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**RATIONALE AND MECHANICS
OF
A GRAIN EXCHANGE FOR BANGLADESH**

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Bangladesh Food Policy Project**

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The author accepts full responsibilities for the views expressed in this report as well as for any errors or omissions. The contents do not necessarily reflect the position of USAID or Government of Bangladesh.

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"In this work, when it shall be found that much is omitted, let it not be forgotten that much likewise is performed; and though no book was ever spared out of tenderness to the author, and the world is little solicitous to know whence proceeded the faults of that which it condemns; yet it may gratify curiosity to inform it, that this book was written with little assistance of the learned, or under the shelter of academick bowers..... and success and miscarriage are empty words; I therefore, dismiss it with frigid tranquillity; having little to fear or hope from censure or from praise."

Samuel Johnson, Preface to the Dictionary

Foreword

Like governments everywhere, the Bangladesh Government has struggled mightily in recent years to find a means of determining the market price of rice. Administrative price setting has not worked well. Though sometimes close to the mark, at other times government's administratively determined procurement prices has been as much as 60% above market price. Tendering has worked much better in determining market price, for both procurement and offtake. But given small minimum bid lots, government has never been able to procure more than about 25,000 tons per season through tender.

To take advantage of the economies of purchasing and market price, and to avoid the small quantities problem that plagued the initial procurement tenders, the Ministry of Food asked IFPRI to explore the prospects for a rice exchange. A rice exchange holds the promise of determining current market price, thus allowing government to purchase without elaborate and often costly administrative pricing formulas. In addition, modest quantities of government forward contracting through tenders hold the promise of establishing a forward reference price for market traders, a very simple version of a futures market.

Bangladesh's foodgrain markets have matured rapidly in recent years. But anticipated future growth will require accelerated modernization of marketing institutions. The growing move to rice export will require adoption of a clear, well-recognized system of grades and standards as well as recognized inspection and certification procedures. The large lot handling required by import and export trade will require access to banks credit in quantities several orders of magnitude larger than is available to the rice trade today. The advent of regular international trade in foodgrains will likewise open up access to international commodity markets. Instruments such as options and futures can potentially provide a low-cost means of providing food security, at a cost far less expensive than physical holding of stocks domestically. To facilitate this modernization of private foodgrain markets will require institutional development by both government and the private sector. Ultimately, a well-functioning grain exchange could contribute to both a considerable streamlining of public foodgrain management and to expanded opportunities for the private trade.

Based on experiences of other commodity exchanges, and on a firm understanding of the structure of present-day Bangladesh's rice markets, Mr. Mahfoozur Rahman has prepared this thought-provoking assessment of the prospects for a grain exchange in Bangladesh. I believe it offers important food for thought as government and private traders examine means of promoting further growth and modernization of Bangladesh's cereal markets.

Steven Haggblade,
Chief of Party
Bangladesh Food Policy Project

Preface and Acknowledgements

It all started in 1992, with the Ministry of Food's efforts to procure rice by open tender, a procedure radically different from the fixed price procurement, practiced by the government hitherto. In analysing the tender results, it was found that this method of procurement was not only cost-effective, but also least destabilizing to the market - a powerful tool of achieving both economy and market integration. But, in formulating these tenders, authorities had to make a difficult choice between specifying large, or small minimum bids. If they opt for the first, there will be very few participants with consequent dangers of collusion; if they opt for the second, there will be little procurement, as government must place orders only with the lowest bidders. In evaluating the tender results, further difficulties were encountered in finding a 'fair price', as no bench-mark price was available. Though various mechanisms were suggested, no effective solution to both these problems could be found, rendering the tender procurement procedures practically non-effective, as little quantities could actually be procured (mainly on account of low minimum bid specification).

This situation indicated a basic structural weakness in the rice markets of Bangladesh - the absence of a central market with numerous participants. It also pointed to the need for development of a bench-mark pricing, ideally formed in a competitive market, against which the bid prices could be evaluated. The proposition that these government tenders could be spread over the entire procurement season was thought to have many advantages. Firstly, it transferred much of storage problems to the market, secondly, it was expected to stabilize prices well into the season at no cost to the exchequer, much like a futures pricing mechanism. But in actual practice, no such scheme could be implemented without a central grain market - an exchange, which would have played a crucial role in the price-formation process.

In one of IFPRI's numerous advisory service tasks on rice procurement pricing questions, in October 1993, these themes were elaborated in some details. Dr. Tawfiq-e-Elahi Chowdhury, the then Secretary, Ministry of Food, requested a detailed report on the possibilities of such an exchange in Bangladesh, perhaps as a means to further the ongoing reforms undertaken by the government. The present report is the direct result of the appreciation and deep understanding of the critical food-policy issues by Dr. Chowdhury. Meanwhile, authorization to tour Asian, US and UK grain markets were granted by USAID, Dhaka, as a part of our project activities. At the same time, a study-tour and training program for Ministry of Food officials with the USDA was also arranged by IFPRI, a part of which was attended by this writer. Incidentally, the success of this training program was evaluated thus by USDA: "It has opened a new chapter of association between the two agencies of the Governments of Bangladesh and the United States which will continue to grow over time." (USDA letter dated 20th June '94).

The author gratefully acknowledges the crucial contributions made by Dr. Towfiq-e-Elahi Chowdhury, Secretary to the Government of Bangladesh, and Dr. Steven Haggblade, CGP, Bangladesh Food Policy Project, in initiating the process leading to this report, and for successful implementation of the USDA training of Ministry of Food officials. Thanks are due to the USAID for funding this report and the study tour of the

world grain markets. Without their support and financial assistance, needless to say, this work would not have been possible.

In the course of the study tours, this author was greatly assisted by all persons involved in the international grain business: marketers, manufacturers and government officials in three continents, the full list of those are attached as Appendix B. While acknowledging their unstinted assistance and encouragements, special mention must be made of the following persons who went out of their ways in sharing their considerable knowledge and wisdom, besides providing all possible personal help: Messers Tanit Sriratanalai and Viroon Supmaluang of Thailand; Messers Todd Gardner, Ned Bond, Keith Glover, Jacky Clements, Jerome Turtola, Dennis DeLaughter, and Drs. John F. Robinson, Anwarul Hoque, Mack Leath of USA; and Messers E.D. Prentis and Gerdon Swain of U.K. This work benefited immensely from their experience which ranged from international grain trading to machine manufacturing, and from the theory and practice of futures markets to the evils of subsidy, an astonishing breadth of knowledge, of which, as much was presented in this work as the limited space and capacity of retention permitted.

Special thanks are due to the United States Department of Agriculture, for not only organizing the study-tour, but also arranging interviews with the key persons in USA, and on one occasion, booking the hotel reservation! The chapters on the Chicago Board of Trade, including the history and the mechanics, draw extensively on their publications listed in reference at the end of this report. This source of information from the CBOT is hereby gratefully acknowledged.

Thanks are also due to Mr. Jinnat Ali, my able Research Assistant, in compiling many of the graphs and tables, to Mr. Nurul Amin, my shared secretary, who did all the typing and computer composition, working late into the nights, and to Mr. Zahirul Islam, draftsman, who drew the diagrams and maps.

All remaining limitations and deficiencies of this report is entirely mine, and in no manner reflect on the immense wealth of knowledge and experience of those experts referred to above, who all are outstanding in their own specialized vocations related to the subjects.

An unabashed proponent of free-market and free-enterprise system, this author shall be content, if this report assists in any manner in the continued development of a freer and more efficient foodgrain market in Bangladesh.

Dhaka: 30th June 1994.

Mahfoozur Rahman

Executive Summary

An Overview

Ever since the Bengal Famine of 1943, the successive governments intervened in the food markets to control supply and prices. Interventions primarily took two forms: internal procurement and public food distribution. But with growing production leading to self-sufficiency in rice, such interventions are becoming increasingly unnecessary. In the current situation, public concern is expressed for a low rice price and providing incentive prices to the producer; of export and not import of rice. Such radical changes in the food markets suggest a role different from what has been practiced by the government and more reliance on private markets. Thus, one of the most important task of the government is to modernize and strengthen market structures and organs.

A Modernizing Role of Government

In this changed circumstances, government may play crucial role in modernizing the markets, to which, much of the traditional tasks of the government may be relegated. They are briefly: (a) Removing the legal restrictions on the foodgrain trade (b) Freeing institutional credit (c) Standardizing grades (d) Encouraging development of a competitive market (e) Reforming government's own food operations. Government may also consider the organization of a central grain market as an important contribution to private market as experience has proved that organized trade can not develop without development of strong market organs.

Agricultural Markets: Functions and Structures

The function of the food market is to transform the agricultural produce as saleable items to the consumers — a process that involves many exchanges. In an efficient market, the price formation takes places freely in a competitive environment. Market information and the manner in which dissemination of this information takes place, determine the price-formation. Expectations on future conditions also influence present prices, for storing of any agricultural commodities is inherently risky. All operators in the market are exposed to these price risks. An ideally competitive market is one of degree, as no market fully satisfies the theoretical criteria. Nonetheless, the Commodities Exchanges of USA exemplify free and competitive markets. All exchanges of the world are modelled after them.

The Chicago Board of Trade: Its History, Role and Methods

The ultimate prices of commodities depend to a great extent on the firms' ability to manage inherent price-risks. Today, businesses and institutions routinely use risk-management strategies available at futures exchanges to hedge their transactions. The savings thus accrued are then passed on to the consumers by the process of intense competition of the free-market. In addition to the risks in commodity prices, business risks in interest rates, stock-indexes, foreign exchange values etc are minimized or eliminated by use of the futures mechanism. The Chicago Board of Trade in the word's largest and oldest of exchanges who pioneered the futures trading system.

This Exchange was established by 82 Chicago merchants as a central market to trade in agricultural commodities in 1848. Chicago was at the central location of the agricultural production in middle America, and the wild fluctuation of supply and demand influenced the market prices tremendously. The Exchange helped stabilize the chaotic condition by regulating this ebb and flow of commodities, principally by introducing 'to-arrive' contracts. These were later standardized as 'futures' contract — a pioneering marketing tool which benefited the producers, traders and consumers equally. Speculators were attracted to this new marketing system because profits could be made without handling the physical commodities. They supplied information and liquidity - both essential for an organized market.

Today, many sophisticated marketing tools like options on futures on commodities and financial instruments, are widely used by businesses. In the Exchange, fair market value of all items traded are discovered by a publicly conducted auction like process. This price is the bench-mark price used globally. The market operators through strict laws of the Exchange, and is overseen by a Government appointed Commission. Further, the operations of the Exchange is regulated by Federal Laws. Futures and options are also used by many governments in their sale and purchase operations. Specially for wheat, of which, Bangladesh is still a major importer, such trade instruments may be a used to insure against production shortfalls (Security Stocks). Analysis and simulation indicate that these devices will cost much less than the present method of holding physical stocks. By this method, not only the great cost-saving to the exchequer will be effected, but also stock-rotation problem for the government will be greatly minimized.

The International Rice Trade and Markets

Rice is the principal crop and staple food for most of Asia. Formerly deficient rice producing countries are now self-sufficient and even surplus in rice. The technology of green revolution has brought about this change with consequent impact on global trade.

In 1994 FAO forecasts a import/export trade in rice of 16.3 million metric tons — a record figure. The entry of Japan as a major rice importer has also introduced unprecedented volatilities in international prices. The current (1994) scenario of major markets are commented on:

Thailand Rice Market. Thailand is the world's largest exporter of rice. It produces between 18-20 MMT of rice of mostly long grain variety. The 2nd irrigated crop is limited by a water shortage with little scope of expansion. Thus, Thailand's capacity to enhance export quantities from the present level is highly unlikely.

Private trade exports over 90% of Thai rice, with government to government deals accounting for the balance. A number of government agencies and organizations regulate the Thai market, though in actual practice a few very large exporters control the market. In 1994, Thai rice prices fluctuated widely in response to Japanese demands. In spite of being the largest exporter, the internal market of Thailand may not termed ideally developed. The Thai Board of Trade is presently being re-organized to stabilize and regulate the market where a true bench-mark price is very difficult to obtain. All knowledgeable importers are aware of this and try to cut the best deals by private negotiation with private exporters, rather than with government agencies.

US Rice Market. USA is the second largest exporter, and has the world's most modern production and marketing organizations. One result of this efficient market system is that US rice fetches the highest prices in international market. Many customers opt for US rice on account of reliable supply and pricing, rather than its intrinsic quality. Rough rice futures and options are traded in US Exchanges with its beneficial effects on the prices by hedging and trade-based price stabilization. The US rice industry is highly automated, centralized and possesses state-of-the-art technology. Value addition by packaging, blending, fortifying, and further processing is the norm of the US market, rather than bulk trade as is practiced elsewhere. Valuable lessons may be learnt by Bangladesh in all aspects of this subsector from these advanced practices.

EEC. The EEC grain (mostly wheat) market is a highly subsidized and artificial market where EEC subsidies are the driving force. Since EEC produces mostly soft wheat, it has little significance for Bangladesh importers. However, there is a good prospect for export of high quality fine rice to these markets.

Pakistan Rice Market. Pakistan exports about a million tons of mostly Basmati rice to mainly Middle Eastern markets. With the withdrawal of government subsidies on agricultural inputs, price competitiveness of Pakistani rice is largely eroded. With newer varieties (Basmati 135) and exploring to newer markets in Africa, Pakistan is trying to maintain its exporting position. In the Gulf markets, Pakistan still enjoys eminent position. It is extremely difficult for Pakistan to increase either the acreage or quantity of rice production. The export situation has worsened with emergence of Indian as a major competitor.

Indian Rice Market. India is making strenuous efforts to increase its rice exports under the liberalized economic policies of the government. The object of the recent steps taken by India is to roughly double its rice exports from the present 12 billion Rs to 25 billion Rs by the year 2000. The major steps taken by Indian Government are: (a) removal of export price restrictions (b) setting up of Rice Export Promotion Council (c) more export oriented research (d) formulation of export grades (e) substantial investments in rice milling sector in modern technology. Because of these encouragements, large multinational companies have moved into rice business. India is also setting up an Agricultural Commodities Exchange in Bombay. India is expected to become a major rice exporter within very short time because of the positive and pro-active role played by the government. India is making strenuous bids in Japan, ME and EEC markets with high quality rice. At the same time, they are trying to capture African markets by export of low-cost coarse rice. In sum, India is targeting the global market in a planned and forceful manner

Organizing the Grain Exchange in Bangladesh

With production rise and enlarged marketing, the need for a central marketing organization is acutely felt in Bangladesh. The steps to be taken in this direction are: (a) removal of all remaining restrictive laws on the foodgrain trade (b) enactment of suitable commodity exchange regulations (c) inducting suitable members (d) registering the Exchange as a Public Limited Company. The Exchange should be located in Dhaka, because of its central location and correlation to principal markets. The physical infrastructure may consist of all necessary communication and trading facilities. The central facility required is the trading floor with ancillary offices. A number of committees

will over-see all functions of the exchange. The relevant ministries of the government may formulate a plan of action with a suitable land grant to build the exchange. Donors are willing to finance such a venture as well as to provide seed capital to start off the exchange activities.

The Tasks and Functions of the Grain Exchange

The changed circumstances in the grain market has imposed newer responsibilities on the private markets which must develop and modernize to shoulder these responsibilities. The concept of the Grain Exchange is a step towards this direction. The major tasks of the Exchange are envisioned as : (a) regulate internal trade (b) establish grades and standards (c) provide liquidity (d) take advantage of the global market system. To accomplish these tasks, the functions of the Exchange are: (a) to encourage and regulate forward contracts (b) to modernize wheat importation and distribution by the private sector (c) to disseminate market information (d) to promote export by bringing together importers and exporters and providing all market information. At a suitable time, standard futures contracts could also be introduced. The government will be the chief beneficiary to these functions, when all procurement could be effected through the Grains Exchange. Government could also obtain wheat futures and options from international exchanges to satisfy its security stock needs at a cost considerably lesser than the present method of maintaining physical stocks.

Conclusion

A major objective of any market is to bring about added efficiency which may only be ensured by competitiveness. Volumes of trade is an index of competitiveness, as is the number of participants. The exchange system is an established means to achieve these objectives. The recent developments in South Asian countries indicate rapid growth of their markets, as well as great progress in market infrastructures. We must enhance market efficiency if we are to compete with our neighbours in the intensely competitive international market place. The GATT agreement and high potentialities of production has opened up newer opportunities of international trade. Strengthening market organs and enhancing competitiveness of internal markets will go a long way in that direction. The modernizing step of organizing a Grain Exchange may be viewed in that context.

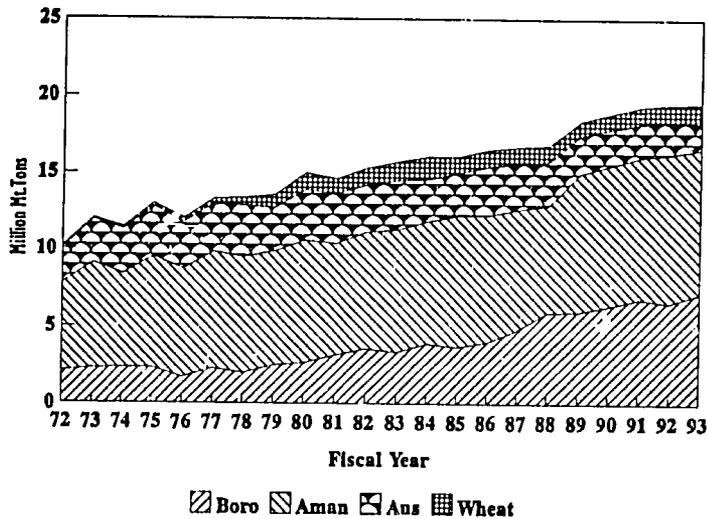
AN HISTORICAL OVERVIEW

The Compulsions

Food is fundamental to the very well-being of Bangladesh, where most of the people are unable to provide themselves of an adequate diet. With an average earning of \$210 per capita, and a great unbalance in the income distribution, the sensitiveness of the food policy to be pursued can not be overemphasized. Ever since the Great Bengal Famine of 1943, in which a million perished the task of provision of adequate food supplies had been central to all successive government's concern. The next famine of 1974 in the war-torn nascent state of Bangladesh, was traumatic enough to leave its indelible mark on the collective memory of this society. It is the un-written but inescapable compulsion on the people and government of Bangladesh not ever to experience such a situation of food-shortages. Hence, the successive government's resolve to increase the food production to the levels of 'self-sufficiency', even to its former historic levels of 'excess'; to effect export, a dream coming true, sooner than most skeptics ever thought possible.

Government's response to these historic compulsions have been in two areas: in a public food distribution system, and in sustained investments in programs to enhance agricultural production, specially foodgrains. The natural endowments of a fertile soil, revitalized by the yearly floodings, plentiful sunshine enabling year round photosynthesis, a low water table with inexhaustible aquifers, and the teeming, toiling masses with a rice production culture going back to over a thousand years, all point to a land of plentiful foodgrain production. The right policies of agricultural research in the green revolution technologies have produced new varieties of such high yields that the production limitations today can only be termed managerial and economic. Bangladesh can possibly double its foodgrain production using the present off-the-shelf technologies, if only agricultural extension and markets may rise to the task. Such were the impetus to the production process that within short two decades, Bangladesh has roughly doubled its foodgrain production, far outstripping population growth. (Figure - 1)

Figure 1-Productions of Foodgrain
(1972/73-1993/94)



Source : BBS

Expanding Markets

With this production rise, the foodgrain markets have also expanded rapidly. The growth of marketed quantities have been exponential since the early seventies. It was thus inevitable that the basic structure of production and marketing should also undergo rapid transformations. This dramatic production growth in agricultural production has been mostly in the production of rice. As the Imperial Famine Commission recorded in 1880, "The chief factor in the life of Bengal countryside can be said to be rice, the staple crop and staple food of the population". Food in Bangladesh always meant rice, though wheat in recent years is becoming an increasingly important addition to the diet. This emphasis on rice is natural; the production environment and culture of Bangladesh dictate thus. With increase in rice production, and marketing, and plentiful wheat supplies by imports, the criteria of policy formulations have also undergone fundamental changes from what the 'conventional wisdom' of five decades would consider sacrosanct. In hindsight, this rapid growth of agricultural productivity has caught almost everyone by surprise, at least in its consequences. For a multiple of reasons, the enhancement in the supply side of the cereal grains has brought about far-reaching beneficial impacts on all aspects of the economy — in GDP growth, a surprisingly small inflation figure, nutritional status of the

people including the poor, rapidly growing demands in agricultural inputs, and in a host of other measurable indices of the national economic and social status. But nowhere has the these recent dramatic production rise been more marked and striking than in the foodgrain markets, and as a natural consequence, in government's food policy. (See Diagram - 1)

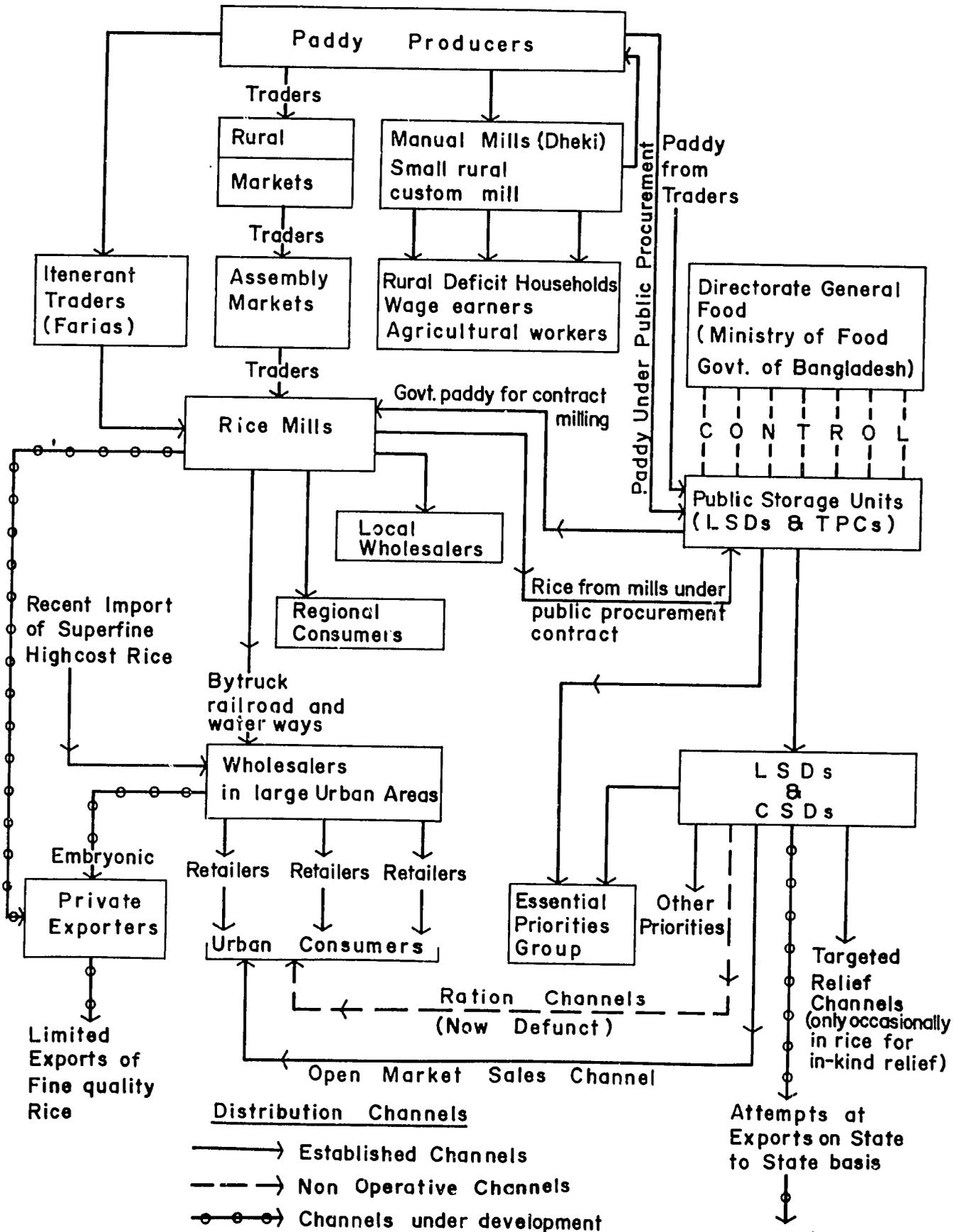
Causal Effects

The rapidly changing scenario transformed by the equally rapid growth in production may be likened to a classic drama of cause and effect. While policy liberalization in agricultural input markedly added impetus to production, the rising marketable surpluses in turn had its telling effect upon the price seasonalities, which has made the rationale behind conventional buffer-stock policies increasingly out-of-tune with realities of the market place. The declining real prices of cereal grains, as is expected with higher productivity, made the administratively adjudicated distribution prices irrelevant as an instrument for transferring benefits to the consumers. Whereas in the '70's, the ration prices of rice was only 40% of the market price on the average, by early 90's it had shot up to 130% of the market price (Haggblade-1994). The case for consumer price stabilization by ration distribution is no longer relevant in the present price regime. In these times of rapidly changing parameters, on which the foundations of the policy stood, it is no wonder that the long established policies of public procurement, buffer-stock management and distribution should be in a state of constant flux. But, while the government is groping about, to formulate plausible policies to cope with this unprecedented market environment, the private markets expanded rapidly in pro-rata proportion to the production rise.

