive substantial opposition. Making changes to the system to reduce harassment, reduce illegal payments, increase fairness are difficult to enforce due to the grip of the local elites on the system, which would be very difficult to dismantle.

In addition to these recommendations, we believe that there are other actions which can be taken to improve the procurement programme for farmers.

1. Procurement timing.

This recommendation agrees with the IFPRI-Ministry of Food recommendation to initiate the procurement soon after harvest time. We would go one step further, in recommending both changing the time of the procurement period, but also reducing the time of the procurement period. Those smaller farmers who are in most need of price support are forced to sell their paddy immediately after harvest to raise income for debt repayments, input purchases and other household expenditure. There is probably only a four-six week period when these farmers will be selling their paddy immediately after harvest, so it seems to make sense for the government procurement only to take place during this period to most benefit smaller farmers.

2. Purchasing paddy not rice.

Procurement is currently split between paddy and rice. The ratio changes annually, though rice purchases tend to be 2 or 3 times greater than paddy purchases. In theory, purchases of either rice or paddy should help to support producer prices (though the extent of this support is questionable – Goletti 1994), though this depends on the linkages between the rice and paddy markets. Mills tend to operate close to full capacity during the post harvest period, irrespective of whether rice from those mills is being channeled into the procurement programme. If the procurement of rice does not influence the demand for paddy by mills, the impact on paddy producer markets is likely to be negligible. Increasing the amount of paddy purchased relative to rice is therefore likely to benefit farmers more (though this requires further research).

3. Involving local NGOs to increase farmer participation

NGOs representing farmer communities could potentially play an important role in selling farmers' produce to procurement centres. The advantages of this approach are that NGOs would have access to trucks and therefore would be able to bulk up farmers produce and reduce transportation charges for farmers. NGOs could also potentially advise farmers on quality/moisture issues (they may even have access to equipment to assess quality). NGOs would also be in a superior position to farmers with respect to negotiating with procurement centres, and would escape harassment and theft. The disadvantages are that appropriate NGOs wouldn't necessarily be operating in communities. A level of trust between the farmer and the NGO is essential for this approach to work.

The NGO approach could potentially work in two ways:

- Slips could be distributed to farmers in the normal way (though there are clearly problems with this) and then NGOs could sell collect these slips and sell the paddy on the farmers' behalf.
- Alternatively, the slips could be issued directly to the NGOs under the understanding that they then purchase paddy from farmers.

Inventory credit – SHOGORIP

Inventory credit, where rice, paddy or any other commodity is stored and used as collateral to secure bank loans, can potentially help to give both direct benefits to farmers, by allowing them to store when prices are low, and also to support producer prices by reducing the supply onto the market. There is experience of this in the paddy-rice sector in Bangladesh. In the 1980s, a Swiss financed programme called BASWAP (Bangladesh Swiss Agricultural Project) initiated a scheme in which farmers were organised into cooperatives and members were to store paddy in a secure godown. Certificates would be issued to verify the amount of paddy in storage belonging to a particular farmer. This certificate could then be used to obtain short term consumption loans from commercial banks.

The programme has since been taken over by the Department of Agricultural Marketing in the Ministry of Agriculture and renamed SHOGORIP (Shoshoya Gudam Rin Prokalpa). The objective and operation of the scheme is broadly the same as BASWAP. The objective is to directly support farmers by giving them the opportunity to delay the sale of their paddy by taking out short term consumption loans. The scheme is targeted at small farmers, owning up to 5 acres. By 1998 there were 46 godowns in operation in the scheme. By 2002 the aim is to have a total of 116 godowns with a total capacity of 10,000 tonnes, and a total of 100,000 farmers involved in the scheme.

Although no recent evaluation has been conducted on the performance of SHOGORIP, previous evaluations and experiences in other countries have raised concerns about the participation of smaller farmers in these type of programmes, with local elites tending to take control of the management and excluding smaller farmers. Concerns have also been raised about the financial sustainability of the approach. The small quantities of stored produce tends to increase administrative costs, sometimes excessively. Unless the costs of storage are lower than the cost of loans, the scheme will not be viable. Having said this, the concept of inventory credit has been successfully implemented in other countries and there is potential for it to work in Bangladesh.

Is this a better way to support poor paddy marketing households than the paddy procurement programme?

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