Politics of Food

Spurred on by rapidly rising production, specially in the irrigated, technology oriented dry season Boro, the marketing structures today are characterized by newer dimensions. The manifestations of such marketing revolutions are evident in a rapidly growing marketing surplus, increased crowding in the markets, improved market integration, reduced price seasonality, a burgeoning private stock, specially on farms, and the falling real prices of foodgrains. These momentous changes in the structure, nature, and consequently, in expectations of the market, have also transformed the popular

Rice Marketing in Bangladesh



percepts on the imperatives of the hour. For five decades, the rallying cry of all political gatherings was a demand for lower foodgrain prices: demand for cheaper rice and the failure of the government of the day in controlling upward trends of price of rice, the 'staff of life' in Bengal. To-day, the concern is for a low rice price, the farmer not covering his 'cost of production' and failure of the government in giving incentive price to the grower. The norms of political economy has turned a volte-face within such a short-time as to take everyone by surprise. Exports, and not import of foodgrain is the topic of debate in today's Bangladesh society concerned with such matters.

2

THE PRODUCTION POTENTIALS

High Yielding Varieties of Rice

The conditionalities under which this silent revolution has taken place was not unexpected or unplanned. The basic work of the green revolution started as long ago as late nineteenth century, notably in Japan with the "Japonica" varieties. It is only in the nineteen sixties that comparable results were achieved with "Indica" varieties — the main variety of rice-Asia. The pioneering work of the International Rice Research Institute, Los Banos, Philippines, has matured into national research efforts in dozens of rice growing countries from USA to India. Literally hundreds of these varieties are now at producer level extension network in these countries. However, it would be more correct to call these new varieties 'highly responsive', rather than 'high yielding', since they only yield to their design capacity when heavily fertilized, specially in nitrogen rich inputs and supplied with controlled water, which only an irrigation system can satisfy. What is new in these varieties is not so much as their high yields, but their adoptabilities to a wide area of tropics or subtropics, in highly varied agronomical environments where only low-yielding indigenous varieties grew before.

Under favorable conditions, they produce astonishing yields at several times the traditional varieties. For example, the typical high-yielding varieties at Bangladesh Rice Research Institute, yields 7 to 8 MT/hectare under ideal conditions. Average yields for 1960-64 were about 1.5 MT/hectare in India and Pakistan, 2 tons in Sri-Lanka and Malaysia, and 5 tons in Japan. (FAO-Rice Marketing). A national yield in tons per hectare is given in Table 1 for comparison, as well as to indicate the prospects of Bangladesh as a producer, whose potentials are yet to be exploited, even partially.

The Problems of Plenty

The doubling of production, mostly due to introduction of HYVs, has generated a marketable surplus of unprecedented magnitude in Bangladesh. It should also be noted that this production increase was only made possible by an increasing access of modern

Table 1 — Rice Yields in Tons per Hectare: Selected Producer Countries

	Country	Yield (MT/ha)	Remarks
1.	USA (Arkansas)	6.4	All Long grain Modern varieties in Irrigated Fields.
2.	Japan	6.1	Short grain Japonica Varieties in Irrigated Fields
3.	South Korea	6.3	Mostly HYVs in Irrigated Fields
4.	China	5.8	-do-
5.	Philippines	2.8	90% HYV, but only 60% of fields are irrigated
6.	Bangladesh	2.7	40% HYV in only 40% irrigated fields
7.	India	2.6	Mostly HYVs in partially irrigated fields

Source: Compiled from University of Arkansas, Agricultural Extension Service Data and Asia Week.

inputs to the producer: a most necessary precondition for achieving the yield potentials of HYVS. Changed government policies of input market liberalization acted as the long awaited catalyst to this spurt in production, which today enhanced the marketed volumes by sixfold (Haggblade-94). By and large, over half of Bangladesh rice produced is channeled through the commercial markets today.

While the technology of production has been adopted reasonably enough by sustained agricultural research, extension work and input market liberalization, the same can not be said faithfully about the development of the market. The problems of increased output in a market system developed over the decades of almost stagnant production are scarcely recognized, let alone fully understood. International experts anticipated these marketing problems in broad terms long ago. Said the FAO (Rice Marketing, 1972), "..... the advent of high yielding varieties will increase enormously the volume of rice moving through the domestic markets and make still more urgent the need to modernize rice marketing in developing countries. This will necessitate major improvements in rice marketing, including expansion of drying, transport, storage and milling facilities and greatly increased provision of capital, credit and entrepreneurial initiative".

The classic bufferstock operations of the government's internal procurement and distribution worked well for decades when the seasonal highs at the end of season ensured high demands through the PFDS. This also served the ends of stock-rotation to avert any possible deterioration of the procured grains. The capacity to rotate the bufferstock is a key feature in any publicly held stock-system. With sustained rise in production, the whole PFDS system was put into jeopardy when grains procured could no longer be rotated by corresponding off-takes. Stocks had to be released at the end of safe-storage period which, on account of low shelf-life of rice, mostly falls in another harvest season. This in turn, lowers prices, necessitating or forcing the government into additional procurement to shore up harvest time prices — a major, stated objective of the internal procurement.

The classic symptoms of a glutted grain market manifested themselves in the Boro season of 1992. Rice prices instead of rising after harvest time lows, declined throughout the season. The price movements for two markets representing consumption area (Dhaka), and production area (Bogra) are shown for 90-91 and 92 in Figures (2 and 3).

In such a market, all participants must lose money. Government's price stabilizing efforts were also put in a quandary by the reversal of normal price trends. In fact, these unusual trends continued throughout much of next three harvest seasons. It is only at the Aman of 1993/94 that normal trends are beginning to be noticeable. **This painful process of market adjustment has undermined much of market integrity and corroded the incentives of the traders and millers to participate in the trade. The very recent production trends of rice also show marked downward deviation from trends, indicating the influence of market aberrations on the production process. (Figure 4)**

To be sure, corrective actions in the form of many reformative policies have been adopted by the government to adjust to the changed circumstances. Gradually, but surely the government has unburdened itself from the tasks of the ration distribution system. As the PFDS experienced the constraints of a non-rotating stock and the compulsions of additional procurement, both the distribution channels and procurement quantities were pared down in large measures in attempts to put the system in an equilibrium. Additionally, the procurement prices were lowered and experiments were conducted in procurement through a public tendering system with no price fixation. Bold and innovative as these attempts were in recognizing the need to adjust to a changed market

Figure 2-Weekly Price Movements of Coarse Rice in Dhaka, a. Boro Season, 1990-1991

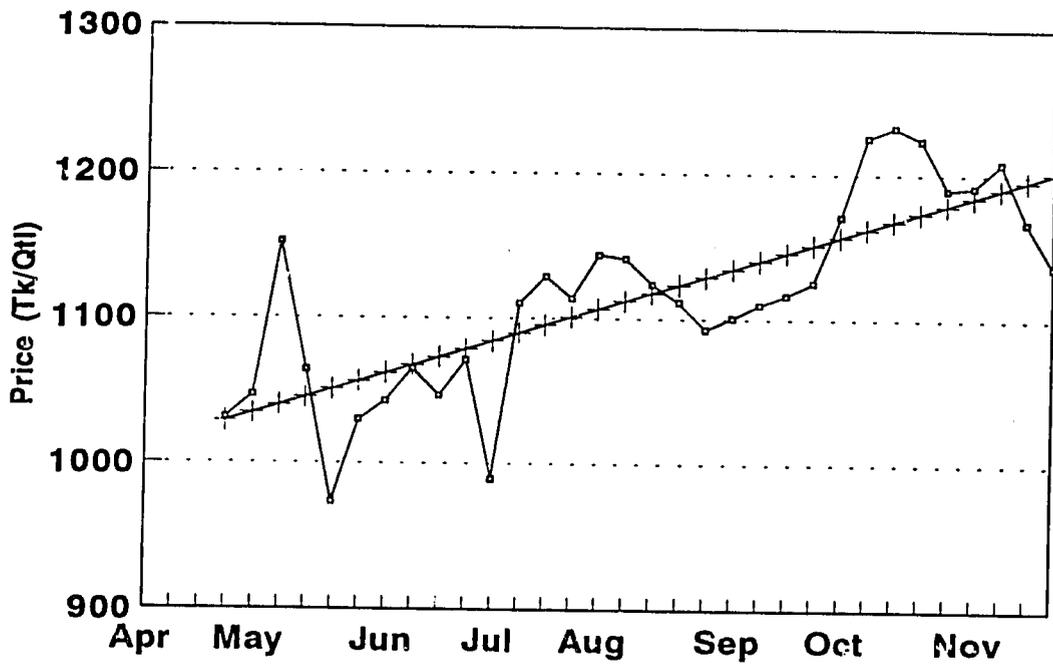
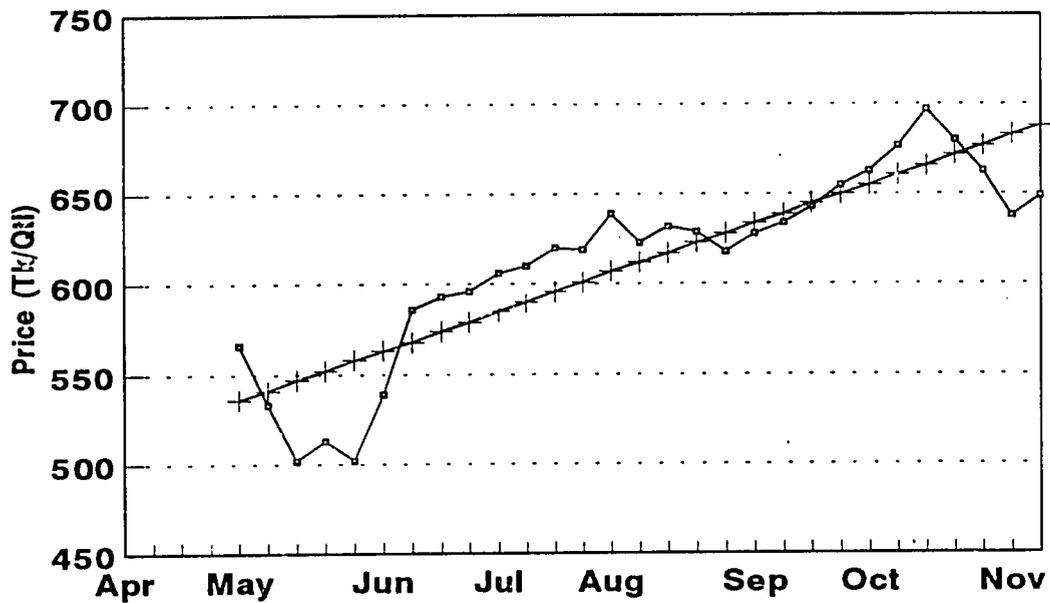
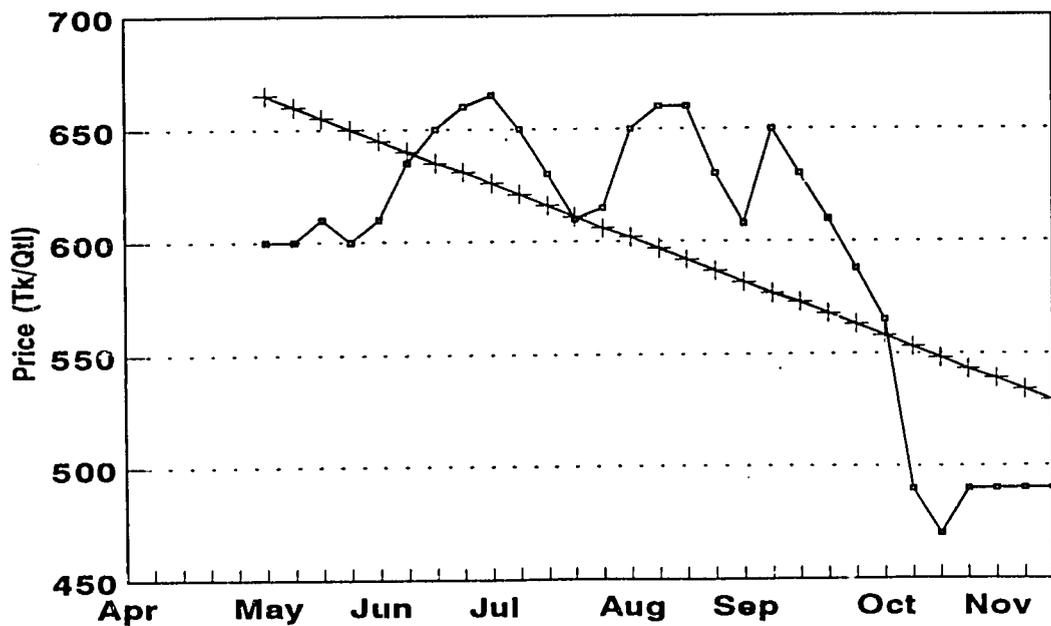


Figure 3-Weekly Price Movements of Paddy in Bogra, a. Boro Season, 1990-1991

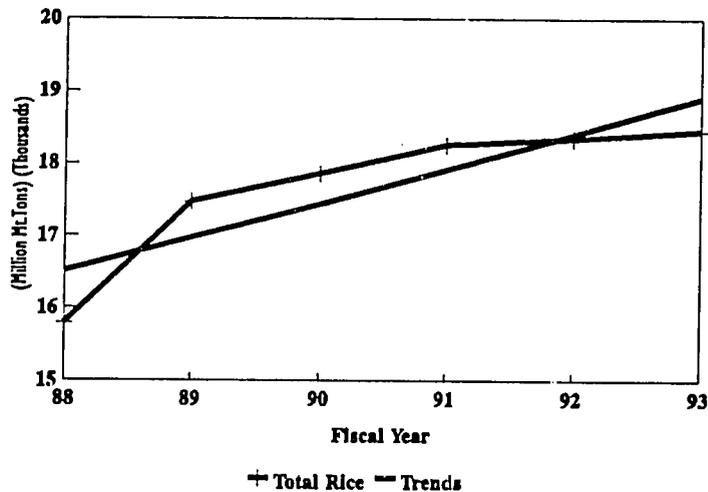


b. Boro Season 1992



Source: Haggblade and Rahman, Laws of Gravity, IFPRI, 1993

Figure 4-Total Production of Rice With Trends
(1988/89-1993/94)



Source: Compiled from BBS data.

environment, they perhaps were not quick or sweeping enough to influence the market much — as is expected from any administrative actions. Markets must be allowed to operate themselves, with the government providing the regulatory and statutory framework to ensure a number of conditions in the market place. Market development and market regulation, regrettably, has never been a priority item on the agenda of reforms.

3

GOVERNMENT AS A MODERNIZING FORCE IN FOODGRAIN MARKETS

Redefining Government's Role

As Bangladesh transits from deficit to surplus in foodgrains, modernization which inevitably implies liberalization, the structure and policies of foodgrain marketing is invariably involved. The markets must operate in a legal and financial environment which should recognize and adjust to the changed circumstances towards growth and development. The interventionist and forceful presence of the government devised in an era of chronic shortages are no longer relevant in the present situation of rice surpluses and burgeoning private stocks, specially on farm. The norms of mid 1970s and most of 1980s in domestic and international marketplace are no longer valid today.(Table-2) Consequently, government's share of Foodgrain sales have fallen from 30% in 1960's to 25% in the late 1980's to about 10% today. For rice alone, government's share of total marketed sales now stands at about 3% (Haggblade - 94). As evidenced by the market signals, government's traditional policies and instruments of executions of these policies are seriously out of tune with the newer demands, necessitated by newer production and marketing compulsions. To be sure, the government has attempted to adjust by paring down its' former activities in both procurement and distribution. In doing so, some of the government's role has been tasked to the private market by default, if not by design. Redefining the role of the government by a method of prioritizing the objectives of the food-policy should be the first task, and an urgent need of the hour.

The realities of the market Place

Though expanding rapidly, the foodgrain markets in Bangladesh are still primitive in many respects. The factors inhibiting the natural growth of the market are the lingering hangovers of a bygone era of scarcity, and the government's reactions out of the trauma of famines and scarce supplies of the staple foods. The still existing impediments to natural development of the markets are briefly:

Table 2 — Percentage Change of Foodgrain Production, 1972/73 - 1993/94

Year	Total Foodgrain (000'MT)	Percentage Change in Total Production Over Previous Year
1972	10181	-
1973/74	12021	18.07
1974/75	11404	-5.13
1975/76	12981	13.83
1976/77	12012	-7.46
1977/78	13318	10.87
1978/79	13343	0.19
1979/80	13563	1.65
1980/81	14975	10.41
1981/82	14598	-2.52
1982/83	15310	4.88
1983/84	15720	2.68
1984/85	16086	2.33
1985/86	16083	-0.02
1986/87	16548	2.89
1987/88	16709	0.97
1988/89	16816	0.64
1989/90	18352	9.13
1990/91	18856	2.75
1991/92	19317	2.44
1992/93	19517	1.04
1993/94	19550	0.17

Source: Bangladesh Bureau of Statistics.

(a) *Legal Restrictions.* A number of emergency legislations date back in origin to the Defence of India Act, 1939, which endowed arbitrary powers to the Central and Provincial Governments in British India to respond to the wartime emergency situation. A bewildering number of Acts, Ordinances and Orders followed at essentially trying to control prices, supply of food grain and food-stuffs by legislative and administrative actions. The mother of all restrictive laws, presently, is the East Pakistan Control of

Essential Commodities Act 1956, still on the statute book. Though most of the restrictive laws are 'suspended' now, and all are not actually enforced, these laws inhibit the development of the sub-sector in a number of indirect ways. Lack of confidence and fear of governmental action discourage both lenders and investors in the subsector. Long-term investments including infrastructural investments depend on large measure in such confidence of the participants who are not willing to invest in such doubtful circumstances.

(b) Credit Restriction. Markets move on liquidity which enables the participants to move quickly and freely in and out of trading commitments. A shortage of liquidity will not only restrict the volumes, it throttles effective demand which, in the real-world of the market place, largely translates into availability of purchasing powers. On account of the restrictive laws controlling specifically the bank lending to finance the trade, the shortage of liquidity has always been a major constraint. An increase in the marketed volumes in proportion to the production rise, in an ideal world, should have resulted in a pro-rata increase of money supply through the trade channels. In reality, that has not been the case. Empirical findings indicate high rate of defaults even in the existing meager loan portfolios, (Slouver-94), though these numbers are to be evaluated in comparison to other sectors, and in the general context of the entire financial sector performance in Bangladesh today.

(c) Lack of Organization. Private markets need organization to regulate themselves towards standard practices. In fact, organization of the trade is the first step towards standardization. The foodgrain markets of Bangladesh today, though more integrated in price and physical movements, can not be said to be organized in so far as grades and standards of commodities and integrity of transactions are concerned. Dearth of such organization is manifest in absence of graded paddy and rice in the market place. Transactions between traders are highly personalized without a watch-dog body ensuring or supervising the trading commitments as regards their integrity. All these do not augur well for the expected moves to ultimately take this market to the global competitive environment. Without a domestic organization ensuring that the demands of regulated trade are satisfied, entering the export market in a significant way is well-nigh impossible.

A Modernizing Menu

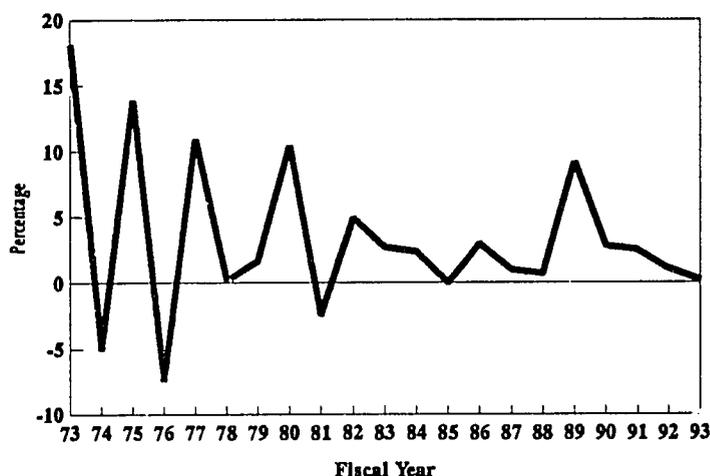
In the present circumstances of self-sufficiency of rice, rapidly leading to surpluses necessitating export, and an increasing demand for imported wheat to cater for discriminating urban consumers, the government today enjoys a choice of options, unthinkable a few years ago. These objective market conditions of trade opportunities, and a private sector willing to take risks of export and import, (all commodity trades are inherently risky), the government has unique opportunities to unburden itself of historic obligations so far carried at enormous costs to the public budget. The basic options available to the government are either to (a) remove still remaining impediments from the private trade to allow them to develop as best as they could (b) act in a pro-active manner to forcefully promote development of private market by a set of modernizing action programs. While the first option needs little effort, it goes against the principles of concepts of a modern government. The course of events in such a void, as will be created by the absence of a large and interventionist government, can not truly be predicted. At the very least, a period of uncertainty shall prevail — with the resulting danger of chaotic reactions from the market, even a reduction in production growth experienced since 1990, (Fig. 5) could become the norm resulting in dangerous consequences. In the largely transitional phase of market development experienced now in Bangladesh, even the possibilities of such a chaos is a risk this society can ill afford. For a variety of reasons, both positive and negative, there appears to be little option to the premise that a shifting but forcefully active role of the government is what is called for.

To play such a role, the government may consider the following course of actions:

(a) Encouraging and Enhancing a Competitive Market. Many of the objectives of the present food-policy of the government may be achieved by an efficient and expanded private market. Efficiency of a private market is in direct proportion to its competitiveness, which will be enhanced enormously by removing the vestiges of the still remaining impediments to its natural growth. They briefly are:

- (i) Liberalization of credit by the formal financial sector.
- (ii) Permanent rescindment of the restrictive laws (presently suspended) to remove any remaining ambiguities about legality of essential business operations in the foodgrain subsector.

Figure 5-Percentage Change of Foodgrain Production
(1973/74-1993/94)



Source: Compiled from BBS data.

- (iii) Formulation and enforcement of more advance internationally recognized grades and standards to regulate the domestic market, and to allow for eventual export.
- (iv) Develop the infrastructures of large-scale trade with export market in view. They include efficient inspections, insurance, banking and warehousing services for the exporters, and re-organizing freight handling by Bangladesh Railways as a reliable carrier of foodgrain.
- (v) Modernization of the still antiquated rice processing industry to produce the export-quality rice by an active program of financial and technical assistance to the milling industry. (See Diagram -2)
- (vi) Actively encouraging export by developing an production environment targeted towards the export-market. Information is the key to international trade. Knowledge of export market, understanding norms and practices of the international market place, and active product and trade promotions are some of the initial steps yet to be taken in this direction. (See Diag. 3)

Diagram - 2

Rice Milling Process in Bangladesh

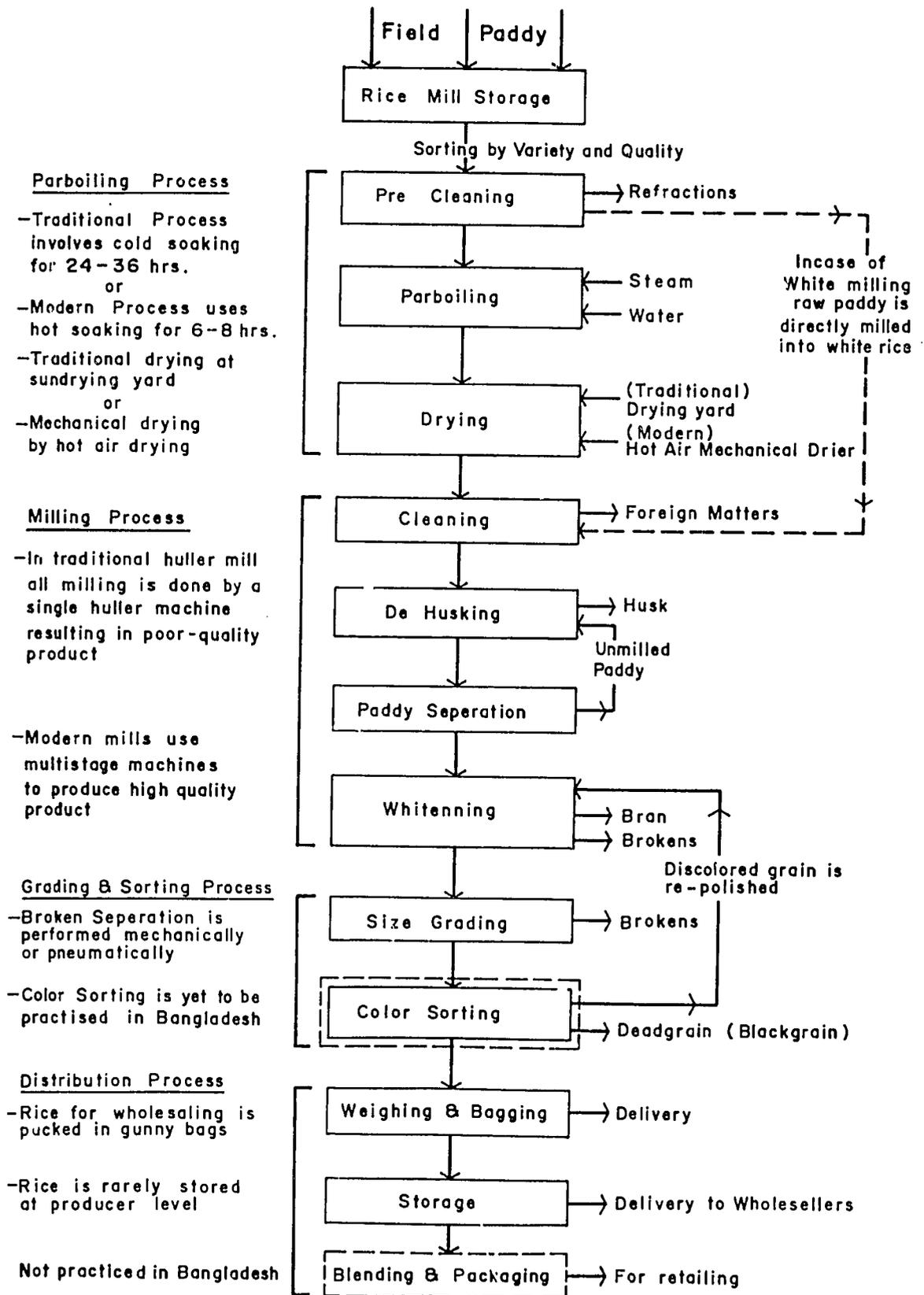
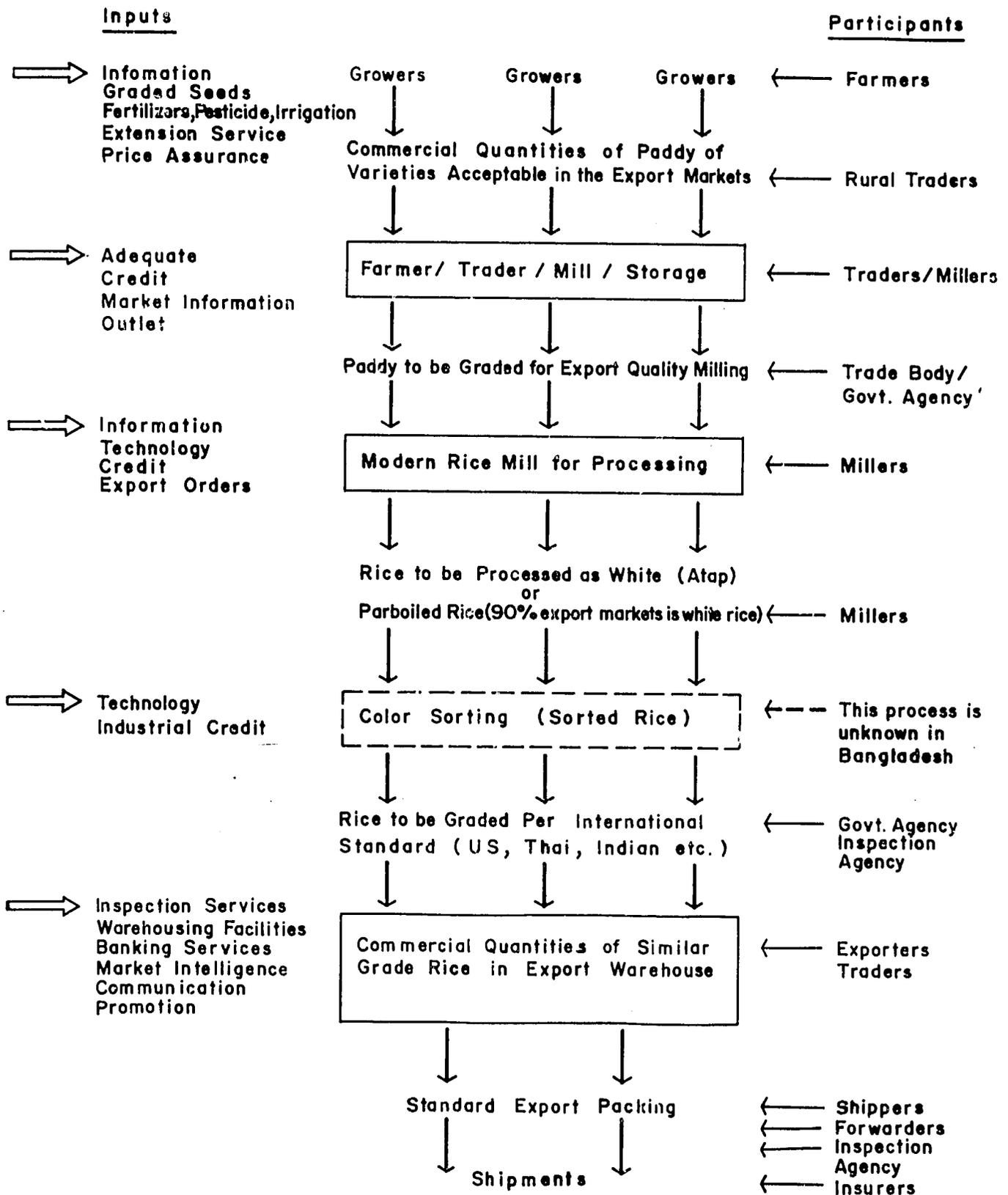


Diagram-3

Rice Export Process



Legend

- Process Flow
- - - - - Proposed Process Flow
- ⇒ Inputs

(b) Reforming Government's Food Operations. Reformations of government's food operations within the compulsions of a greater free-market environment is not only possible, but is desirable to usher in further efficiency with lesser cost to the exchequer. It is quite possible to achieve the important objectives of government's food policy with little interventionist measures and more reliance on the greatly matured domestic and existing international trading system. The rationale and cost-containment for each of the trade-based instrument of policy has been dealt with in detail in a wealth of literature, specially in IFPRI research findings (1988-94). It is the implementation of such a system which is the concern of this discussion. However, very briefly, the bare essentials of such a system are enumerated below:

- (i) **Price Stabilization:** In lieu of massive PFDS which involves expensive buffer stock holding and distribution, domestic private stock and international import may be integrated into the policy matrix for seasonal price stabilization.
- (ii) **Procurement Procedures:** Instead of a fixed price procurement, a procurement system based on market price to procure all commodities government needs, may be introduced with vigor. By a number of public tenders spread over the season, the government may even transfer the costly storage and stock-rotation problems to the private sector.
- (iii) **Sale at Market Rate:** The OMS formula is in urgent need of reformation. Since it is a function of ration price which is administratively determined, there exists a large gap between market price and OMS price when occasional high-enough demand is felt for OMS sales. To bridge this undesirable gap, auction sale process may well be introduced to put a ceiling price operation in action. Besides minimizing rent, such a system will be more equitable, market-friendly, and transparent.
- (iv) **A Trade Based Security Stock:** Maintenance of security stock is an expensive business, if physical stocks are to be held. By removing all remaining disincentives on private-stockholding and encouraging private infrastructure of storage, the domestic component of such a trade based stock may be

built. For a real domestic short-supply owing to unprecedented natural disasters like countrywide floods, international market mechanisms of risk managements may be utilized. As will be elaborated later, the devices available in globally organized commodities exchanges are as sure an insurance policy for timely supply as holding massive stocks in-country, only the costs are a fraction of the traditional methods.

- (v) ***Strengthening Market Structures:*** Any reliance on the trade pre-supposes an organized private market. As briefly discussed before, the foodgrain trade of Bangladesh is in a primitive state of organization, in spite of tens and thousands of participants. Personalization of trade is a sign of weakness rather than strength; it is the institutions of trade which ensures competitiveness, equality and self-regulation in the market-place. The capital market in a country cannot develop without a stock exchange, the commodities trade cannot also develop without an exchange with it's may faceted beneficial ramifications. For market information, collective expectations, and the process of price-formation, a central exchange is the center-piece of organized trade activities. Besides regulation, they supply essential liquidity without putting additional demands on the financial sector. Such strengthening of market structures is one of the most urgent tasks facing the government and the food markets of Bangladesh.

Responding to the Call of the Hour

The object realities of the production and distribution environment of foodgrain marketing in Bangladesh point unmistakably to a changed but pro-active program of reforms by the government. For historic and traditional reasons, the responsibilities lie largely on the governmental policy-makers to bring about this qualitative change of course of policy from what has been practiced hitherto. But for the private market to assume such responsibilities, both the structure and organization of the market needed strengthening. Time has come to evaluate objectively, if such organs exist, and if not, what the government can do to help. The first step towards this structural augmentation of the private market of Bangladesh will be to organize a central exchange for cereal grains, a Grains Exchange. The organization, function and role of the exchange will be dealt with

in some details before a definitive structure is suggested. Most importantly, the question of how this trade organization may help achieve the objectives of short-run and medium run objectives of the governments food policy shall also be addressed.

4

MARKETS: FUNCTION, STRUCTURE AND PRICE FORMATION

The Marketing Issues

The function of the food market is to transform the raw materials produced by farmers into saleable items for the consumers. The process involves purchase of farmer's produces, transportation, storage, processing, transportation to consumer markets, and merchandizing the final products. Many exchanges take place in this marketing chain involving multiple changes of ownership. Each of these transactions can only take place with an agreed price between the buyer and seller, before the final disposal to the terminal consumer. Understanding of the marketing issues is thus basic to appreciate the process of price formation and the role of a centralized marketing organization to regulate and encourage these exchange processes. The objectives of the national food-policy — economic growth, equitable distribution, adequate nutrition and food security - can also be, and are, the objectives of an efficient marketing system. By instantly generating appropriate price signals, the market transmits the state of supply and demand to all observes and participants. However, efficiency and integrity of the market are largely empirical issues and not matters of ideology, faith and analysis. In an ideally efficient market, the prices are generated by free interplay of supply and demand, by free exchange, and in an environment of perfect competitiveness. It is the object of every marketing system to bring into play these forces in a competitive environment to allow the natural process of price formation.

Elements of Price Formation and Value of Information

In a 'perfectly competitive' market, the participants on the supply and demand sides of the exchange are so balanced that if the market can attract a large number of buyers and seller, dangers of collusion are minimized and the process of price formation is unhampered. Competition, thus, not only balances the exchange act, it also ensures that all participants have access to market information and knowledge, which are also important inputs into the price formation process. It is, therefore, one of the most important functions of a market system to make available market information to the

largest number of participants or intended participants as equitably as possible. In such a market place, prices are formed most efficiently when a large number of buyers and sellers have equal access to information and freely interact to form the basis of exchange, which is the price.

The Risks of the Market Place

In the real-world of the market place, expectations of future conditions which may affect all aspects of supply and demand also influence prices. In a complex interaction of present realities and future conditions, a group of participants give shape to their convictions by predicting a price and another group predict against it by buying such offers. If conditions change either way, for example a shortfall in production due to floods or a bumper crop due to favorable weather, either one of the group will lose or make money. A stock-holder of an agricultural commodity is exposed to varied and continued risks all through his tenure of ownership. The costs of storage, which he must pay, involve purchase value of the commodity, interest on capital, handling costs, rental costs of the warehouse, loss of quality of stock, insurance etc. There is no guarantee that he will cover all these costs and be rewarded with a profit to cover his time, effort and the risks. If he loses money, he will try to cover himself by offering even lower prices to the producer to recoup his losses, and to cater for the value of the risks he has now fully experienced. All functionaries of the market which involves a present cost and a future expected value - transporters, processors, storers, exporters etc — are exposed to these essential risks.

A Competitive Market

Economists identify a competitive food market by presence of five conditions: divisibility, rationality, numerous firms, equal access and complete knowledge. (Timer, Falcon and Pearson -1983). Exceptions are possible, for example, a small number of large firms are operating the market system but compete freely, rather than collude to "fix" prices. One classic example will be the automobile manufacturing industry of the USA. Conversely, a large number of producers may collude to 'corner' the market of a scarce commodity. A recent example will be OPEC in the 1970s, creating the entirely artificial world petroleum market by fixing prices by agreement (collusion). Coming specifically to the food or commodity market, the first two conditions are usually present. The third condition of large number of firms are also true in most cases — large export houses as

in the cases of Thailand (more about it later) are notable exceptions. The principal difficulties lie in the conditionalities of market access and market knowledge, though it is recognized that these matters are ones of degrees. Entry and exit from a market is never fully free, nor it is that all information are available to all the players at the same time and at the same location.

However, if a marketing system allows reasonably easy entry and exit, and lets all market information to be disseminated publicly, and in time, it can be assumed that the market is competitive; hence efficient. The characteristics of the market and the structure of the marketing chain are thus of paramount importance in ensuring competitiveness. If a large number of participants interact freely, have access to all publicly known marketing information at about the same point of time and the bargaining powers of the participants are not impeded by contrary legislations, that market could be termed as efficient, 'free', and per definition, competitive.

A Model

All the previous discussion perhaps lead to a central question — does such a competitive market exist? The straight answer is: yes, it does to a degree and to a level, as best and as perfect as human ingenuity may device. A brief study of this market, historic compulsions under which this market system developed, the mechanics of exchange, and lastly, the possibilities of emulating it's methods for Bangladesh will be dealt with in the following pages. This model is of Chicago Board of Trade, the mother of all exchanges. It is the perfect model to strive for in any attempt any-where to organize a commodities exchange.

THE CHICAGO BOARD OF TRADE (CBOT)

The Role of Commodities Exchange and Futures Market

Prices one pays for goods and services in the international marketplace depends to a great extent on how successfully firms have handled risks inherent in all business operations. By using central exchanges where future contracts are traded, businesses can minimize risks, which, in-turn, lower their costs of transaction. The cost savings on account of increased efficiency by minimized risks, is then passed on the consumers by the process of free competition. The result is a lower price of food and other commodities, or a better or stable return on financial investments. Trading in futures on these exchanges enables raw material producers, processors, and users, international trading firms or their intermediaries to manage their price, interest rate, and exchange rate risks. Additionally, investors — ‘speculators’ in market parlance — throughout the world can interpret the information that coverage on the exchange floor, and convert this knowledge into profit making opportunities.

Today, these exchanges have enormously expanded their scope of operation to such abstractions (for the layman) as interest rates, stock indexes, foreign currencies, and devised newer instruments like commodity and stock options, which are traded as distinct from the commodities futures themselves. Sophistication and expansion of new contracts continue to grow, as do the volumes. In the early seventies, approximately 13 million futures contracts were traded in the US, in contrast, in mid 1980s, nearly 230 million contracts are traded, with only a quarter relating to the agricultural commodities (CBOT). Besides, the expanded trading hour and overseas branches of CBOT in London and Tokyo have made this Exchange into a truly global institutions to meet the need of our times.

As the world's oldest and largest exchange, the Chicago Board of Trade (CBOT) is a classic example of the free enterprise system. In the opinion of many, (indulging this writer's) there is no finer system human wisdom could devise to put into actual operation a perfectly competitive market. By understanding the circumstances that created this

exchange. knowing how the exchange operates, learning the services the exchange offers, and familiarizing oneself with the opportunities that one may exploit, a blueprint of an embryonic exchange may be tentatively drawn. This sojourn will also take the reader into not only the futures, industry, but also into the global market place of commodities trading.

Birth of an Exchange

The best way to illustrate why a futures, market is needed, is to go back to the beginning; to Chicago in the 1830s — a time when there was no exchange, no futures - a scene painfully familiar to one who is intimately familiar with the present day Bangladesh grain markets.

The history of modern futures trading began on the Midwestern frontier of the US in the early 1800s. It was closely tied to the development of commerce in Chicago, and grain trade in the Midwest. Chicago's strategic location at the base of the Great Lake, close to the fertile farmlands of the Midwest, contributed to the city's rapid growth and development as a grain terminal. By 1848, the village of Chicago was being flooded with wagon loads of corn, wheat and oats from America's Prairies. Simultaneously, the Michigan-Illinois Canal opened for traffic, the first steam-powered bulk-grain elevator was built, railroads began hauling grain, and the first oceangoing vessel arrived in Chicago. Chicago had become a cross-road of supply and demand, but it was a cross-road of commerce without an organized market place. Farmers were forced to haul their produce from mill to mill, from elevator to elevator, and from shipping point to shipping point in search of buyers. Trading became chaotic as there was no commonly accepted weighing, measuring or grading practices and bitter disputes commonly erupted between the buyer and the seller. Supplies were alternately too large or too small, and price fluctuations were violent. Prices of consumer goods like flour and bread similarly rose and fell with the tide of the raw material, creating alternating glut and scarcity in the retail markets. Merchants tried to protect themselves against changing prices by paying low prices to the producer and charging high prices to the consumer. Thus, prices were a function of staying or bargaining powers of the buyers and seller. As the situation worsened, both sides quickly realized that some central marketing organization is necessary to regulate the trade whose cyclical nature of supply and demand imposed unbearable risks

to all the participants.

Thus in 1848, eighty two Chicago merchants founded the Chicago Board of Trade (CBOT). Through the efforts of these pioneers, standard bushel weights were established for each type of grain, permitting measurements to take place quickly, accurately and allowed little opportunities of questionable practices by buyers and sellers. At the same time, quality standards and inspection procedures were developed that became standard worldwide and provided the basis of current United States Department of Agriculture Standards. The initial object of promoting commerce in a centralized exchange quickly expanded into other, multiple purposes which were hardly planned for by the pioneers — the development of 'futures' contracting system.

The popularity of the newfangled Exchange was in growing use of contracts "to arrive". These contracts allowed buyers and sellers of agricultural commodities to specify deliveries of commodities at a predetermined price and date. These early "forward contracts" in corn were most useful to river merchants who received corn from farmers in late fall and early winter. But the merchants had to store the corn until it reached lower moisture content to ship, and the rivers and canals to be free from ice. Seeking to reduce the price risks of storing corn through the winter, these merchants found relief at Chicago Exchange, where they would enter into contract with processors for delivery in spring at an agreed upon price. In this way, they assured themselves of a buyer and a price, thereby 'hedged' themselves against the price risks. The earliest recorded forward contract in corn was made on March 13, 1851, for 3000 bushels of corn to be delivered in June. Speculators helped formation of a liquid market. They bought grain when supplies exceeded current needs, hoping to realize a profit from a later sale. They also sold grain when buyers needed a firm price for future delivery, in the hope of later acquiring needed supplies at somewhat lower costs. These actions reduced price volatility, and as forward contracts were refined into the modern futures contracts, Chicago quotations became the benchmark for grain prices not only in the US, but also worldwide.

Cash forward contracts proved to have severe drawbacks in actual operation. All terms of the contract e.g., quality, delivery time and quantity, were not standardized, and there was no legal or mercantile coverage to ensure strict fulfillment of the contract terms which were "more honored in breach than the observance". In 1865, the Chicago Board

of trade took steps to formalize grain trading by developing standardized agreements called 'futures contracts'. Futures contracts, in contrast to forward contracts, were standardized as to quality, quantity, time and location of delivery for the commodity being traded. The only variable was price — discovered through the open public outcry between the buyer and the seller on the trading floors of the exchange. The futures system developed and is still developing through the natural process of evolution since 1865, but the basic principles remain the same, and is simple to grasp. Economist Todd Petzel characterizes it succinctly as: "**Successful futures contracts have enough standard elements to insure that both the buyer and seller have a clear understanding about what performance is expected.**" The standard elements are: (a) definition/ specification of commodity. (b) the size of the contract (c) the time and place of delivery (d) the form of price quotation (e) method of final settlement. The only variable is price, which is established by a process of open outcry in a public auction. The other most important element not mentioned in the transaction but implied in all trades of CBOT: the rock-tight integrity on the performance of the contract guaranteed by the Exchange. One reason of such a surety is that after the contract is established, the Exchange assumes the dual role of buyer and seller and ensures strict adherence of the contract term through the actions of its various executive organs.

6

THE FUTURES CONTRACT

The standardized futures contracts offered many new avenues of exchange, and opened up newer vistas of opportunities, scarcely thought possible on the traditional cash market. Now, sellers and buyers were able to exchange one contract for another, and actually 'offset' their obligations to deliver the cash commodity after buying the futures contract. ['offset' in marketer's parlance mean taking (buying) a future position opposite and equal to one's future transaction.] Standardization of contract terms and the ability to offset led to rapid increase in the use of futures markets by all comers to the agricultural commodity trade. Grain merchants, processors, distributors and other intermediate or end users of agricultural commodities found that by trading futures contracts, they were able to protect themselves from the erratic price movements in commodities they were planning to buy or sell. Investors, (speculators in marketer's jargon) on the other hand, were attracted to the futures market because contracts could be bought and sold later, or sold and later bought, at a profit if their forecasts on price movements proved correct, just like physically buying and selling commodities. By purchasing and selling grain (by futures contract) that would not otherwise have been traded, speculators made the market more liquid and minimized price fluctuations by placing incremental prices between the wide bids and offer spreads made by the commodity producers, merchants and actual users.

In the same year the Chicago Board of Trade introduced futures contracts, it initiated a margining system to eliminate the problems of participants not fulfilling their contractual obligations. But it was left to history to witness the phenomenal growth of the futures market over the next century and half. Growth in futures increased in the 20th century as more and more business, even governments, adopted futures into their selling and buying strategies. Still, the real growth in both volumes and value had to wait till trading in financial instrument futures started in the late 20th century. To meet the demands of the new economic environment of the late 1970s with floating currency rates, volatile financial assets like treasury bond and notes, and a fluctuating interest rate, the CBOT expanded its contract offering to include various foreign currencies and financial

instruments. By 1975, CBOT was offering futures contracts on Government National Mortgage Association (GNMA) certificates. Today, an increasing number of financial instruments are traded, to include US Treasury Bond and Notes futures, stock index futures, municipal bond index future and swap futures, besides the GNMA futures.

Options on Futures

In 1982, one more market instrument— **options on futures** - in short 'options' was introduced. In contrast to futures, options on futures, allow investors or risk managers to define risk in financial terms and limit it to the cost of a 'premium' paid for the right to buy or sell a futures contract. At the same time, the buyer of the option can still enjoy the profit prospects on the commodity underlying the option. In 1982, the first option contracts were offered on Treasury Bond futures. Options on soybean and corn futures were added in 1984 and 85. Today options on futures include Treasury Bonds and notes, swaps, soybean oil, soybean meal, wheat, rough rice, silver, oat and municipal bonds.

The success and usefulness of the option trading may easily be judged by its fabulous growth. It took over a century for the agricultural futures market to develop, but the option market matured within less than 15 years. In 1975, when CBOT introduced financial option contracts, the number of these contracts traded annually was a mere 20,125. By 1990, the number exploded to more than 155,000.000 contracts.

Exchanges and the Global Market Place

To be sure, besides the Chicago Board of Trade, a number of Exchanges operate in USA. The Chicago Mercantile Exchange (CME) the Mid American Commodity Exchange (Mid Am), the Minneapolis Grain Exchange (MGE) and the Kansas City Board of Trade (KCBT) are some of the other Exchanges operating through similar trading procedures. Coffee, Sugar and Cocoa Exchange, New York and New York Cotton Exchange are examples of specialized exchanges in the US. But in terms of volume, variety, influence, and international marketing network, the CBOT is of a standard by itself. The other exchanges, are however, have their specialized uses in trades of a commodity of choice, and possess geographical locational advantages.

The phenomenal growth in volumes of CBOT was only made possible by increasing use of this exchange by international businesses, specially, those needing efficient price-risk management. To answer to the call of the global marketplace, CBOT has expanded the trading hours to span time zones. In April, 1987, CBOT introduced the expanded -hours trading session, to provide the market with increased liquidity, efficiency and greater access to other great financial markets of the world. Previously, in 1986, the CBOT had already opened branch offices in London, and in 1988, in Tokyo. These moves were natural responses to the increasing correlation and inter-linking of the global markets. Today, futures and option contracts are offered on the GLOBEX network, an electronic trading system pioneered by the CBOT. The vision and wisdom of the 82 pioneering merchants of Chicago in 1848 has been vindicated by the test of time, and by the emergence of truly internationalized and near instantaneous methods of trade presently pursued by the businesses of the world.

7

THE PURPOSE OF FUTURES MARKETS

Futures exchanges regardless of location or organization, have two vital economic functions — risk transfer and price discovery. This is an unique system where risks are transferred willingly and freely from those who are not willing to take them — hedgers; to those who are willing to take them — speculators. The prime reasons of the exchanges' existence, therefore, is this process of risk-transfer: hedging, and price discovery. Of those, a closer but short look need be taken.

Hedging

Hedging is the process of buying and selling futures contracts to offset the risk of changing prices in the cash (spot) market. For advanced economics, this risk-transfer mechanism has made these contracts virtually indispensable for companies, institutions and individuals whose nature of business expose them to changing prices. There is absolutely no escape from the price-risks in any aspects of today's economy-only by hedging in a futures market businesses may eliminate or minimize the impacts of these unfavorable price movements. In a nutshell, an international or domestic business of any size who deals in any commodity or financial instrument can not operate safely without a hedge. Thus, "hedging can benefit anyone — farmer, trader, grain elevator operator, merchandiser, producer, exporter or processor — who produces, handles, or processes any of the agricultural commodities traded on futures exchanges" (CBOF - 1993).

Price Discovery

It is the process of discovering fair market value of a commodity (price) by the buyers and sellers in open public outcry. Every buyer and seller who enters these open trading pits brings with him specific market information, such as supply and demand, currency exchange rates, inflation rates, weather and production forecasts etc, and thus disseminate information which contribute to collective actions, resulting in the price formation. These processes are free, open and having innumerable participants, are freely

competitive, so that the resultant price may be termed the best value the society may determine at that point of time. **"Future Exchanges do not set prices. They are free markets where the forces that influence prices are brought together in open auction"** (CBOT - 1993).

The Benefits

The benefits of the futures exchanges are so many, and accrue to so diverse classes of participants that it is quite impossible to enumerate them in short. Nevertheless, for the financial manager, they are: lower transaction costs, ease of execution, lower market impact costs and minimal counterparty credit. For the agribusiness operator: the futures market prices are the benchmark pricing of the agricultural commodities. Futures prices are the quickest barometer to gauge the ever-changing ebb and flow of global supply and demand in a free market. Specifically for the grain trade, the grain buyers and sellers may make pricing adjustments for local supply and demand on the basis of these prices. The availability of open price discovery, and risk management features of the futures markets enable all participants to operate their businesses in the most cost effective manner, resulting efficiency — the hall-mark of the free market. The consequent cost savings are then passed on to the consumers by the market mechanism to contribute positively to the efficiency of the macro-economy of that society.

The Participants

The futures market participants fall into two general categories, hedgers and speculators (in South-Asian usage, 'investors' will be more appropriate). Hedging in the futures is defined as **"a counter-balancing investment involving a position in a futures market that is opposite to one's position in the cash commodity (CBOT)"**. In practice, this means that if one is going to buy a commodity later, he first buys a futures contract. If one is going to sell a commodity later, he first sells a futures contract. When the time to execute the transaction arrives, the buyer ('long hedger') will 'offset' his position by selling back his contract; conversely the seller ('short hedger') will 'offset' his position by buying back his contract. Both these positions ('opening' and 'closing') must be for the same commodity, number and delivery time. The classes of hedgers include: farmers, country elevator operators (rural grain merchants), processors, exporters and importers. (See Box - 1)

Box-1

Look, Mom, No Guardrails at the Grand Canyon!

Author and political philosopher Ichiro Ozawa said in his best seller, 'Blueprint for Building a New Japan', that on a recent visit, he found no fences on the Grand Canyon in American's Southwest. The depth of the canyon at that point was 1700m, five times the height of a 70 story building, the tallest in Japan. Though a multitude of tourists were milling around the awesomely sheer drop, there was no park official to control the visitors, nor any warning sign to caution the unwary. Ozawa said, in Japan there would have been sturdy guardrails, a plethora of warnings in 4 languages and a host of officials shooing people like over-zealous sheep-dogs. A cynic might add, there would still be a thousand suicides a year.

Ozawa found a fundamental difference between Asian and American attitudes to individual responsibilities. Americans believe and practice individual freedom to a degree that many in Asia would term reckless. The adage, 'least government is the best government' is still widely popular there. Asian's over-dependence on regulation, control and governmental intervention in all aspects of life have made them a teeming multitude of law-abiding ants - the arch-type Japanese 'salary-man' at their best. At the worst - like in South Asia - people expect the government to do everything for them, and at no cost; one might add, for they all loath to pay taxes. They expect government to give them permanent jobs, cheap rice at a fixed price, cheap housing, free education, control traffic where nobody cares a hoot for the traffic laws, in short everything. Ozawa suggests a minimum of regulation, puts a premium on individual responsibilities, and an adoption of laissez-faire polices.

The faith and trust of American society in individual freedom and the corresponding responsibilities are best seen in the working of the commodities exchanges - some call them the last bastion of capitalism. Any one who cares to speculate with his money is free to do so, there are no warning signs about the pitfalls. While the profits could be unlimited, the risks and the losses are equally so, for someone's gain is equal to some-one else's loss. There is no government intervention - only a regulatory framework so that the rules of the game are fairly applied. There is no ceiling or floor to the price, no 'essential commodities' or 'priorities'; nothing is essential excepting the fundamentals of the supply and demand. Liberals call human avarice and greed behind the forces which drive the market. Others would point to the inescapable economic need of free interplay of supply and demand - the exchange is only the cauldron where they figuratively cook. They look at those pits as the epitomization of all those which are the best of the free enterprise system, where profit is the reward of risk, and loss the currency of efficiency.

Before the game commences, the players, hedgers and speculators alike, sign several documents which explicitly spell out their responsibilities. No more caution is necessary and no more refereeing is called for. The players interpret the market information, which are available to all, and back up their conviction by putting up their money. It a private wager against the rest of them, and at least in some cases, the individual wins by making a profit. In the mean-while, they keep their words, whatever the consequences, even under the most extremes of stresses. While the NYSE collapsed in that fateful October of 1987, all contracts including those on stock options and indexes were honoured at the Chicago Board of Trade. Additionally, not a single member failed to meet his financial commitments, inspite of, one may imagine, losses of great magnitude. It is perhaps the only place in this imperfect world, where a wish can be a promise, and a promise is always a performance.

There is no guardrail at the Chicago pits also, Mr. Ozawa, for none is necessary, because free men need no fences, no cautionary sign, and surely no government official to tell them where the Grand Canyon is.

Since the number of individual or firms seeking protection against declining prices at any given time is rarely the same as the number seeking protection against rising prices, another group of participants are necessary for efficient operation of the market. They are speculators, a much maligned group in South Asian culture. What clearly is to be

understood that the speculators are the risk takers, without whom the hedging process will be difficult, if not impossible. In the business of speculating both profit and losses are not only possible but a fact of life; just like in holding physical commodities to which the speculators, for all practical purposes, earn titles by entering into a futures contract. What would have been producer's, farmer's or processor's risks in a market where no futures are available, is willingly taken over by this group. In another sense, speculators put a value, again by open outcry, on the abstraction of 'risk', inherent in that commodity traded at that point of time. (See Box -2) In case of options, the process of monetization of risk is clearer. In putting a value on the 'premium' for the underlying futures contract, and by paying this 'premium', the holder of option earns the right to own the futures contract at a fixed value. Hence, the risk inherent in the transaction is fully valued at the premium price.

Components of the Exchange

Analysts have identified four critical components of a futures market, exemplified by the CBOT. They are very briefly described to understand the basics of the market system:

(a) Price Discovery by Public Outcry. This is the foundation of the exchange system where buyers move the market to a level where sellers are willing to sell. Buying and selling contracts are always equal and opposite, keeping the supply and demand in absolute equilibrium in a dynamic process of price-formation. Over one and half century of experience under all extremes of market conditions has proved the unsurpassed efficiency and efficacy of the system.

(b) Market Liquidity. Liquidity is the key to a market system, the commodity market cannot function without it. It enables the participants to enter or exit the market quickly and efficiency - the trade- mark of the free market system. A liquid market is not possible without the group of risk-takers who narrow the bid-ask spread, and thereby stabilize the market, whether falling or rising. Speculators are thus essential for efficient risk-management by the supply of liquidity to the market.

(c) Cash/futures Relationship. Futures prices, in principle, reflect the underlying cash market price throughout the life of the contract. The link between the two are kept

Predators of the Market

Jim Corbett, the celebrated hunter-naturalist, regretted shooting a Himalayan Snow Eagle in the act of lifting off a rabbit. "I was young and I did not understand the ways of nature", he wrote in his old and wise days, "for I killed four creatures, the rabbit who was poisoned by the talons of the eagle, the two young ones in the eyrie for whom the eagle was only gathering food, and whose mother I shot". If anyone, Corbett should know the ruthlessness and unforgiving ways of the jungle where one is either the hunter or the hunted. The author himself was often forced to reverse roles from the hunter to the hunted when he stalked man-eaters in the jungles of Kumaon, on foot, and on equal terms with the tiger. Today, his hunting grounds are named by a grateful Indian government as Corbett National Tiger Park, a piece of free India honouring the colonial Englishman, who did so much to save the majestic tiger - the pride of the Indian jungle.

What Corbett observed, and the Darwinian naturalist knows, is the truth that the predator is also indispensable in preserving the species which he hunts. By eliminating the weak and the sickly, the predator improves the genetics and allows only the strongest to propagate. In doing so, the predator has developed skills and instincts honed to perfection to act as the scalpel of nature. While shooting in Sind deserts, I had seen a Black Indian Kestrel taking away a shot grey partridge from mid-air, and be out of range before I could unload my left barrel — and I was quick in those by gone days. The predator survives because his quarries are more numerous, and the quarry survives in the longrun by not being allowed to outstrip the food-supply. The predator warns all who care to notice that the nature's pastures are no place for the weak, the unwary and the indifferent to the laws of the jungle.

In the jungles of the commodities futures markets, there is another kind of predator, the professional speculator. Though many are lured by high profits, only a minority actually earn any. A study of 462 speculators in one large Commission House's clientele showed that only 164 made any profit while 298 lost.. And the quantum of loss was three times the profit. (Wise-1962). Successful speculators look for inherent or structural weaknesses and aberrations in pricing and other factors to exploit them to their advantage. The 'spreaders' and 'arbitrageurs' look for unusual price spreads in magnitude and location, and by exploiting the difference help equilibrate the unbalance quickly. The 'position trader' will be interested in far away imbalances and hold open positions for months, thereby putting long-term pressures on prices. The 'scalper' will pounce on the slightest dip or rise of prices of 1/8th of a cent, to quickly balance the supply-demand in the next few minutes, hours, and certainly by the end of the day. Each have developed special skills to serve a specialized niche, to keep the efficiency of the market at razor's edge. One thing is common to all, they are ever ready to take a profit and that implies equal loss for the irresponsible. In the laws of the market, not knowing your business to the extent of what there is to know, is the ultimate irresponsibility.

The arch-speculators of the market take on the ultimate mammoths - the central banks of the world. The legend of George Sores to take on the Bank of England to drive down (discovering the fair market value) the sterling pound from \$1.96 to \$1.48 in Aug. - Oct., '93 is now part of folk-lore. The likes of Sores and Goldsmith are the hunters of the market who look for the dinosaurs on the over-stuffed chairs behind the solid oak-doors, who still believe that they can control the value of a currency. Even with practically unlimited resources of their central banks, they are dismayed to find that they can not, any longer. The essential similarity between the raider and the raided is that they both are speculators who are wagering on an expectation. The essential difference is that while the raider is using his own money, and is fully prepared to lose it, the raided is risking the people's money to play this deadly game. The tragedy is that while the speculator wins, the tax-paying, hard-working ordinary people lose. The injustice is that the central banker is never punished for losing the money trusted in him. While the principles of exchange value of a currency is so complex as to move the pundits to write volumes on them, they are at the same time, so simple that the marketer does not hesitate a single moment to wager on them. For him any currency is just another commodity whose fair market value is determined by sellers and buyers in a free market place. If any one believes that the collective wisdom of the market is wrong, he ought to be paying for his convictions. The free-enterprise system also rewards the speculator for giving everyone this essential lesson of the market. That is one more service the speculator is rendering to the market, and getting extremely rich for his troubles.

Post Script (End June 1994)

The wolves are active again in the long nights of the high-summer. This time, the packs are nibbling at the hopelessly ailing US dollar. As expected, the central banks will pour in billions to shore-up the beleaguered currency. Predictably, the dollar is likely to plunge against Japanese Yen and German Mark, sooner than anticipated. It is a classic 'bear run' when speculators hope to pull down the value — by massive short sales — to precipitate a 'run-on-the-bank' by panic sales of Treasury Bonds & Notes by nervous banks, and institutions. The wolves will clean up by covering their 'shorts' with cash, at ultra low rates. At the end of the hunt, there will be some very fat wolves indeed! This scribe can only chronicle the proceedings of these signal events with as little influence on the results, as the billions being fed to the predators.

intact by delivery of the commodity, and through actions of spreaders and arbitrageurs. For grains, specifically, all participants must be prepared to make, or take delivery at the expiry of the contract.

(d) Margins: These are likened to performance bonds which the participants must put up to ensure the performance of the contract. A daily cash settlement keeps the margin within exchange specified limits. For as long as the contract-holder holds the futures position, its financial gains and losses are settled in his account on a daily basis in cash. If the margin goes below the limit, the position taker must make good the balance by a margin call to ensure a rock-solid integrity of the contract.

8

THE MECHANICS OF THE MARKET (CBOT)

The actual mechanics of the market, refined and weathered through innumerable crises of 145 years, incorporate all the components of an organized trading system. A quick look will be enlightening to know that the system has been honed to perfection to cater to all needs and eventualities that circumstances may impose upon it. The system operates through a variety of devices, which in brief are:

(a) The Commission Agent. A commission house is a registered member-firm of the CBOT who handles its customer's trading accounts. Many types of houses operate in the market e.g. wire house, brokerage house, and futures commission merchant (FCMs), each specializing in different types of trade. Regardless of type and size, they all place order, collect and segregate margin monies, provide accounting services, and counsel customers on business matters in exchange of a fixed commission fee.

(b) A Trading Account. The trading process begins when a customer discusses his business goals at the market with his agent. The customer must fully understand all risks associated with the futures and options transaction and signs several documents concerning his or his firm's legal obligations regarding the account. Many types of account may be operated e.g. individual account, joint account, discretionary account, etc. Operation of all accounts are confirmed by written returns to the customer by the broker.

(c) Margins. All orders by the customer are backed by posting a **performance bond margin** which varies between 5% to 18% of the contract's face value and is set by the exchange. This is called **initial margin**. The contract holder must also maintain a minimum cash limit on his account known as **maintenance margin**. Daily adjustments on the basis of fluctuating prices results in debit or credit to the margin balance known as **marking-to-the-market**. On account of any loss adjustment, if the margin falls below maintenance level, the customer must put up additional funds by his broker's **margin call**. Credit balance in excess of the limit is available for withdrawal as profit.

(d) *SPANTM*. The Standard Portfolio Analysis System evaluates the overall risk in an entire portfolio and accurately matches margin to risk. It is the sole basis of for setting margins by the Board of Clearing Corporation (BOTCC).

(e) *Orders*. In the real-world of commodities trade, time is of the essence. Orders must be executed quickly, clearly and without even a shade of ambiguity, which may mean large losses for the customer. The market does not forgive mistakes; therefore both parties must communicate promptly and clearly. Like the contracts themselves, the complex series of actions to be taken by the broker are also standardized in definitive terms, only a few of those are listed:

- (i) *Market Order*: to buy or sell without regard to price.
- (ii) *Limit Order*: to be executed at a specified price.
- (iii) *Stop Order*: are of two types - sell-stop and buy-stop to put limits to prices at which to sell or buy, when it becomes a market order.

These are only the general Orders. Many others exist for the consummate trader and his commodity representative, indicating the sophistication these procedures have developed into.

(f) *Order Route*. On receipt of a customer's order, the commission agent despatches it to the exchange to the numerous telephones located around the trading floor. All orders are time stamped on its journey thorough the process to be recorded with promptitude for its execution. After a pit-broker receives the written order from the runner, he looks for other brokers who have received an opposite order to complete the exchange process. By voice and signal, the price is discovered and settled, and the order is executed, and the order card is time stamped. The agent will confirm the trade by written return to his customer as early as possible. CBOT is presently putting into operation a paperless electronic system to fully automate the process of trade, which it is assumed, will not only be free from any human error, but also will be near instantaneous in execution time.

Safeguarding the Integrity of the Market

Like other futures exchanges of the US, CBOT safeguards the financial interests of all of the participants. The financial transactions involving all trading commitments at the exchange are adequately covered by requisite margins determined and overseen by the

Clearing Corporation — an independent organization within the CBOT. Though the rules of business, and the procedures followed by the exchange evolved over long time, and largely self regulating in nature, they are also covered by appropriate federal regulations. The exchange rules and regulations are thus subject to approval by the Commodity Futures Trading Commission (CFTC), a federal agency empowered with the regulation of futures and options under federal laws. The operation of the exchange are covered by a series of Acts of Congress, the most important being Commodity Exchange Act (CEA), 1936 (since then suitably amended). Section 3 of the Act describes the object of the exchanges in an admirable manner, thus:

"Sec. 3. Transactions in commodities involving the sale there-of future delivery as commonly conducted on boards of trade and known as "futures" are affected with a national public interest. Such futures transactions are carried on in large volume by the public generally and by persons engaged in the business of buying and selling commodities and the products and byproducts thereof in interstate commerce. The prices involved in such transactions are generally quoted and disseminated throughout the United States and in foreign countries as a basis for determining the prices to the producer and the consumer of commodities and the products and byproducts thereof and to facilitate the movements thereof in interstate commerce. Such transactions are utilized by shippers, dealers, millers, and others engaged in handling commodities and products and byproducts thereof in interstate commerce as a means of hedging themselves against possible loss through fluctuations in price" (Emphasis added)

The Federal Government of the United States hereby formally recognize the 'national public interest' that the futures market serves.

In addition to the federal watch-dog Commission, the CBOT has several self-regulatory organs to perform to perfection the aims and objects of the Exchange, as enacted in the relevant Federal Law. They briefly are:

(a) Office of Investigation and Audit: to check any trading irregularity and enforce high standards of business ethics by constant audit and surveillance using latest technology.

(b) Financial Surveillance Department: to monitor the financial status of members using CBOT's Simulated Analysis of Financial Exposure (SAFE) system of computer model.

(c) The Market Surveillance Department: to ensure orderly execution of contracts and to safeguard against any attempts of price manipulation.

(d) The Audit Department: to conduct biannual reviews of the books and records of the BOT members using the most stringent of accounting principles.

(e) The Investigations Department: to investigate market activities that involve potential violations of exchange rules and regulation by using Computerized Trade Reconstruction (CTR-Plus) system, the most advanced automated audit system in the world.

(f) The Regulatory Report and Research Department: to ensure that the data input to CTR is accurate, and using current market situation, advises the Board on new procedures required.

How good are these systems in actual practice, in a real-world full of disasters, and crooks round every corner? (See Box-3) Since 1925, no customer of CBOT has lost financially on account of a default on a CBOT contract. On October 19, 1987, the New York Stock Exchange had to suspend trading on account of extreme fall in stock-values ever to be recorded. During this week, the dollar value of the CBOT's trades exceeded the NYSE's by a factor more than 3 to 1. Meantime, the CBOT's trading in financial instruments including T. Bonds and notes, stock options and spreads including hedging activities of unprecedented magnitude of volume and value continued uninterrupted. Not a single member of the CBOT failed to fulfil his or his firm's financial obligations to the Board of Trades' Clearing Corporation under the most extreme of market stress ever to be encountered in the long financial history of the United States. No Federal agency had to intervene, the market performed to perfection.

Such are the strengths of the free market as embodied by the Chicago Board of Trade.

Cornering the Market

Commodity Futures Trading Commission is concerned with fraud and price manipulation, and sees to it that the markets protect the public. Like any regulatory body, it has its mysterious ways to carry out its mandate. But, markets are largely self-regulated by their own by-laws. And self-protecting mechanisms inherent in the norms of business should provide enough safeguards so that the crooks and criminals do not break the laws, and get away with it. What then are the methods of the bad guys and how do the good guy protect themselves?

In the long history of futures market, all kinds of schemes have been hatched over the years to corner the market. The price manipulation attempt is tried mainly in two ways, during the life, and at the expiration of the contract. Since the market has many participants, it will take unprecedented financial resources to move the price artificially. By the natural forces of market equilibrium, the prices will move back to original whenever large profit taking at the manipulated level of price is attempted. And there are the transaction costs of these manipulative purchases and sales. All these make these attempts unattractive to the neophyte manipulator. The classic attempts to corner the market take place near the expiration period. It is done by taking large long positions while simultaneously buying cash commodities for the same month. Thus the short sellers can not offset their position without raising prices substantially. Another way of 'squeezing' (as opposed to 'cornering') the market occurs when traders find it unusually costly for sellers to make delivery on a particular month. In such a situation, the long position holders force the seller to offset their position at prices higher relative to cash market, thereby reversing the 'basis'. Opposite position may also occur. Thus, there could be some large price movements near the expiration dates of contracts and the difference between the cash and futures may be unusually large. Though these price aberrations are not technically illegal, all experienced hedgers and speculators remain extremely wary about holding open positions near the close of contracts - thus thwarting these manipulative efforts. A 'bear' raid is another way to force down futures prices. When manipulators have identified a particularly vulnerable situation in the market, like a large number of stop-loss orders in the long open positions, a slight price decrease is likely to set off a wave of sales. They will attempt to trigger this wave of sales by pulling down prices. If and when that occurs, the manipulators will cover their short positions at artificially low prices and, thereby, hope to make a killing.

Historically, though, the manipulator has never had an ascendancy over the market forces. "Why do you think" the wag would ask, "Al-Capone left the Chicago pits alone, and found happy romping grounds amongst the inebriated revellers of America?" "Because", the marketeer would answer, "he was not an inebriated reveller." It is alleged that some very wealthy speculators cornered the silver market back in 1979. "Not quite true", says the marketeer, "look at Hunt brothers of Dallas, while they are not exactly packing their lunches in last years newspaper, they are not eating caviar either!" Wisecracks aside, the market ultimately sorts out the consummate speculator from the would be manipulator. The successful speculator makes money by wagering against the market — not manipulating the market. By an accurate forecast of price-level or price-difference level, he exhibits a special skill which is evidently scarce. The market rewards him for this skill as well as for backing up his convictions with liquidity. What about the manipulator, what about his skills? Like the multitude of hopefuls who throng the casinos of Las Vegas, they too continue to try and beat the market. By and large, that is an enterprise as doomed as the 'latest system' to beat the odds at the roulette table. No matter how many have failed, newer schemes are hatched with as little effect in the longrun as the gamblers' dream of busting the Bank at the wagering tables of Vegas.

FUTURES AND OPTIONS ON WHEAT (IN CBOT)

Wheat is one of the oldest and most widely used food crops, first cultivated in Asia Minor nearly 9,000 years ago. All ancient cultures, excepting the East and South Asians, were based on wheat. International trade in wheat really started from early 1800s when Russia and Ukraine started shipping their surpluses to the industrialized Western Europe. The US became a major wheat producer from late 1800s when the draught-resistant Russian varieties were introduced to the Great Plains. Today, the US is the largest producer and exporter of wheat. Besides the US, the other major producers are China, Russia, EC, India, Canada, Australia and Argentina.

Though Bangladesh is not a major wheat producing country, wheat is only second to rice in cereal grain production. Current production levels fluctuate between one, to one and one half million tons a year. However, per capita consumption of wheat has been rising steadily and has increased at a rate of 3.6% between 1968 to 1988 (BBS). The import of wheat to meet this 'wheat gap' has been highly varied and is subject to availability and receipt of food aid by such donors as US government under PL 480 programs and World Food Program (WFP). (Table-3) Since 1992, under a liberalized government policy, private sector has also started importing substantial quantities of wheat, and account for about 300,000 MT in the last fiscal year, a full one third of total imports of about a million tons. Wheat based food is thus becoming a major item of diet in urban areas with rapidly rising incomes. Being a disaster-prone country, Government of Bangladesh considers it a national priority to maintain a 'security stock' to cater for any large production short-falls. While there may be disagreement among food-policy experts as to the exact quantum of this stock, there is little or no disagreement that this stock be best built with wheat, and not rice. The major arguments in favor wheat are: (a) better keeping quality (b) standardization of product (c) lower costs (d) nutritionally better (e) large purchases are possible from external markets (f) largely self-targeted as an 'inferior goods' etc.

Recent simulation exercises indicate that any trade based security stock

Table 3 – Import of Wheat in Bangladesh, 1972/73-1993/94

Year	Aid/Grant	Commercial Import	Total Import
1973/74	1089	683	1772
1974/75	1068	559	1627
1975/76	1098	299	1397
1976/77	1076	238	1315
1977/78	1120	217	1337
1978/79	1066	239	1305
1979/80	1137	284	1421
1980/81	1074	430	1504
1981/82	1106	557	1663
1982/83	1026	553	1579
1983/84	1089	514	1603
1984/85	1134	449	1583
1985/86	1280	460	1740
1986/87	1296	361	1657
1987/88	1239	283	1522
1988/89	1284	270	1553
1989/90	1278	262	1540
1990/91	1100	133	1233
1991/92	1021	152	1173

Note: All figures are five year moving averages.

Source: Data Compiled from DGF.

maintenance is the least-cost option. (Goletti-1994) as compared to traditional methods presently practiced. (Table—4) Since wheat is of such importance for the food economy of Bangladesh, the CBOT wheat trading practices demand closer look to formulate an efficient method of obtaining a stock at least cost using the sophisticated trade instruments available there.

Table 4 — Average Stock, total cost, and rice price variability under various policies in Bangladesh.

	Average Total Foodgrain Stock (1000 MT)	Total Nominal Cost (Taka million)	Real Cost ^k	Rice Price Variability (Percent)
Baseline ^a	1187	21401	6.88	6.46
Benchmark ^b	820	12248	5.15	3.06
Price Stabilization via open market operation ^c	1156	17638	5.36	2.86
Price Stabilization via imports ^d	809	20636	6.59	4.82
Cost Minimization ^e	645	12771	4.62	4.9
No. Ration ^f	940	8161	3.85	3.35
Transfer ^g	926	23736	8.59	3.34
Trade ^h	924	2923	2.35	3.65
Approximation to the Benchmark ⁱ	1014	16329	5.51	4.19
Rigid price Band ^j	1364	26390	8.44	6.46

- Note: ^a The baseline is obtained by simulating the foodgrain model for the period July 1989 to June 1991.
^b The Benchmark Policy refers to price stabilization cum cost minimization. It uses open market operations and imports to minimize the total cost of food operations.
^c The price Stabilization via open market operations uses open market operations to minimize the variance of rice prices around the target.
^d The Price Stabilization via Import Policy uses Imports to minimize the variance of rice prices around the target.
^e The cost Minimization Policy uses open market operations and imports to minimize the total cost of food operations without concern for price stabilization around the target.
^f The No Ration Policy refers to price stabilization cum cost minimization, when ration distribution is eliminated. It uses open market operations and imports to minimize the total cost of food operations.
^g The Transfer Policy refers to price stabilization cum cost minimization, when one half of ration distribution is eliminated and the other half is transferred directly as nonmonetary officials.
^h The Trade Policy refers to price stabilization cum cost minimization. It uses open market operations and both imports and exports to minimize the total cost of food operation.
ⁱ The Approximation Policy is an approximation to the benchmark policy computed by stochastic simulation of production stocks.
^j Real Cost is the present value of total cost computed with deflated prices and per capita quantities.

Source: Optimal Stocks: Francesco Golletti, IFPRI, 1994.

Wheat Trade at CBOT

Classes of wheat

Wheat can be divided into two major types: Winter and spring. They are further classified into:

(a) Soft red winter wheat (b) Hard red winter wheat (c) Hard spring wheat (d) Durum wheat (e) White wheat. Each variety has specific characteristics for area of production and use by millers and bakers, In international trade, the grades are standardized and both the importers and exporters know exactly what they are buying and selling, and for what eventual use.

Market Forces and Price Volatility

The international prices of wheat also vary considerably by supply and demand. To manage risks of price fluctuations, various users of wheat use basically two tools: futures and options. This process is known as hedging, described in previous chapters.

The CBOT Wheat Futures and Options

Before any attempt is made to understand the use of market tools of risk management, a full description of wheat futures and options is given overleaf. It should be noted that other exchanges in the US use other standards of contract to suit their specialized customers, but the general principles of risk-management remain the same, namely by the use of futures, options or a combination of both.

Hedging With Futures

A participant in the wheat market can hedge against falling or rising prices. Typically, an inventory holder would hedge against falling, and an importer will hedge against rising prices. This process is also known as "locking-in" prices. Regardless of price movements, the hedger is protected. But while the hedger is protected against unfavorable market changes, he is unable to profit from favorable price movements using the futures. He is also exposed to unlimited profits and losses using only the futures.

Hedging With Options

Options are flexible risk-management tools that enables a hedger to establish a floor or ceiling price without limiting his ability to profit from a rising market. Just like futures contracts, users of options on futures may develop strategies to protect themselves from either falling or rising prices. Although option buyers must pay the cost of premium, the ability of the device to meet a very wide range of objectives make them extremely useful tools.

10

USE OF OPTIONS ON WHEAT FUTURES FOR RISK-MANAGEMENT OF ANTICIPATED PRODUCTION SHORTFALL OR UNFORESEEN DISASTERS

Security Stock and Costs

The need to maintain a buffer stock determined on the basis of a short-fall in production is a time honored device practiced by many countries where the situation so demands. It has all along been practiced in Bangladesh as an important component of governments' food policy. Much of this stock is maintained in wheat, mostly imported, either received as food-aid or commercially purchased. The maintenance of the stock for meeting the ends of 'food-security' is a high cost business. These costs may be broken down into:

- (a) Transportation Costs (international and domestic)
- (b) Costs due to Storage loss
- (c) Costs due to Handling loss
- (d) Costs due to Transit loss
- (e) Costs due to Insurance and Interest
- (f) Costs due to loss of quality
- (g) Costs due to Fumigation and Insecticide.
- (h) Costs due to depreciation of warehouse and packaging material
- (i) Costs due to wages, salary and personnel etc.

Though, these costs vary, and for Bangladesh, and has never been totally accounted for, they can be considerable, and constitute a large proportion of governmental outlays under 'food-subsidy' head. In the accounts statements of DGF for the year ending June 1992, the value of costs due to losses were estimated at Tk. 2247.2 million (\$56 million) for a total turnover of Tk. 22,471.8 million (\$562 million) constituting about 10% of the turnover. Though no figures on wheat was given, transactions in wheat being at about 2.95 million MTs, the figures imply a total loss of Tk. 1, 124 million or Tk. 381 (\$9.52) per metric tons of wheat (FAO Reorganization Project, 1993, Financial Statements). The total

cost of transactions will be many times over, and in one estimate (FAO) put them at \$54 (Tk. 2160) per MT, per year, though much of it is 'sunk cost' in accounting terms.

By use of futures or options of futures, it is possible not only to ensure supply of wheat, but also at a pre-determined price and time. However, for a public agency, there are several disadvantages of using futures contract for the purpose of an anticipated stock-build up. To obtain a title on a futures contract, the customer has to put up a margin, which range between 5 to 18% and higher. Additionally, an agency/brokerage house normally require a much larger margin over the minimum exchange limits. If there is loss on the account, additional funds are to be put up. On receipt of margin call, the account holder must immediately pay the amount called for, or else his contract will be liquidated. There is also the question of profit, disposal of which may also pose difficulties. Options offer a much more flexible tool to achieve the same objectives with limited costs. It does not require a hedgers to post a margin, and there is no risk of receiving a margin call. Options allow buyers to set ceiling prices and protect themselves from price increase (See Section IX).

Pricing of Options

Principles of options pricing derives from Black-Schols Model (1970s) which uses five variables to determine its value: (a) underlying futures price (b) strike price (c) risk-free interest rate (d) time to expiration (e) volatility. While the first four are straight forward, the volatility factor is to be understood in evaluating prices of options. Volatility may be understood as how quickly and how much the futures prices change over time. In general, volatility also serves as a factor of risk involved in the option. Therefore, higher the volatility, higher the risk, and higher the option price. Quoted as a percentage, a volatility of 30% means that there is high probability that the price will be within that limit a year from now. The volatilities of wheat as traded at CBOT is shown in figures 6 and Table 5. In drought year of 1988 and bumper crop year of 1992, respectively the high and low volatilities prevailing in the market may be noted from these figures.

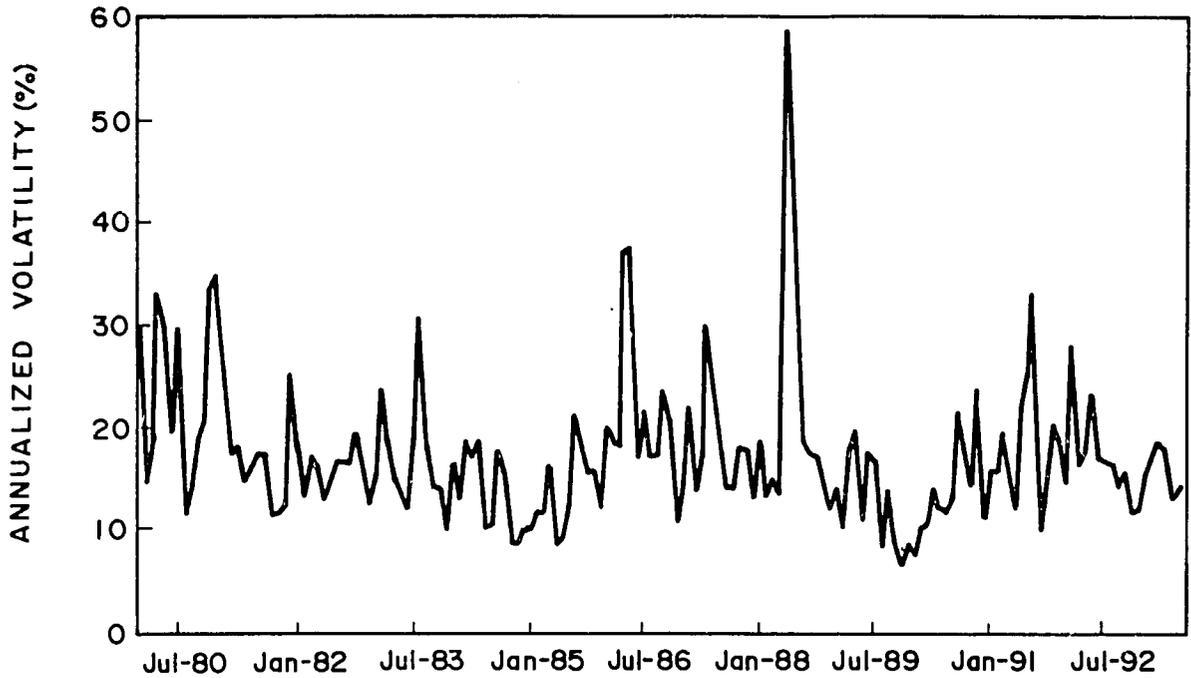
Using the Option Strategy

Buying call-option strategy can be used as a flexible tool for not only ensuring delivery of the commodity but also to put a ceiling to the price. The object is twofold: on

Figure -6

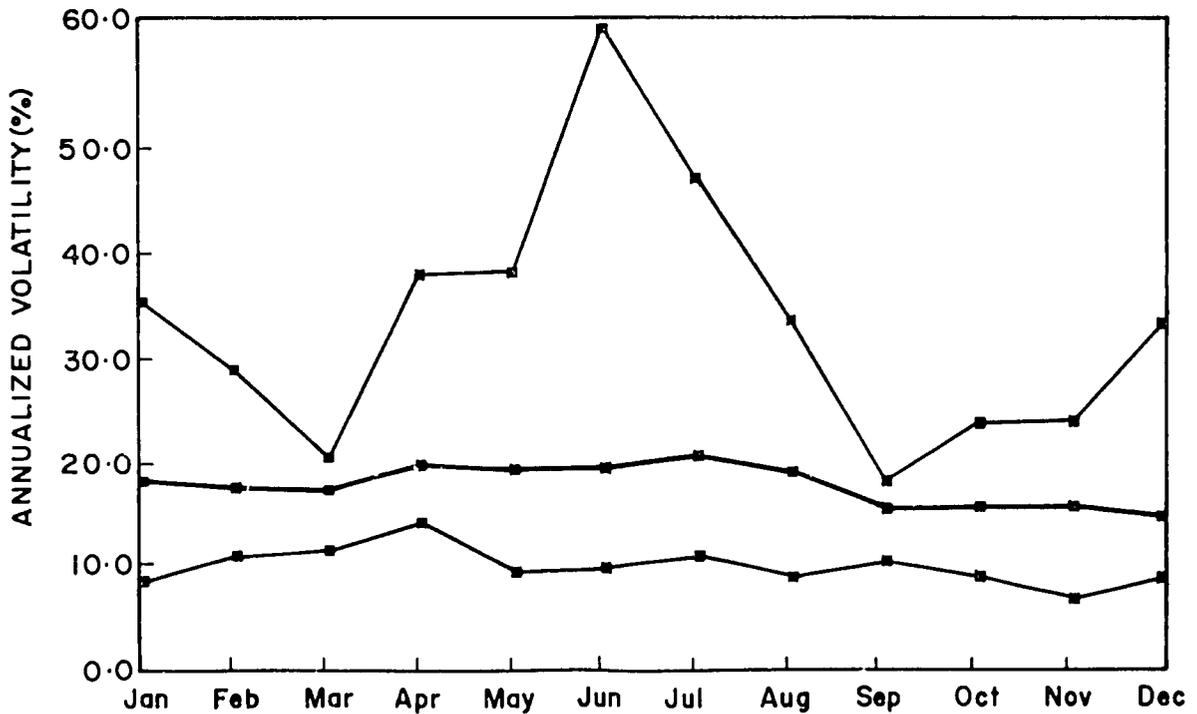
WHEAT PRICE VOLATILITIES

NEARBY CBOT WHEAT VOLATILITY MONTHLY AVERAGES 1/80-6/93



Source : Chicago Board of Trade

NEARBY CBOT WHEAT VOLATILITY HIGH, AVERAGE AND LOW 1/80-6/93



Source : Chicago Board of Trade

Table 5 — Chicago Board of Trade: Wheat Contract Details

FUTURES AND OPTIONS ON WHEAT

Wheat Futures: Contract Highlights	Options on Wheat Futures: Contract Highlights
1. Basic Trading Unit: 5000 bushels	1. Basic Trading Unit: One CBOT Wheat futures contract of 5000 bushels
2. Deliverable Grade: US No 2 Soft Red Winter, US No 2 Hard Red Winter, US No 2 Dark Northern Spring, or US No 1 Northern Spring wheat at par. Substitution at differentials established by the exchange.	2. Price Quotation: Cents and eighths of a cent per bushel.
3. Price Quotation: Cents and quarter cents per bushel.	3. Minimum Premium fluctuation: 1/8 cents per bushel (\$ 6.25 per contract)
Minimum Price Fluctuation: 1/4 cent per bushel (\$12.50 per contract).	4. Daily Premium Limit: 20 cents per bushel or \$1000 per contract above or below previous day's settlement premium. No limit for the current month on the firstday of trading.
5. Daily Price Limit: 20 cents per bushel (\$1000 per contract) above or below the previous day's settlement price. No limit for the current month on and after the second business day preceding the current month.	5. Strike Prices: Listed in multiples of 10 cents per bushel
6. Contract Months: March, May, July, September and December	6. Contract Months: March, May, July, September and December
7. Trading Hours: 9:30 a.m. to 1:15 p.m. (Chicago time)	7. Trading Hours: 9:30 a.m. to 1:15 p.m. (Chicago time)
8. Last Trading Day: Seventh business day preceding the last business day of the month	8. Last Trading Day: The last Friday preceding the first notice day for the corresponding wheat futures contracts by at least five (5) business days.
9. Last Delivery Day: Last business day of the month	9. Expiration Date: Unexercised options expire at 10:00 a.m. on the first Saturday following the last day of trading
10. Ticket Symbol: W	10. Ticket Symbols: WY-Call options, WZ-Put options
11. Day Trading Begun: January 2, 1877	11. Date Trading Begun: November 17, 1986

Source: CBOT.

one hand, to protect against any large price rise at the time of delivery, and on the other, any future price decline should save money for the purchase of same quantities of wheat.

Supposing it is June and a customer plans to ensure delivery of 'X' quantity of wheat in September. He may not take delivery if the need on account of his anticipated production loss or additional requirements does not materialize. He wishes protection

against price-rise as an insurance policy for a risk which may or may not manifest itself. His strategy for use of options will be as follows:

- (a) He determines the number of call options to allow price protection for the quantities involved. It is to be noted that option prices do not change equal to futures price. (They vary by a ratio called "deltas")
- (b) He buys those many numbers of option contracts at a premium at the appropriate strike price, decided by the level of protection needed, based on the inherent and historic volatilities of wheat.
- (c) If the production short-fall or anticipated disaster materializes and wheat is required, the call option is exercised, a long position in futures is assigned, and on schedule, delivery is affected. If the option is 'in-money' the premium thus received will reduce the money to be paid for execution of the futures contract. This situation takes place in case of futures price fall from the previous level. (at the time of purchase of option)
- (d) If, on the other hand, no delivery is required, as the production short-fall anticipated did not materialize, two scenarios may develop:
 - (i) Prices have sunk and the option value has increased, in which case, the hedge will be lifted with an opposite position (put) and profits realized.
 - (ii) Prices has risen and the option is now worthless to expire. In this worst case scenario, the hedger can not lose more money than the cost of the premium.
- (e) It is important to remember that, for all that protection, the worst case scenario is the cost of premium and the transaction costs (brokers commission etc). The value of the option is: Intrinsic Value (calls) = futures — strike price. When futures prices fall, options are 'in-the-money', when they rise they are 'out -of-the money' or 'at-the-money'.

Table 6 — Historical volatility of nearby CBOT wheat futures measured by the Annualized Standard Deviation of the First Difference in the Logarithmic Values of nearby Futures Settlement prices 1980-1993

Calendar month	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	Mean	High	Low
January	29.8	36.1	18.9	17.0	17.9	11.6	21.5	16.2	20.2	15.5	9.0	17.5	16.2	17.2	18.9	36.1	9.0
February	15.8	26.7	14.6	25.2	14.4	13.3	19.9	23.5	14.6	11.7	11.7	17.2	29.6	18.7	18.3	29.6	11.7
March	20.5	18.7	18.6	19.7	20.0	13.0	19.6	15.3	16.4	19.4	12.2	21.2	17.9	20.4	18.1	21.2	12.2
April	34.5	19.6	17.5	16.1	18.5	17.6	38.7	18.7	14.9	21.3	15.6	16.8	19.5	19.3	20.6	38.7	14.9
May	31.4	16.0	14.3	14.5	20.3	10.1	39.0	31.5	26.7	12.5	13.8	14.0	25.0	14.6	20.3	39.0	10.1
June	21.0	17.4	16.1	13.5	11.6	10.7	18.5	24.3	62.5	19.2	13.2	23.4	18.6	15.6	20.4	62.5	10.7
July	30.9	18.9	18.1	19.7	11.9	13.7	23.1	19.4	48.1	18.3	14.7	26.5	18.4		21.7	48.1	11.9
August	12.8	18.6	18.0	32.1	19.2	22.6	18.6	15.6	20.1	9.9	23.2	34.7	18.1		20.3	34.7	9.9
September	16.0	12.8	17.8	19.1	16.7	19.3	18.7	15.4	19.0	15.4	19.4	11.6	15.6		16.7	19.4	11.6
October	20.2	13.0	20.8	15.4	10.1	17.0	25.1	19.7	18.7	10.1	16.0	16.8	17.3		16.9	25.1	10.1
November	21.8	13.6	17.8	15.3	10.1	17.1	22.0	19.4	15.8	8.1	25.4	22.0	13.2		17.0	25.4	8.1
December	34.7	26.7	13.8	11.5	11.5	13.7	12.2	14.5	13.4	10.1	12.7	20.5	13.5		16.1	34.7	10.1
Average	24.1	19.8	17.2	18.3	15.2	15.0	23.1	19.4	24.2	14.3	15.6	20.2	18.6	17.6	18.8	34.5	10.9

Source: Chicago Board of Trade.

One may lament the loss on the option value (premium), but would be wrong to do so. If the hedger considers the options in terms of an insurance policy, implications become clear. An insurer is happiest when there is no claim on his policy. **But should the option be in-the-money, and no protection is needed, it is indeed a joyous occasion, for the hedger will receive a bonus for buying an insurance and no loss has taken place.** He will receive more money than the premium, he has enjoyed protection all along, and was paid a bonus for taking the trouble of hedging himself!

What Does it Cost?

During the course of discussions on the subject, a question repeatedly asked by incredulous individuals in Bangladesh was, "What does it cost to buy the protection under options strategy?" The question may be re-phrased as "What does it cost to buy in cash 'X' bushels of wheat in September, 1994?" The straight answer is : no one knows. As discussed, the cost of a futures contract depend on under-lying cash value of the commodity, and the cost of the call options (premium) is dependent not only on the value of futures but on the strike price as well. **The strike price will be determined by the customer on his expectations and the level of risk coverage he needs (Table 7), for example:**

**Table 7 — November Soybean Options (Futures at 696¼)
(A Hypothetical Option Premium)**

Strike Price	Calls Price	Puts Price
650	59¼	13
675	45¼	25
700	36½	40¼
725	29½	53¾
750	22¾	76
775	18½	96

The options prices will move with change in futures prices over time, but not at one to one basis. This ratio is called option's 'delta'. All option users study the option-delta carefully to infer important implications, too complex to elaborate here.

To fathom the depths of actual costs vis-a-vis levels of hedging, the best action is to engage a reputable commodities broker to arrive at a hedging strategy and obtain estimates in real-time. The principal objective of this discussion is to enable the reader to appreciate the possibilities offered by international exchanges like CBOT in using trade instruments to cover domestic shortfalls at least-cost, possibly even with a profit.

11

THE INTERNATIONAL RICE TRADE: MARKETS AND STRUCTURES

Rice, the Staff of Life of Asia

It is not too much to say that the culture of much of the peoples of Asia revolve round rice - the swamp grass scientists call *Oryza Sativa*. According to IRRI, there are over 12,000 known varieties of it, almost all of them originating in South and East Asia. In many Asian languages, including Bengali, rice and food mean the same, and for most of the poor of Asia, it is the same. It has been the agricultural policies of almost all Asian nations to achieve self-sufficiency in rice, to which most were deficient only three decades back. Today, with the exception of Burma and Thailand who were always surplus in rice, traditional deficient countries like Pakistan and India are net major exporters of rice, Vietnam has become the third largest exporter, and Bangladesh has achieved rice self-sufficiencies. These are achievements of monumental proportion, though scarcely noticed by rest of the world. Thus, production, distribution and trade of rice for most Asians are basic to their very well-being and is an enterprise that feeds the people. Rice is the staff of life in Asia.

Production and Trade

Out of top ten producers of the world, nine are Asian countries, Brazil being the tenth. Most Asian countries produce rice for their own domestic consumption. Compared to other major grains, rice is thus thinly traded in the international market. The latest production and trade figures are given below for rice and wheat.

Highest yields are achieved by modern varieties with controlled irrigation, and appropriate doses of fertilizers and pesticides. With irrigation, yields can be enhanced, and land can be freed up for other high value crops. But with few exceptions, irrigation water is scarce over most of producer lands. This has important negative implications for global rice production, for unless new technologies develop quickly, shortfalls will be soon experienced to feed a rising population. The rice glut currently experienced over much of

Table 8 — World Production, Import and Export: Rice and Wheat (1992/93)

<u>Rice (Million Metric Tons)</u> (Production on Rough Basis, Import and Export on Milled Basis)				<u>Wheat (Million Metric Tons)</u>			
	Production	Import	Export		Production	Import	Export
Developing Countries	498.6	11.0	11.6	Developing Countries	251.9	67.3	8.8
Developed Countries	21.6	4.3	3.5	Developed Countries	312.9	23.2	81.6
World Total	520.6	15.3	15.1	World Total	564.8	90.5	90.4
Percentage of Traded Quantities As Compared to Production:			4.38%	Percentage of Traded Quantities As Compared to Production:			15.1%

Source: Compiled from Food Outlook, FAO, April 1994.

rice Asia may be only temporary. In practical terms, a production plateau has already been achieved over much of Asian producing countries, using the present technology. Though newer technologies are being developed at IRRI, Manila and many other national research centers, they are expected to take 10-15 years to reach field level application (IRRI-94). The next production spurt is not expected before 2015 in the Asian producer countries.

With this background, the figures for top producers, importers and exporters for the last three years are given below:

FAO forecasts for 1994 world trade in rice is 15.3 million Metric Tons, a record high and show a 5% enhancement from the last year's figures. Major exporters like Thailand and Pakistan have exported record quantities of rice, a full 50% higher than corresponding period last year. Even Vietnam is doing brisk shipments of mostly low priced rice. Events like Japan's unprecedented entry into international rice market as a major importer has pushed world trade in rice, to the new peaks. The Japanese government has not only allowed imports, but in March '94, legislated a ban on the sale of purely domestic rice and made blending of domestic rice with imported rice mandatory for retailers. Consequently, substantial volumes have been purchased from Thailand,

Table 9 — World Rice Production, Import and Export (Millions of Metric Tons) (1991-1993)

Country	Production (Paddy)			Import (Rice)			Export (Rice)		
	1991	1992	1993	1992	1993	1994	1992	1993	1994
Bangladesh	27.4	27.5	28.3	-	-	-	-	-	-
China	186.5	188.3	184.1	0.1	0.1	0.4	1.1	1.4	1.1
India	110.6	109.0	111.1	-	0.1	0.1	0.6	0.6	0.8
Indonesia	44.7	48.2	47.9	0.6	-	0.1	-	0.5	0.5
Iran	2.4	2.5	2.6	1.0	1.0	0.9	-	-	-
Japan	12.0	13.1	9.7	-	0.3	1.8	-	-	-
Myanmar	13.2	14.8	15.5	-	-	-	0.2	0.2	0.2
Pakistan	4.9	4.7	5.1	-	-	-	1.4	0.9	1.2
Philippines	9.1	9.5	9.6	-	0.2	0.3	-	-	-
Thailand	20.4	19.7	18.5	-	-	-	4.8	4.8	4.8
Vietnam	22.1	21.7	22.0	-	-	-	2.0	1.8	2.0
Brazil	10.0	10.1	9.9	0.5	0.6	0.6	-	-	-
United States	7.1	8.1	7.1	-	-	-	2.1	2.6	2.7
EEC	2.2	2.1	1.9	0.4	0.5	0.5	0.4	0.2	0.2
CIS	2.0	2.0	1.8	0.9	0.6	0.6	-	-	-
Australia	0.8	1.1	1.0	-	-	-	0.5	0.5	0.6
S. Arabia	-	-	-	0.8	1.1	0.8	-	-	-

Note: • Figures for '92 and 93 production is estimated.
 • Figures for 93 import is estimated, and for 94 is forecast.
 • Figures for 93 export is estimated, and for 94 is forecast.

Source: Compiled from FAO, Food Outlook, 1994

Australia, USA and China, (Trade circles report serious delivery problems in China).

All these trade activities pushed the price up and introduced unprecedented volatilities in the rice market. From September 1993, to the beginning of the new year, the world rice prices for all grades continued to rise steeply. In three months, the prices

registered a 110% rise in the international market. In response, the rough rice futures in the MidAm exchange. Chicago, went up from about 6 cents a lb. to 12½ cents a lb between September '93 to Nov'93, indicating the collective bullish perceptions of the trade about global supply and demand. But in March'94, the prices stabilized, and in April '94 they fell steeply to rally again in May '94 as Japanese buyers again started their purchases, albeit on a reduced scale. Such volatilities has never been witnessed before in the global market place of this commodity. For those producers and exporters who did not have access to, or did not take advantage of adequate risk-management schemes, extreme volatilities spelt potential disasters. As will be discussed later, contrary to popular belief, steeply rising market prices are extremely unfavorable market environments for international trade and may cause heavy losses for the traders, and importers and exporters. As a matter of fact, international trades sources reported many non-fulfillment of contracts from such exporters as Vietnam and China, where no regulating mechanisms exist, putting the global trade in quandary.

A FIRSTHAND SURVEY OF INTERNATIONAL GRAIN MARKETS (1994)

Object and Method of Investigation

To assess the rice market situation and study the structure of the market, a visitation program to Thailand, USA and EC (UK) was undertaken in the 1st quarter of 1994. In the course of this investigative study tour, trade bodies and exporting companies were visited and contact persons were interviewed. Because of earlier business relationships in Thailand (Bangkok) and UK (London) with related companies, key contacts were quickly established. In the USA, invaluable assistance was provided by United States Department of Agriculture (USDA) in identifying and arranging appointments with processing, trade and production sectors of US rice industry. Particularly, the structure of the marketing mechanism and their relative efficiencies were critically evaluated with the object of introducing the potentially useful features in the nascent but burgeoning rice markets of Bangladesh. A brief resume of these markets are given:

Thailand Rice Market

Method

Trade bodies and major exporting companies were visited and contact persons interviewed. The following organizations were visited: (a) Trade Bodies: Thai Rice Exporters' Association, and Thai National Rice Millers Association, (b) Exporters and Traders: Thai Wah Public Co. (Import and Export Division), STC Group of Public Companies (Capital Rice Co. Ltd), Seng Thong Rice Co. Ltd, and Bangkok Rice Co. Ltd.

The Market Scenario

(i) *Production.* Thailand produces between 18-20 MMT of rough rice (equivalent to 12 to 13.3 MMT of rice), out of which 4 to 5.5. mmt of rice are exported. The crop seasons are: (a) Major Crop: largely rain-fed, is harvested in Nov.-Jan., (b) 2nd Crop:

largely irrigated, is harvested in April-May. Thailand is suffering from drought in recent years, affecting the 2nd crop. In 1994, the Ministry of Agriculture's estimate of the 2nd crop has been downgraded from 2 mmt to 1.5 mmt for shortage of irrigation water. There is little likelihood of Thailand expanding its yearly production from a maximum of 20 mmt. Thailand produces only high quality long-grain, fragrant/ aromatic rice, and small quantities of glutinous rice.

(ii) Marketing Organizations. Private trade accounts for over 90% of rice marketing in Thailand. Government employs a bewildering array of devices to try and regulate the market. Internal market is stabilized by Ministry of Agriculture, which fixes a floor price for paddy. The government procured paddy is stored in government owned Public Warehouse Organization. This paddy is milled in private mills and then stored in private warehouses on a rental basis. Farmers may also pledge paddy with the Bank of Agriculture and Agriculture Co-op (100% government owned bank) to draw loans on soft terms (inherent subsidy). Without an internal outlet, the Ministry of Agriculture exports this rice under two mechanisms: (a) by government to government negotiated deals, (b) by public auction to private exporters. There is large latent subsidy in such auctions, e.g. in October 1993 the Ministry auctioned 15,000 MT of rice @\$251/MT, when the ruling export price for this grade was about \$395/MT. The export market is principally regulated by Ministry of Commerce under the operational control of Board of Trade. The BOT has an 8 member Rice Policy and Measure Committee with private sector participation. The Committee operates in close collaboration with Thai Rice Exporters Association. Thai Rice Millers Association supplies rice for export, normally through agents or brokers. Paddy purchases are financed by Export-Import Bank and Agents' and Millers' own finances. It was estimated by Millers' Association that 80% of all paddy stocks held by private trade is financed by banks. The Committee's prices set weekly are only idea prices. Actual prices on stocks held by Millers and Agents may vary by as much as 20% on supply, demand, and speculation. With such multiplicity of regulating bodies (two ministries, trade bodies, agents etc.) the market is extremely volatile and risky for the operators. With this year's prices doubling in 3 months, fortunes were made by speculators with genuine exporters left out of the game. All agreed that a central Exchange is prerequisite to stabilize the market.

(iii) Rice Exchange/Futures Market. There is no established exchange per se for rice

in Thailand. The 63 registered companies and 140 agents control prices, although the Rice Committee of BOT, Ministry of Commerce, sets prices by once a week price fixation exercise. The BOT holds little stock to control the market. Most of government to Government sales are, in fact, supplied by the private traders. Such government purchase (as was always practiced by Bangladesh government) only enhance prices. The Japanese government did the same in 1994. Rice imported by private traders directly from the exporters anonymously has the best prospect of getting market prices. It is illegal in Thailand to enter into futures forward contracts, though all major exporters admitted to doing so. Canny EC and US buyers (always private companies) with advance payments get the best deals.

All persons interviewed agreed that Thailand needs an Official Exchange urgently like the Tin and Rubber Exchange in Malaysia. Government tried to organize such an Exchange, but was largely frustrated by monopolies/ oligarchies (only 6 exporters control over 50% of Thai rice export). All exporters interviewed showed keen interest in organizing such an Exchange with linkage with Chicago pits, where Thai futures could be traded.

Export and Prices

Thai market in 1993-94 exhibited extreme volatilities principally for unexpected entry of Japan as a major buyer. The Japanese bought only the glutinous and the best 100% long grain/fragrant rice. Price for these new buyers was no consideration, on account of extremely high Japanese domestic prices. The prices for the last six months of Thai high quality rice are given below:

Tea major importers from Thailand for 1993 were, in order of quantities bought: (i) Japan (ii) Iran (iii) S. Africa (iv) Senegal (v) Hong Kong (vi) Singapore (vii) Benin (viii) Netherlands (ix) Iraq (x) USA.

The African countries mostly buy parboiled rice and Japan, EC and U.S.A., the best grade of white rice available. The export figures by grades for 1993 are given below:

Point to note is that parboiled rice constitute about 17% of all exports reaching

Table 10 —Thai Board of Trade Prices for Rice (per MT FOB BKK)(Packed in new gunnies at 100 kg net wt.)

Grade	Month				Mar.(94)
	Nov.	Dec.	Jan.(94)	Feb.(94)	
1. Thai White Rice 100% Grade B	\$345	\$360	\$420	\$490	\$390 (1st week) \$265 (last week)
2. Thai White Rice 5% broken	\$335	\$350	\$410	\$465	\$360 (1st week) \$240 (last week)

Source: Rice Committee (BOT) and Private Exporters.

Note: The prices have slid precipitously on account of cessation of Japanese buying and prospect of 2nd crop harvest.

Table 11 — Thai Rice Export by Grades (in MMT)

(January - December 1993)	
1. White Rice High Quality	2.3
2. White Rice Medium Quality	0.55
3. White Rice Low Quality	0.31
4. Broken	0.51
5. Parboiled Rice (all grades)	0.94
6. Glutinous Rice	0.16(Japan & Korea only)
7. Cargo Rice	0.66(only EC countries)
Total	5.45

Source: Thai Rice Exporters' Association.

almost a million tons. Exporters disclosed that even larger quantities of coarse parboiled rice could be exported if made available.

Milling Industry

Thailand exports mostly high quality rice which demand an efficient milling industry. The very large mills (of up to 100 MT/hr) are fully automated state-of-the-art

establishments. All types of grading and sorting equipment of German (Shule GmbH) and Japanese (Sataka) origin are almost standard. These milling equipment are backed by large high quality storage of both aerated bulk and bagged types. Thailand has made enormous advances in this industry which is perhaps second to none in the world. These privately owned establishments are matched by large storage units (single unit going up to 300,000 MT capacity). Financial sector (mostly private banks) have advanced industrial and working capital credit to make these developments possible.

Conclusion

In spite of being the largest exporter and having an advanced industrial base in the food-grain sub-sector, the rice market of Thailand is unsophisticated and open to speculative bubbles. Implicit and explicit subsidies by the Government distort the market rendering the evaluation of real price of Thai rice very difficult. After making windfall profits in the 70's and 80's, most large agribusiness are spreading out into other lucrative agro-based business activities (tapioca products, ready made food, shrimp culture and processing etc). With large private capital shying out of the volatile rice market, government will have to fill the vacuum with increasing budgetary costs. Reorganization of Thai rice market in a modern competitive manner will benefit both exporters and importers. With the arrival of new buyers into the thin international rice market, and little scope for expansion of production, a new era of instability, much like the 1970s, is to be expected. Thailand, being the largest rice exporter in the world, will play a key role in the coming years to shape this market. On account of these considerations, all rice consuming/importing/exporting countries may carefully watch the Thai rice markets in the future to their advantage.

The US Rice Market

Method of Study

The tour consisted of meeting multiple operators of rice trade and industry in Chicago, Houston, Little Rock, Stuttgart, Lenoke and Memphis. In all, sixteen organizations/persons were visited and interviewed. This group included brokers of Chicago Board of Trade, Texas machine manufacturers, Arkansas Ag. Extension Service, State Grain inspection Office and of course, rice millers and traders of Arkansas. The

operation of MidAm Rough Rice Futures and Options, and how these instruments are used in reality by the producers, processors and traders to minimize their risk were of importance. The secondary object of the study tour was to collect information on international (US) grades and standards, and the industry which conforms to these grades and standards. In short, the operation of the most advanced market were studied in actual use so that useful lessons could be gleaned, to be put to use at an opportune time in Bangladesh.

Production and Trade

Globally, rice is the second largest grain crop next only to wheat, but has the smallest surplus represented by a small international trade in comparison to the total global production. There are small carryovers that increased price volatility as in 1987 and 1994. Rice prices doubled in response to a 50% projected decline in 1987 stocks. Again in 1993/94 prices doubled in just three months on an expected Japanese purchase, estimated at 3 million tons, but actually at a lower level. After a collapse in prices at the beginning of April, prices are firming up again; the situation now could be termed as moderately bullish.

Although the US produces a little over 1% of total world rice, it's the second largest exporter with almost 18% of the world total. Over the past few years, domestic use of rice in the US has increased, exports have decreased, and import have increased. Per capita consumption of rice in the US has increased from 4.7 Kg per person in 1975 to 9.5 Kg per person in 1990. Immigration of Asians in the US and the recognition by US consumers that rice is a healthy food, are two factors which have helped this increase of US per capita consumption. (Robinson-93). Exporting approximately 40% of production, the U.S. is competing in the global market by her own terms. In 1985, the U.S. government enacted a marketing loan program. It allows farmers to borrow money using their crop as collateral. If the world prices are below a cost estimated value the farmers receive a subsidy in the repayment amount - a kind of safety net by a complicated mechanism.

Rough Rice Futures and Options

It was long understood by the merchants of Chicago that volatilities in prices are

damaging to both producers and consumers. The futures market, as evolved, is a unique device, and as perfect an instrument which human ingenuity may discover, to transfer this risk of price volatilities to the speculators who are willing to take losses and make profits by these price movements. Both buyers and sellers may protect themselves by setting up an effective risk management program using MidAm Commodity Exchange rough rice futures and options. Whether rice prices are rising, falling or even stable, MidAm rough rice futures can be used to minimize risk for those who are not willing to take them, as well as a potential method of capital gain for those who are ready to take and absorb those risks.

Rough rice futures and options were formally traded on the Chicago Rice and Cotton Exchange, which on November 11, 1991, merged with the MidAm, and is thus traded on the floors and pits of Chicago Board of Trade. Suffice it to say that the Board has fixed the innumerable variables of the trade into constants. Such uncertainties as trading unit, delivery time, maximum price fluctuation, daily price limit, deliverable grade, delivery instrument, and delivery points are all fixed, only the price is variable. This price is "discovered" by the process of supply and demand, a price which becomes instantly the ruling price over all of US rice market. Many large farmers are linked electronically with BOT, and buy and sell contracts to enhance the value of their produce.(Table 13)

Wheat, corn, soybean, and numerous other commodities are marketed through the CBOT much the same way as rough rice. In fact, financial instruments and currency constitute 80% of the trade, and only 20% of the trade value is in commodities now. Even the commodities exchange is moving away from the physical items to where money is, and the money itself, which is nothing but another commodity on the floors of the Chicago Exchange.

US Rice Industry

US rice production and industry are highly concentrated in a few states as follows:

So the rice industry is also highly concentrated in these large rice producing states. Curiously, rough rice warehouse receipts are issued by Exchange-approved warehouse located in twelve designated counties in eastern Arkansas, from where all deliveries are made to the buyers in other states. Whereas, practically all of Thai industry is of Japanese

Table 12 — Rice Production in USA by States (1,000 cwt)

State	1989	% of US	1991	% of US
Arkansas	57,458	52.6	58,328	53.5
California	2,250	2.1	1,080	1.0
Louisiana	13,128	12.0	12,180	11.5
Texas	18,874	17.3	20,180	18.5
Mississippi	13,395	12.3	12,320	11.3
Missouri	4,056	3.7	4,641	4.2
US (Total)	109,161	100	109,049	100

Source: Mid American commodity Exchange

origin, US industry uses multiple sources e.g. German, US, and Japanese. Much emphasis is put on consumer preference and packing, rather than on bulk processing. The companies, some over 75 years old, are all financial giants who also process other agricultural commodities and have their own domestic retailing outlets. Export is of secondary importance to them as the value addition is rather marginal in the highly competitive world market.

The equipment is state-of-the-art and the scale just unimaginable for South Asian marketers (one company in Stuttgart, AR processes over 1.5 million tons of rough rice per year in just six mills). All rice thus processed must be graded by the Federal/State Grain Inspection Office in any of the US standard grades. Since they hold huge stocks, any grade can be blended to satisfy customer demand and prices. In other words, a grade of rice will be delivered for a price, high or low. This is of immense value in export trade when African customers offering low prices are offered grades to match the price (of course within the US standard grade) and the Japanese the highest grade. It is a flexible, modern, highly efficient and popular industry in the US who are tuned to the consumer needs and highly price responsive on account of the "discovered" price of their ware at the mother exchange of Chicago.

Table 13 — MidAm Rough Rice Futures and Option Contracts

MidAm Rough Rice Futures	MidAm Rough Rice Options
<p>Trading Unit: 2,00 hundredweight of U.S. No. 2 or better long grain rough rice.</p> <p>Delivery Months: January, March, May, July, September, and November.</p> <p>Minimum Fluctuation: One-half of one cent per hundredweight, or \$10 per contract.</p> <p>Daily Price Limits: \$0.30 per hundredweight(\$600 per contract)</p> <p>Deliverable Grade: U.S. No. 2 or better long grain rough rice with a total milling yield of not less than 65% including head rice of not less than 48%. Premiums and discounts are provided for each percent of head rice over or below 55%, and for each percent of broken rice or below 15%.</p> <p>Delivery Instrument: Warehouse receipt issued by and Exchange-approved warehouse.</p> <p>Delivery Points: 12 designated countries in eastern Arkansas.</p> <p>Trading Hours: 9:15 a.m. to 1:30 p.m. (Chicago time) except on the last trading day in an expiring futures contract when trading stops at noon.</p> <p>Ticker Symbol: NR</p>	<p>Trading Unit: One(1) MidAm Rough Rice futures contract of a specified contract month.</p> <p>Strike Prices: Eleven strike prices will be listed in integral multiples of twenty (20) cents per hundredweight to bracket the underlying futures contract (i.e., the strike price closest to the previous day's futures settlement price and the next five consecutive higher and lower strike prices). Also, four strikes in 40-cent multiples will be listed above the strikes listed in 20-cent multiples.</p> <p>Tick Size: One-quarter of one cent per hundredweight, or \$5.00 per contract</p> <p>Premium Payment: The premium must be paid in full by each option buyer to his commission merchant and by each clearing member to the clearinghouse at the time the option is purchased.</p> <p>Daily Price Limits: Thirty(30) cents above and below the previous day's option premium settlement</p> <p>Months Traded: Same as rough rice futures-January, March, May, July, September, and November</p> <p>Last Trading Day: Options expiring in the current month shall cease trading at 12:15 p.m. on the last Friday that precedes by at least five business days the first notice day of the underlying futures contract.</p> <p>Exercise Procedure: Option buyers may exercise an option contract on any business day prior to expiration by giving notice to the clearinghouse by 6:00 p.m. on such day. Exercised options are randomly assigned to option sellers. Options that are at least 30 cents in-the-money after the close on the last trading day are automatically exercised, unless notice to cancel is given to the clearinghouse.</p> <p>Expiration: Unexercised options expire at 10:00 a.m. (Chicago time) on the first Saturday following the last trading day.</p> <p>Trading Hours: 9:15 a.m. to 1:30 p.m. (Chicago time) Ticker Symbols: Calls: NRC</p> <p>Trading Hours: 9:15 a.m to 1.30 p.m. (Chicago time) Ticket Symbols: Calls: NRC Puts: NRP</p>

Note: Rough rice futures were formerly traded on the Chicago Rice & Cotton Exchange (CRCE). On November 11, 1991, MidAm and CRCE merged. As a MidAm contract, rough rice futures continue to trade on the floors of the Chicago Board of Trade.

Source: Chicago Board of Trade

What Does It Mean for Bangladesh

It is all very well to be awed by this most modern market of the U.S., but does it mean anything to us, can we learn some lessons, and quickly? The answer is yes, and in short are:

(i) *Exchange:* It is entirely feasible and quite possible to organize a cash (i.e. spot) exchange for rice in Bangladesh. The future trade is just too sophisticated which may be attempted in the very long term. But the cash exchange which can only evolve and enforce the standard, organize finance by investors/speculators' money and self-regulate the trade is well within the realm of possibility, if the government so desires and so allows. Perhaps statutory provisions are also necessary and suitable mechanisms are to be devised. Lessons may also be learned from Asian exchanges. (Cotton Exchanges in Karachi, Bombay; Tin and Rubber Exchange in Malaysia). It is one of the advantages of the Exchange to attract investors' money into the commodity it trades, thus relieving demands on the banking sector to finance the trade in that commodity, much like the capital markets.

(ii) *Industry:* It is absolutely essential that the Bangladesh rice industry introduce color sorting machine to separate the discolored grains in the final process stage. Without color and broken sorting, there is no way a standard gradation be achieved by Bangladesh rice. Advance machines like vertical cylindrical pearler machine, etc., which reduce brokens by as much as 5% are desirable but not essential. A "sortex" machine costing about \$80,000 per piece (for 2t/hour capacity) is just beyond the financial capabilities of rice mills in Bangladesh. Ways and means may be found to upgrade our mills to produce international grades of milled rice.

(iii) *Grading Bangladesh Rice:* The sample of Bangladesh rice, brought by this writer and analyzed by FGIS indicated high percentage of discolored grains and brokens. But the intrinsic characteristics were of high standard thus:

What is more striking is that BR-11 had been graded medium grain. It was always thought in Bangladesh to be coarse to short grain. This rice is very close to California medium grain, much preferred by the Japanese, next only to their glutinous Japonica varieties.

**Table 14 — Grades of Bangladesh Milled Rice
(Graded by FGIS, USDA)**

Local Name	Graded by Federal Grain Inspection Service, USA
1. Pajam	Long grain (US #4)
2. Kataribhog (white milled)	Long grain (Special Aromatic) (US #3)
3. Chinigura	Short grain (Special Aromatic) (US #3)
4. BR 11	Medium grain (US #6)

Note: The low grades were due to high percentage of discolored grains and brokens, and not due to any inherent quality of rice.

Source: FGIS, USA (Stuttgart, Arkansas)

Further close contact with the US private sector and USDA at both governmental and private levels will be a most desirable step towards modernizing Bangladesh rice industry.

Conclusion

While it is quite premature even to contemplate a futures market for rice in Bangladesh, it is quite possible to organize a cash exchange within a short time. That exchange could play pioneering roles in modernizing the rice market and upgrade it to world standards. The producers, consumers, and the government will all be beneficiaries to such an organization. Many international donors interested in assisting Bangladesh in market modernization will be quite willing to financially assist such a venture.

Bangladesh rice industry needs additional capital machineries to allow it to compete in the world market. The chief machinery needed is color sortex machines, a very expensive piece of equipment, but absolutely essential for international marketing. Many customers now expressly specify "color sorted" rice, and will not buy any other grades. In Thailand, it was found to be standard in all exporting rice mills and in the USA, it is an integral part of a mill. Ways must be found to introduce this machine in our industry. Additional sophisticated machines may be introduced later, which will enhance our standards of milled rice by reducing brokens. As a means of exposure to the global

scenario, study visits should be regularly undertaken by the MOF officials and private sector representatives to enhance their knowledge of rice marketing and processing and to establish most regarding personal contacts with their USA counterparts.

The EEC Grain Market

With the economic unification of Western Europe, the EEC has developed into a major foodgrain producer. The twelve member countries of EEC is the world's largest producer, and the second largest exporter of wheat, next only to Canada and the United States. Since wheat is a major import of foodgrain in Bangladesh, the EEC wheat market is of particular interest. The World largest producers, importers and exporters of wheat and their relative trade data is given below:

Table 15 — Production, Import and Export of Wheat 1991-1993/ 94: Selected Counties(in Millions of Metric Tons)

Country	1991			1992			1993/94		
	Production	Import	Export	Production	Import	Export	Production	Import	Export
China	96.0	16.2	-	1101.6	7.4	-	105.0	7.0	-
India	55.1	0.1	0.7	55.1	3.1	-	56.8	0.2	-
Pakistan	14.6	2.3	-	15.7	2.9	-	16.4	1.8	-
Canada	31.9	-	23.6	29.9	-	21.3	27.8	-	19.0
United States	53.9	-	35.1	66.9	-	37.1	65.4	-	30.0
EEC	90.8	1.3	19.5	85.0	1.2	20.7	80.4	1.3	19.0
Australia	10.6	-	8.3	16.2	-	9.3	18.2	-	12.0
CIS	70.9	20.8	-	88.5	16.5	-	88.2	8.0	-

Source: Compiled from FAO, 1994 Note: Figures for 1993 are estimated, and for 1994 forecasted.

The present EEC grain production and marketing scenario is a direct function of EC farm and marketing policies. It is a highly complex maze of policies which has completely changed the agricultural production of Europe. A combination of subsidies and incentives have resulted in a situation which was unthinkable a few decades ago. Today, U.K. and Spain are major producers and exporters of wheat, with UK alone accounting for over 3 million tons of

wheat export. Such subsidies have created major distortions in the marketing structure, which very recently, the EC governments are trying to correct by a series of de-regulation and withdrawal of subsidies.

The Wheat Market

EEC produces mainly soft wheat for manufacture of French breads. The pricing structure is controlled by the amount of subsidies granted by the government. This subsidy is regulated by member countries's, farm policies and the export subsidies granted under Export Assistance Program (EAP). The entire export market is thus regulated by the EAP, which in May'94 averaged around \$78 per MT, FOB. One result of this subsidized export is that EEC soft wheat is the cheapest wheat available in export market today, though the market for soft winter wheat is rather limited. However, there is still an inter-EEC market in foodgrains, where various national producers may compete freely. The Intervention Board in Brussels asks for competitive bids to allocate subsidy quotas every Thursday afternoon. For much of EC food aid, the wheat is procured through such inter-EEC tender where national producers compete for the supply quotas. It is a highly complex, politicized and interventionist market where free-trade is hardly practiced, and competitors vie for larger quantum of government subsidy rather than efficient marketing efforts.

One grain merchant in London remarked that it costs the EC taxpayers more money to administer the subsidy than the subsidy itself! Through not quite true, it gives a general picture of the market.

Many exporting farms reported great deal of difficulties in wheat exports to CIS— not an unexpected situation given the present chaotic economic situation in the former Soviet Union who was the major buyer of Western European wheat. Similar difficulties were reported for China and Vietnam trade in grains where contracts currently are "more honored in breach than in observance". These seasoned trading companies emphasized on the importance of good business practices and ethics in developing international trade, a lesson the would-be exporters in Bangladesh do well to remember.

Though somewhat less active, the old commodities exchanges of Europe still operate in agricultural commodities like foodgrain. Merchants were of opinion that with gradual

withdrawal of subsidies and lesser government interventions, competitive trade will again become the norm. With GATT agreement in force, one expects to see the return of normal trade practices to the European market for agricultural commodities including wheat.

Import Market for Rice

The EEC countries import about 0.5 million tons of rice mostly long grain US and Basmati from USA, Pakistan and India. Some Thai aromatic rice is also imported. Most rice in European markets is sold in brand name packaging, the packers importing bulk quantities and then blending the rice - a process very similar to tea blending. Though niche markets exist for special rice for the ethnic Asian minorities in most European countries, the special rice has general little demand. Instead, standard Long grain California and South Asian Basmati fetch good prices at good demands. However, only the very best quality rice may be marketed and high quality and maintenance of health standards are absolutely essential. Thus, low quality Vietnam and Thai rice find very little market in the European markets.

Pakistan Rice Market

Pakistan exports about are million MT of rice which is about 45 percent of its total production. Pakistan's rice exports account for 11 percent of the international rice market. In recent years, Pakistan is finding it increasingly difficult to maintain its leading role in the markets of Gulf Co-operative council – Bahrain, Oman, Kuwait, Qatar, Saudi Arabia and the United Arab Emirates. Iran is also a major importer of Pakistani rice. Though the major export quality is Basmati, a long grain and aromatic variety which originally grew in the foothills of the Kashmir regions, the HYV IRRI rice is also grown in Pakistan, and exported mainly to African countries.

Until early 1980s, Pakistan made substantial profits from exports of Basmati. But since the early 1990s, the sales have fallen badly. Introduction of Basmati 385, a hybrid HYV rice has not been very successful. In the opinion of experts (FAO Study- 1994), rice export from Pakistan is being affected by withdrawal of government subsidies as the production costs are higher than export prices. As a part of liberalization program, government has removed subsidies on agricultural inputs, but irrigation water and electricity are still highly subsidized. The government has also removed restrictions on the private sector to export rice so that full one third of Pakistani rice is now exported through the private trade channels. The out-look

for Pakistani rice export is not bright as the cost of production is expected to rise further by elimination of subsidies to which the government is committed as part the general liberalization policies.

However, the high quality Basmati rice market in the gulf states is practically a Pakistan monopoly. It will be extremely difficult for any other exporter to penetrate this market which Pakistan has developed with years of promotional efforts. It is the coarse variety export to Africa which is expected to reduce sharply. As Pakistan's total rice acreage reduce due to farmers shifting to other high value agricultural products like cotton, the possibilities of entry into the low-cost parboiled rice market in Africa is wide-open for new entrants. As will be seen, India is making strenuous bids to enter into the non-Basmati medium grain market in a forceful way.

The Indian Rice Market

Under the general liberalization of the Indian economy, the present government has dismantled many institutions once considered sacrosanct. Indian rice market, specially the export market has been transformed, and the process is going on in full swing. Indian federal government has decided to consider rice export a 'thrust-sector'. It has also decided to rely on trade mechanism, rather than governmental intervention, to expand the Indian rice exports from the current 12 billion Rs to 25 billion Rs (about \$800 million) by the year 2000 — a target, by all counts, will be achieved - without any governmental subsidies or market intervention.

India has the largest area under rice cultivation in the world with the second largest production figure next only to China. However, it's share of the international rice trade is less than 4%, which the government of India is determined to change shortly. Indian rice export grew to Rs 12 billion in 1993-94 from Rs 3.52 billion in 1987-88 without any organized marketing plan. It mostly exported Basmati rice for which only Pakistan was a competitor. Only 800,000 hectares of land (out of a total rice growing area of 42,000,000 hectares) in India is planted with Basmati— mostly in the Northern States. Out of total production of about 650,000 MT of Basmati, 400,000 MT is exported mostly to the ME countries. India is actively developing non-Basmati rice export drive, specially to Africa. India, the mother of all rice varieties, grows all kinds, including the Japonica glutinous rice. With a market-oriented, liberalized trade environment, Indian rice exporters can, and will develop their production to

suit the export market with long, short, medium or the glutinous rice. In 1994, they even opened a 'Foodex' outlet in Japan to promote Indian rice to Japan as a gourmet food.

The concrete step taken by the government of India in the marketing liberalizations are listed:

- a) The government has removed all control on export pricing. The once restrictive minimum export price (MEP) on Basmati and non-Basmati rice is completely removed.
- b) The government has set up an Export Promotion Council for rice with active participation of All India Rice Exporter's Association. The council's major tasks will be to disseminate market information to the exporters.
- c) The Indian Directorate of Rice Research has been re-organized with private sector participation. It has been reported that the direction of rice-research will be market-oriented to develop newer varieties and grades for the international export market rather than just higher yields which was their major task for over 40 years.
- d) **On advice of trade bodies, an Agricultural Commodities Exchange will soon be set up. Government of India (with Ministries of Commerce and Finance) is actively considering the setting up of the Exchange at Bombay which is the seat of India's premier Stock Exchange as well as the home of Indian Cotton Exchange. (The Bharat Diamond Exchange is currently under construction in Bombay — the tallest building in India. Belatedly, but finally, the government has realized that trade can not develop in a regulated manner without central exchanges).**

The beneficial effects of these liberalizing steps has already been felt in the market. They are:

- a) Formulation of new Indian Export Grades of rice by the IDRR. They have graded the long grain rice into three grades to help pricing the Basmati and non-Basmati long grains.

- b) 'Substantial investments' are taking place in rice milling sector in state-of-the-art graders, sorters and polishers to produce export grade rice. Government of India is actively assisting the private sector in this effort.

- c) **Most significantly, Indian industrial giants like Hindustan Lever (subsidiary of multinational Unilever), ITC (Subsidiary of British Tobacco Co.) and BAT Industries have entered into the rice export market. The entry of the multinationals into the rice trade is a significant development of immense proportion, which could happen only with the market liberalizing steps taken by the Federal Government of India.**

With these recent reports from India, it can be assumed that India will be a significant exporter within a very short time. The participation of Multinational Companies with their international network and immense strength of Capital (ITC is practically 90% equity based), will add new dimensions to the Indian export drive. Particularly, their traditional business links with Africa will play a significant role in non-Basmati exports. All rice exporting and importing countries may carefully watch this Asian giant and its actions in this sector to their benefit.

ORGANIZING THE GRAIN EXCHANGE IN BANGLADESH

The preceding discussions point unmistakably to organizing a central market to regulate the grain trade in Bangladesh. The chaotic condition that periodically result in slight mismatch of supply and demand (as in 1992) indicate deep structural weakness of the market system. With expected production rise, and aspirations to enter the international export market, organizations of such a centralized market organization is the need of the hour. As the government wishes to gradually reduce its dominant role in the foodgrain market and concentrate on the more urgent tasks of targeted relief, the responsibilities of the private market increase manifold. But such responsibilities can not adequately be shouldered without adequately strong organs of the market. Therefore, structural strengthening of the marketing organ has assumed prime importance. The organization of the central wholesale market on the model of a Commodities Exchange should necessarily be sequential in plan, and in execution. The plan of organizing such as exchange could be as follows:

Statutory Provisions

For exchanges to operate, a legal framework is pre-requisite to its regulatory functions. Though a multitude of laws and orders exist (Chapter III) to control and impede the trade in foodgrain, none exists to promote and regulate them. The basis of such regulatory frame work may well be:

(i) Commodity Exchanges Regulation: Such an Act could be drafted on the lines of the Commodity Exchange Act (CEA) of 1936 (since then amended) passed by US Congress to regulate and control the working of futures exchanges. A government regulatory body organized in line with the recently formed Security and Exchange Commission (SEC) (to regulate the Stock Exchange of Bangladesh) could be quickly put into effect. In the early stages, the same SEC may oversee the formation of the Exchange. A subcommittee to the existing SEC may be quite sufficient at this early stage of development.

(ii) Removal of all Restrictive Laws Permanently: At the same time all restrictive laws (Chapter III) must quickly be removed permanently and a conducive legal environment ensured.

Members

The heart of the exchange lies in the quality of its members, whose integrity, business ethics and financial strength are the very foundations on which the exchange stays. Like the Dhaka Stock Exchange, the members should be reputable business men, not necessarily dealing in foodgrain, but general business knowledge and organizing ability are of importance. In the developing stage, members may be co-opted from the elected trade organizations of the country. Bangladesh Federation of Chambers of Commerce and Industry (BFCCI) may be the parent organization under which the new exchange may be affiliated. However, the members should fulfill the following minimum criteria:

- (i) Holding a minimum number of shares issued for capitalization of the Exchange. This amount may be determined by SEC.
- (ii) Should be 'men of means', with adequate credit worthiness to cover the risks involved on trades on their own account, as well for other investors.
- (iii) Should possess known business skills and experience.

Entity

Under Bangladesh law, the exchange will be best organized as a Public limited company (PLC) under Companies Act 1913 and amended since. A portion of the equity shares may be subscribed by the founder directors, and members and the balance subscribed in Dhaka Stock Exchange as public issues. With commission, rental revenues and other incomes, the Exchange is expected to be a highly profitable Company in its own rights. (With only 500,000 MT of rice and wheat traded, at a commission @Tk. 1.00/maund, a gross revenue of Tk. 15 million is accrued). Members will also have to deposit a requisite sum as performance bond with the Exchange to build a reserve fund to ensure performance of contracts.

Location

Dhaka is strategically located at the center of Bangladesh with water-ways, road and railway connections with the production zones of the country. It is highly co-related with both the consumption and production zones. It is also the biggest wholesale grain market of the country. On account of all these considerations, the envisaged Exchange may be located at Dhaka.(please see Map-1) Suitable land for construction of exchange building may be donated by the government.

Physical Infrastructure

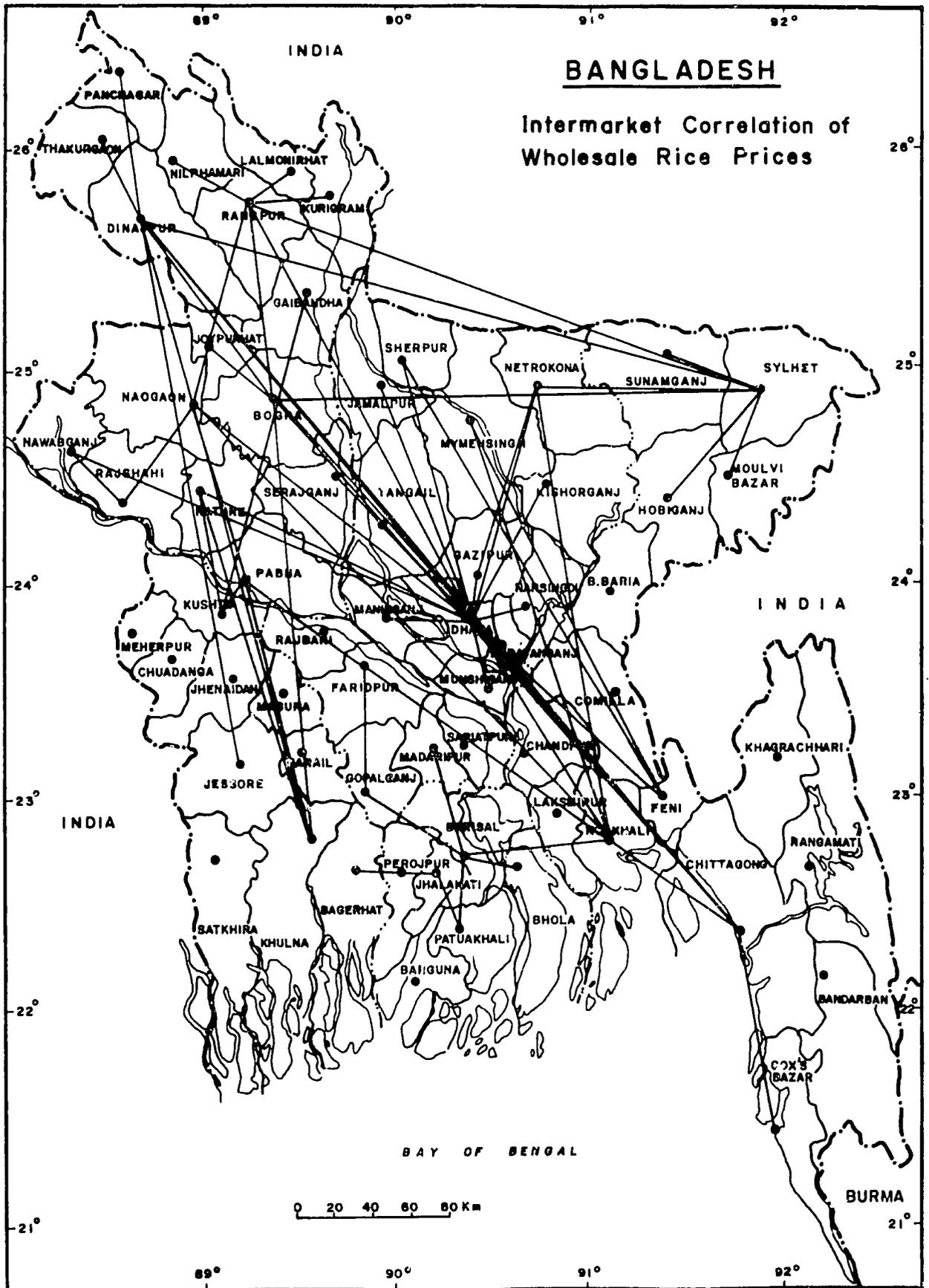
The Exchange should be located in a modern building having all communication network. As both import and export trade is envisioned, modern communication network of telephones, faxes, EM and a Computer Data Center will be the heart of the exchange. In addition, the following physical facilities are essential:

(i) Trading Floor: Like the Stock Exchange floor, where trade will take place by open auction between the buyers and sellers. As the exchange matures, electronic trading and display center could be added.

(ii) Offices: For both the members as well as for the exchange offices of a multitude of functions, number to be determined by the exchange.

(iii) Committees: A number of subcommittees should over-see the various functions assisted by professional staff. It is to be noted that the professional staff carry out Exchange functions on explicit orders of the management committees. The basis of the Exchange is self-regulation under the law. The sub-committees, each backed by Exchange general office, may consist of:

- Trading Committee
- Clearing Committee
- Finance & Audit Committee
- Appeal & Arbitration Committee
- Ethics & Good Business Committee
- Standards & Specification Committee
- Foreign Trade Committee



- DISTRICT BOUNDARIES
- - - DIVISION BOUNDARIES
- · - · INTERNATIONAL BOUNDARIES

● DISTRICT HEADQUARTERS

On actual operational experience, some of the committees can be merged, or new ones added.

Linkage

One of the prime functions of the Exchange is to establish trade contacts and linkages with other Exchanges. It is expected that this Exchange will establish meaningful linkages with major Exchanges of the region and, of course, to the mother Exchange of all: CBOT, as early as possible.

Organizational Setup

An organization diagram is attached as Diagram 4 to these papers. This organization may be adjusted to suit the actual needs as the Exchange develops and matures over the years. The key feature of the organization should be flexibility to adjust, modify and painlessly expand with the needs of the times. (See Diagram - 4)

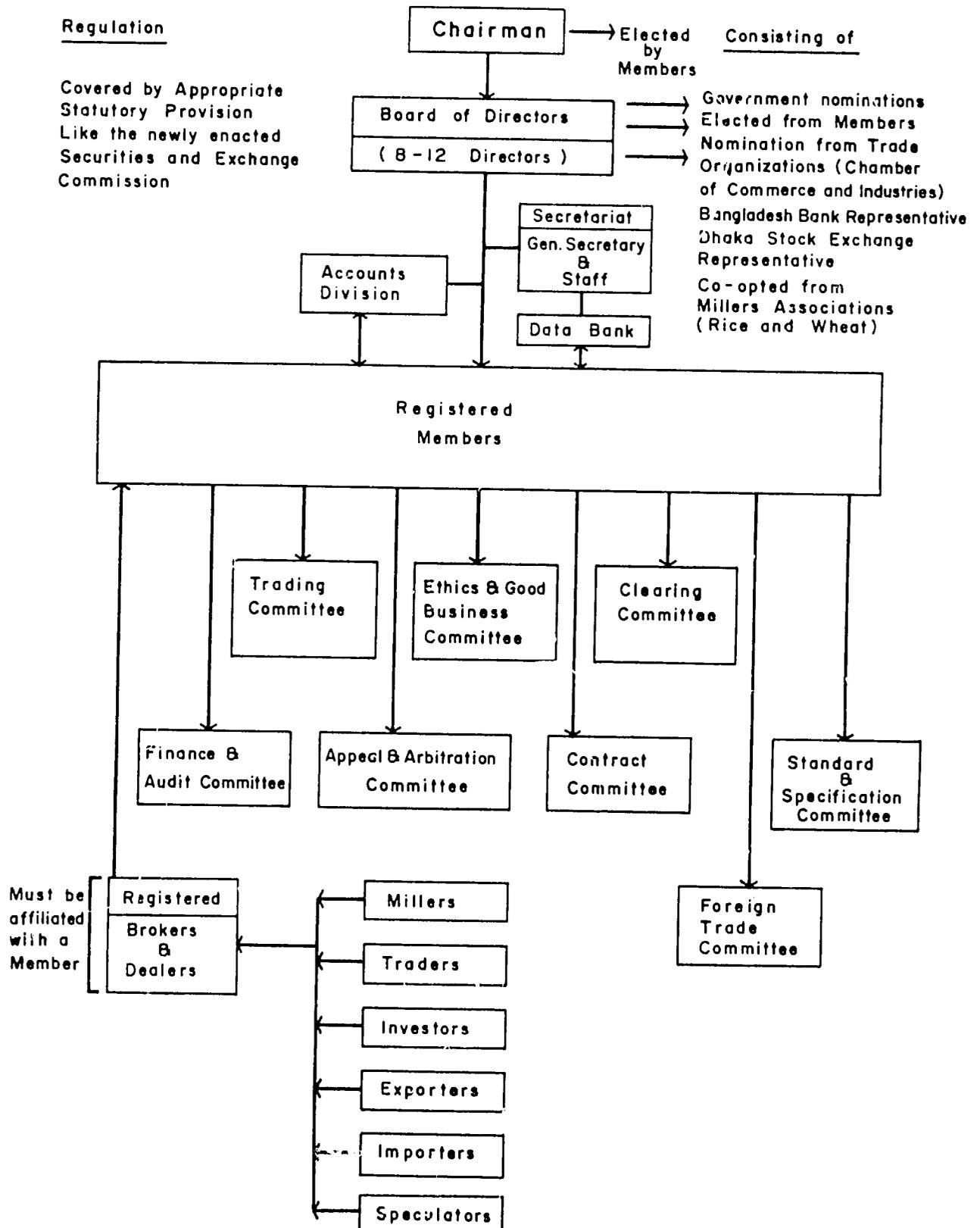
The Plan

The relevant ministries of the government (Ministries of Food, Finance and Commerce) may formulate a plan of action to organize and put into effect the actual implementation of the Exchange. The physical location may be determined, and a land grant be given to build the Exchange, as Dhaka Stock Exchange was built on such a grant. Many of Bangladesh's partners in progress are most interested in funding such a Project. It is expected that all physical infrastructures, including some of the initial seed capital to start off the equity fund may be readily obtained as grant from our friends who are interested to develop market structures and organizations. But, before that to happen, government has to make up its mind in such a scheme of things— ultimately to help liberalize the market.

The forward-looking plans taken by the Federal Government of India to promote rice-exports (preceding pages) is a case in point. India wishes to enter the rice export market without any subsidy but a positive help from the government specially in marketing organizations. Lessons could be taken from the recent Indian experience in this regard.

Diagram - 4

Bangladesh Grain Exchange
 (Proposed Organization)
 A PUBLIC LIMITED COMPANY



THE TASKS AND FUNCTIONS OF THE GRAIN EXCHANGE

The rapid development of Bangladesh foodgrain market has put in sharp focus the need to organize and strengthen the structure and organization of the market. The services that any organized market needs — credit, market research, information and training — are also of vital interest to the government. The facilitating services call for an institution to furnish these vital inputs along with adequate regulation of the market operation in greater public interest. It is the responsibility of any modern government to go as far as the resources permit in providing such services. It is in pursuance of such a goal that the value and utility of a central market, largely self-regulating under the relevant law, is felt. Specially, to enter the highly competitive export market, organization of the Exchange is expected to play a most useful and vital role. Thus, the main tasks and functions of the envisioned grain exchange are: (Also see diagram - 5)

(a) To Regulate the Internal Trade. One of the major functions of the central exchange will be to bring together the buyers and sellers in adequate numbers. The resultant free interaction of supply and demand will regulate the internal trade by the price formation process which will transmit the right signals on a country-wise basis.

(b) To Establish the Grades and Standards. In consultation with the appropriate government agencies, suitable national and export standards may be formulated by the exchange. It is a pre-requisite for organized trade to take place, where both buyers and sellers are fully aware of what they are buying and selling. The present method of inspecting every consignment personally is hardly conducive to orderly growth of marketing, let alone export. Besides, through the Exchange, the government may easily enforce the standard grades. Currently, the in BSTI grades are not even widely known, let alone enforced.

(c) To Provide Liquidity. Markets, to be efficient, should be highly liquid. With sufficient liquidity, sales volumes and reduction of margins result, with a corresponding

expansion of production and consumption. Export can not simply take place without sufficient capital investment as stocks are to wait for a long period before payments by importers are made by letters of credit. Commercial banks alone can not supply these liquidities anywhere, more so in Bangladesh. Like the capital market is pre-requisite to industrial development, the development of commodities market is dependent on investor's capital through the exchange. These investors, and speculators are likely to provide the capital only in an organized central market where security of his investment is assured by the institution. Therein lies one of the great value of the Exchange.

(d) To Obtain Benefits of the Global Market. Not only in export, but also in import operations of wheat and other commodities, the exchange will provide unique services through linkages with international market. Futures on grains contracts may conceivably be traded through the local exchange. Local brokers and dealers can hedge themselves through appropriate linkage with exchanges like CBOT. Bangladesh government may also obtain futures and option contracts through local brokers who will transfer the risks to international exchanges. Such a precedence is available in the insurance industry in Bangladesh, where Sadharan Bima Corporation (General Insurance Corporation) always reinsures through the London market for all large risks. Through the local exchange, exposure to the facilities available in advance markets will thus be available as a matter of routine.

(e) Forward Contracting. Almost immediately, forward contracting procedures will develop as a natural corollary to the spot trading. For many operations like export, forward contracting is an essential mechanism through which the exporter will obtain his supplies from many small millers and traders. With the Exchange ensuring contract performance by the way of member's participation, these forward contracts (primitive, non-standard futures contracts) will also be the basis of many other activities like government tenders.

(f) Wheat Marketing. Though the private sector is importing substantial (300,000MT in 1993) wheat, there is no organized place to market the imported wheat. It is also proposed by many donors to monetize their wheat at market rate to maximize Taka contribution to development budget. In such a scheme of things, imported and donated wheat can also be traded in the Exchange, or the prices formed at the central

exchange will become the bench-mark for other smaller markets.

(g) *Market Information.* The Exchange will provide the best price information which will go a long way in balancing supply and demand. Such prices ensure local growers to get a fair price for the type they market. Also it becomes an essential guide to the government as invaluable inputs for appropriate policy formulations. Without knowledge of a central price and volume information, producers, consumers and the regulating agencies are in a poor bargaining position. The exchange provides this vital service in the most admirable manner.

(h) *Export Promotion.* Organization of the exchange is vital to development of export marketing. Even long established exporters like Thailand is feeling the need for a central exchange. In Pakistan, the essentially subsidized exports are, presently, a burden on the budget. Indians are actively considering the establishment of a Commodities Exchange in Bombay in conformity with their present economic liberalization policies. One of the major functions of the Exchange will be to bring together the importer (or his agent) and the exporter, who by forward contracting, may not only enter into firm export contracts, but also have the means to honor it. Without such a mechanism, chaotic conditions have been reported in cases of CIS, China and Vietnam by European traders with possible detriment to those countries' commercial prospects. Regulation of export trade is pre-requisite to establishing export markets. (See Diagram -3 and Box -4)

(i) *The Practice:* Contrary to popular belief, a central market in commodity is already in operation in Bangladesh. That market is the Tea Auction House in Chittagong whose history goes back to the Calcutta Tea Auction House, which has been in operation for over 100 years. Trade in tea only takes place in this regulated central market. Many of the components envisioned in the Grain Exchange are already present in this House. This market is regulated by the Tea Board, a government agency, who take no part in the trade. Standard grading, anonymity of the participants, market's regulatory role and the integrity of the commitments in the market — are some of the criteria of tea trade. Active brokerage and speculative activities bring forth information and liquidity to the market. Much of operational practices of the Grain Exchange could be borrowed from the long established norms of business of the Tea Auction House.

The Saga of Bangla Rice

Scene:1

Assume a hypothetical exporter, Bangla Rice, offers an export price to a would be importer, East African Trades, BR-11 rice of a specification acceptable to the African firm. Bangla Rice had based its price on (a) wholesale prevailing prices of BR-11 in North Western markets (b) the cost of freightage to Chittagong (c) cost of warehousing (d) loading (e) shipping. They also catered for exchange rate, interest, inland insurance, voyage insurance and out-of-pocket expenses. The staff of Bangla Rice was constantly aware of the possibility of a price-rise when they start buying large quantities of rice for export. In the extremely competitive rice market, not only that the prices are to be kept low, deliveries are to be made regardless of the internal market condition. Already, Bangla Rice has heard rumors that the buyers were negotiating similar deals in India and Vietnam.

Fortunately, Bangla rice receives a flat-price bid from the importers for 10,000MT, 5% more or less at the sellers option, for shipment in the following month, c.i.f Mombasa. The exporter has 5000 MT under forward contract, and 3000 MT in stock. That leaves 2000 MT to procure which, they consider, shouldn't be a problem. Bangla Rice decides that it can make the sale even if the internal prices go up a bit, and accepts the bid.

Bangla Rice now starts procuring the 5000 MT it had forward contracted in N.W. markets. The wholesalers, unfortunately, did not have all of the stock they contracted to Bangla Rice. Now they start buying from local mills, who return stop shipments to Dhaka and Noakhali. The prices start going up in Noakhali as practically all shipments from Dinajpur and Bogra stops. The millers in the Northern areas start buying additional paddy from local markets as streams of telephone orders are received from Choumuhani, Noakhali and Feni markets. Though honorable men, the wholesalers can not supply to Bangla Rice in this situation. No amount of threatening by Bangla Rice can ensure the performance of the forward contracts. In the end, Bangla Rice could procure only 6000 MT by the shipment day. The Africans were irate and would not extend the validity of the letter of credit, and demanded compensation of \$50 per MT not delivered. By personally flying to Mombasa, the Managing Director of Bangla Rice negotiated a settlement @ \$38.00 per MT not delivered. Further to this loss, he still had to pay full freight to the Indian charter party who, contrary to all expectations, placed his boat at Chittagong on the dot, in time and location!

Bangla Rice was a booming trading house, and employed 64 people. Today, they have a skeleton office of 3 only. It is rumored that the M.D. is selling his house to cover his personal loans. It is also rumored that he is a big defaulter with the nationalized bank which received the export letter of credit and had covered the inland L/Cs which Bangla Rice had opened for those dastardly wholesalers of the North West. A tragic end to an enterprise, because the exporting firm had nowhere to hedge the price-risks inherent in any export trade.

Scene:2

An active Grain Exchange is operating in Dhaka which has just started covering the forward contracts by exchange imposed margins. It is reported that the Members are working on a futures contacting system on both rice and wheat. Bangla Rice, on receipt of the export order calls-forth the forward contracts. Prices have gone up, and the wholesalers are finding it difficult to meet their obligations. But the 20% margin they deposited with the Exchange prove to be enough incentive to deliver, because the price-rise has been only 12%. A loss, no doubt, but by delivery, they reduce it by at least 8% and also avoided being de-barred from the Exchange. Bangla Rice still had to pay higher prices for the balance 2000 Mt at 16% higher prices, and just managed to break-even. Next time, they will not receive export order without prior coverage by Exchange guaranteed contracts of the committed quantities.

Scene-3

The Grain Exchange is trading in the futures of 100 MT standard contracts of four varieties of rice. The futures contracts only deal in high quality, export grade rice (No. I, II and III of Dhaka Board of Trade Specification). The rice is stored in exchange-controlled warehouses (Ex-BADC, Ex-DGF), and only a warehouse-receipt is necessary for delivery.

Bangla Rice buys 80 standard contracts to cover the short position on the day the export order was confirmed. The futures market has gone up slightly, but still leaves them a 6% profit. The local cash and futures both went up further at the end of the month, but the exporter is quite unperturbed, and has given notice for delivery. The short sellers are in a bit of a fix, but never you mind, speculators are used to it now a days! The Indian charter vessel has arrived at Chittagong, and rice is being loaded from this afternoon. The M.D. of Bangla Rice is asking for the Bill of Lading for payment by the bank. By end of the week, the L/C will be liquidated and the consignment will be way out in the Bay of Bengal, bound for Mombasa. Bon Voyage!

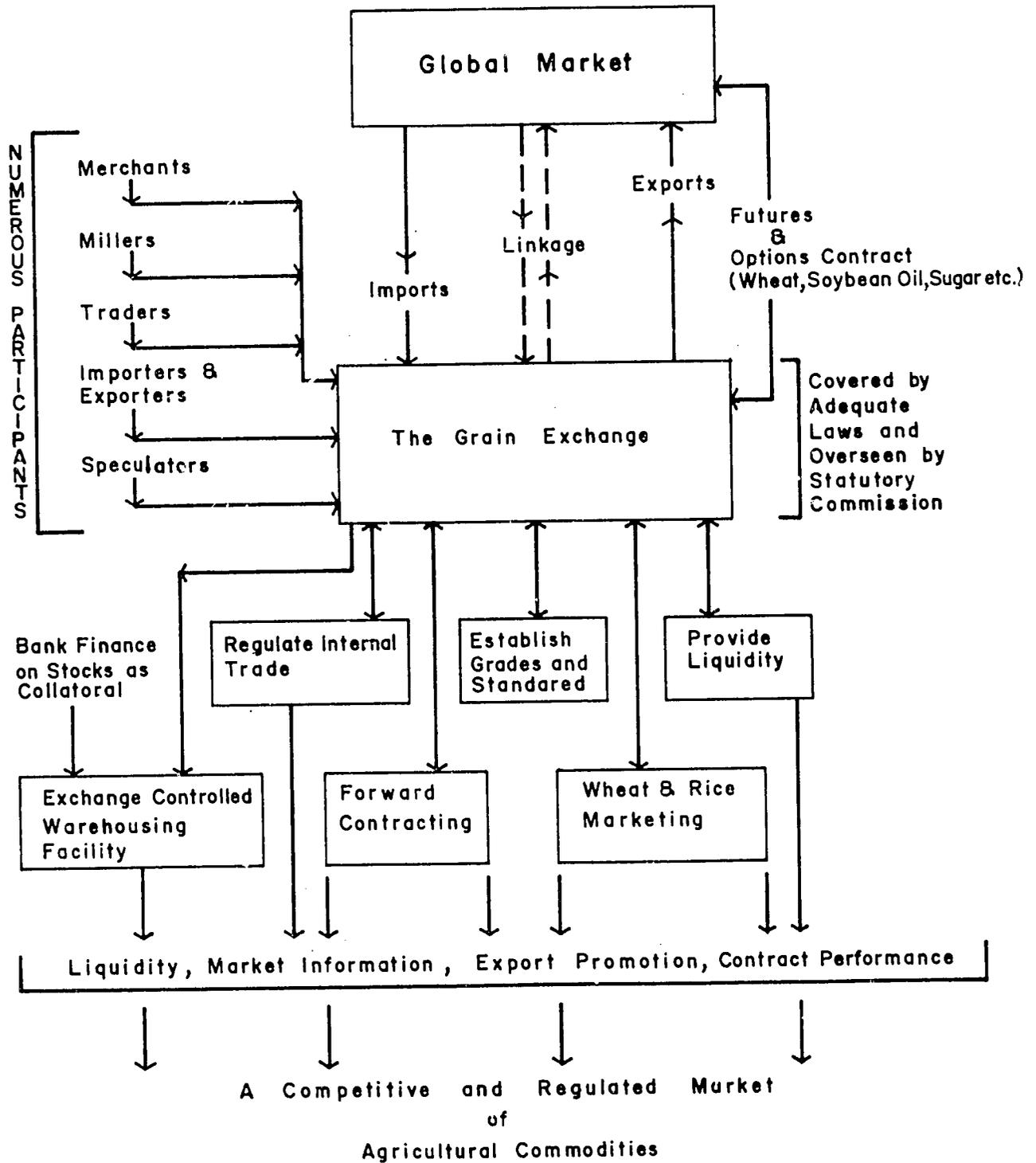
Back to the Futures

The tasks of the envisioned exchange presently lie in the cash markets. With forward contracting, some form of 'to-arrive' pricing is possible. It is not far off to imagine the government tendering to be spread out over the season, to call-forth quantities at a future time and location to cater for their PFDS needs. Such a scenario entirely obviates the need to purchase and store grains in large quantities resulting in unimaginable cost reductions. Similarly, the security-stock requirements may adequately be satisfied with the judicious use of futures and options purchased through the local exchange. In most cases, no physical delivery will be required, again saving countless millions for this resource strapped country.

All these scenarios lead to eventual development of a futures industry where true price stabilization will take place by hedging in local or international markets. While it took over 145 years for the futures markets in USA to reach the present level of maturity, it is entirely within the realms of possibilities to take advantage of this marketing system through the active participation of the local exchange. The Indian exchange plans to do exactly that. In 1994, the Trading Corporation of Bangladesh (TCB) is asking bids to buy sugar from Members of the Refined Sugar Association, London, (RSA) which is, in fact, a specialized Exchange dealing in sugar. The value of the Exchange system is, thus, felt by the Trading Corporation of Bangladesh in obtaining not only a fair price but also certain deliveries, no matter where the spot market has reached. Only a futures market can ensure both. We are tempted to envision the Ministry of Food procuring its rice and wheat supplies from the Grain Exchange in a similar manner in not too distant a future. Resources thus released will contribute towards the general economic development of the country, wherein lies the ultimate food-security of the people.

Diagram - 5

Tasks and Functions of THE GRAIN EXCHANGE



CONCLUSIONS

The hall mark of an efficient market lies in the volume of its trades. This volume is directly dependent upon the number of buyers and sellers — what the economists term 'numerous participants'. This condition implies for markets to be centralized, and that markets thus formed should attract sufficient capital to furnish liquidity. To be successful, these central markets must also possess technical feasibility and serve an economic function. Trading in seasonally produced, storable commodities like rice and wheat are technically feasible to be contracted under 'to-arrive' conditionalities. Economic function is served by the market's ability to shift price-risks by cash forward contracts (crude substitutes for futures) vis-a-vis their relative alternatives. In the present development of food-grain marketing in Bangladesh, the economic need to organize such a market is overwhelming. To enter the highly competitive global marketplace, efficiency and capabilities of the marketing organs are crucial to success. The current volatilities of the rice market and emergence of Vietnam and India as major rice exporters point unmistakably to the urgent need to enhance Bangladesh's competitiveness in near future. Re-organization of the markets and structures towards enhanced efficiency is thus the need of the hour. The gradual reduction of farm and export subsidies and the minimum access opportunities for agricultural products for the South, under General Agreement on Tariffs and Trade (GATT) has opened newer windows of opportunities for Bangladesh. These opportunities are both in rice export prospects and more economic imports of wheat. The use of sophisticated trade instruments of futures and options as a means of buying insurance for production shortfalls (security stocks) are also another possibility of economizing on resources in food operations of Bangladesh. Needless to say, resources thus saved could be most profitably employed in the short-range objectives of providing targeted reliefs for the poor, and for long-range objectives of general economic development, which alone can ensure sustainable food security.

The global scenario of shrinking governmental subsidies everywhere imply stringent measures of efficiency in agricultural marketing. Even in South Asian context, the long established subsidies in the agricultural sectors of India and Pakistan are on the wane —

as both these governments increasingly rely on a liberalized market oriented development strategy. These trends indicate enhanced reliance on market mechanisms what was once traditional functions of the government. To be sure, markets have assumed newer levels of efficiency in this competitive environments. For example, the country elevator operators in the USA use the price quotations from Exchanges as the basis for their purchasing operations with razor sharp (a few cents a bushel) efficiency. (See Appendix- G and H).

All these call for modern marketing organs and a different orientation from the traditional. As the largest trader in the Bangladesh foodgrain market, government may play a pioneering role in organizing the Grain Exchange. Only the will to do so is required, as willing donors who have an interest in the development of Bangladesh, are readily available to finance such a project. The need and the hour is opportune to take such a modernizing measure without further loss of time.

The preceding discussion is not a recipe or an operating manual. It does not say, or imply, what the exact steps are, or that a certain result will materialize. Anyone familiar with a free-market will agree to the proposition that markets are too complex a mechanism to forecast results. For that reason, exact costs of each option has not been estimated. Only a competent broker for the exact transaction may estimate such costs — that too imperfectly. What this discussion does aim to achieve is to describe the objective situation of the foodgrain market of Bangladesh, her potentialities to develop as a major rice exporter, and ways to strengthen market organs to take on newer responsibilities in the new circumstances, which, though unprecedented here, have been experienced before elsewhere. It also aims to draw a general a picture and project an over view of the international grain markets. Particular attention is drawn to the South Asian exporters and likely importers in the international rice market. From these discussions, a blue print for the central marketing organ — The grain Exchange — may eventually be drawn.

In the famous poem, The Road Not Taken, Robert Frost said,

*"Two roads diverged in a yellow wood,
And sorry I could not travel both
And be one traveler, long I stood
And looked*

.....
*I took the one less traveled by,
And that has made all the difference".*

It is indeed a difficult choice for Bangladesh and her government – which path to take, or not to travel at all. But, in all sincerity, let us hope and pray that we take the right one, so that at a future date, we may look back at the path followed, and say with Robert Frost:

'And that has made all the difference.'

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APPENDICES

Appendix A — United States Exchanges

1. Chicago Board of Trade
141 Jackson
Chicago, IL 60604-2994,
USA
312-435-7213
Fax: 312-341-3027
2. Chicago Mercantile Exchange
305, Wacker Dr.
Chicago, IL 60606-7499,
USA
312-930-3424
Fax: 312-930-8219
3. Coffee, Sugar & Cocoa Exchange, Inc.
4 World Trade Center
New York, NY 10048,
USA
212-938-2829
Fax: 212-524-9863
4. Kansas City Board of Trade
4800 Main St.
Kansas City, MO 64112
USA
816-753-7500
Fax: 816-753-3944
5. Mid American Commodity Exchange
141 Jackson,
Chicago, IL, 60604-2994
USA
312-435-7239
Fax: 312-341-3027
6. Minneapolis Grain Exchange
400s 4th St. Grain Exchange Building
Minneapolis, MN 55415
USA
612-338-6212
Fax: 612-339-1155
7. New York Cotton Exchange
4 World Trade Center
New York, NY 10048
USA
212-938-2703 Fax: 212-488-8135

**Appendix B — Organizations and Persons Visited
and
Interviewed**

Thailand

1. Mr. Tanit Sriratanalai
Senior Vice President
Commodity Division
Thai Wah Public Co. Ltd.
Thai Wah Towers
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21/63-66 Sathon Road
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Thailand Tel: 66-2-850040, Fax: 66-2-2850269-70
2. Mr. Surachi Jongpipatchai
Export Manager, STC Group,
Capital Rice Co. Ltd.
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126/104 Krung Thonburi Road
Klong Sam, Bangkok 10600
Thailand Tel: (662) 4394848, Fax: (662) 4394883-84
3. Mr. Sant Pongjetpong
Seng Thong Rice (1968) Co, Ltd.
70-72 Chalermkher 3 Road
Suanmale, Bangkok-10100
Thailand Tel: (662) 2231133-9, Fax: 662-2-240773
4. Mr. Viroon Supmaluang
Managing Director
Siam Stanch and Rice (1966) Co. Ltd.
Suite No. 3C. 02
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5. Mr. Kamchai Iamsuri
Managing Director
Kamol Kij Co., Ltd.
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Bangkok
Thailand Tel: 2341502-9, Telex: No. 82912
6. Mr. Tee Rapong
Rice Exporter's Association
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Thailand Tel: 2872674-7, Fax: (662) 2872678

United States of America

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2. Mr. Ned J. Bond Jr.
Chairman,
Philip Rahm, Inc
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Houston, Texas 77040,
USA Tel: (713)937/3700, Fax:(713)937/3713
3. Mr. Dennis Delaughter
President
Progressive Farm Marketing, Inc
Jackson Co. State Bank Bld. Suite 205
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8. Mr. Jacky R. Clements
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9. Mr. Lee Hummelstein
Chairman,
Hummelstein Iron & Metal, Inc.
105 South Flint St.
1580 Jonesboro, Arkansas
USA Tel: 501-932-8361, 1-800-383-3060
10. Mr. John R. Muir
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Continental Grain Company
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USA Tel: 815-265-7251
11. Mr. John Elliott
Editor
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Gilman, IL, 6938
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12. USA Rice Counsil
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Houston, Texas 77074
USA Tel: (713) 270-6699
13. Mr. Neauman Coleman
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Dean, Whitter, Reynolds, Inc.
6410 Poplar Ave, Suite 600,
Memphis TN, USA Tel: (800) 659-6659
14. Mr. Milo Hamilton
Sr. Vice President
Uncle Ben's Inc.
5721 Harvey Wilson Dr.
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USA Tel: 713-674-9484
15. Mr. Jerome Turtola
Development Resources Specialist
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4. Continental Grains (UK) Ltd.
Southside, 105
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Baltic Exchange.
14/13 St Mary Axe
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Appendix C — Basic Facts of the World Cereal Situation (1989/90 to 1993/94)

	1989/90	1990/91	1991/92	1992/93 estimation	1993/94 forecast	Change 1993/94 over 1992/93
WORLD PRODUCTION 1/	(.....millions tons.....)					(percentage)
Rice (Paddy)	516	521	520	528	520	- 1.4
Wheat	539	593	547	566	565	- 0.2
Coarse grains	814	834	813	870	796	- 8.5
All cereals	1869	1948	1880	1963	1881	- 4.2
Developing countries	1004	1035	1042	1070	1080	+ 0.9
Developed Countries	865	913	337	893	801	- 10.3
WORLD IMPORTS 2/						
Rice (milled)	11	12	14	14	15	+ 5.5
Wheat	95	91	107	100	91	- 9.6
Coarse grains	102	84	95	92	82	- 11.0
All cereals	206	186	216	207	188	- 9.2
Developing countries	123	114	129	127	125	- 1.9
Developed countries	85	73	87	80	63	- 20.9
FOOD AID IN CEREALS 3/ WORLD UTILIZATION	11.3	12.4	13.1	15.2	11.8	- 22.6
Rice (milled)	335	341	349	355	355	+ -
Wheat	533	565	550	557	566	+ 1.6
Coarse grains	825	817	823	842	832	- 1.2
All cereals	1693	1723	1722	1754	1754	-
Developing countries	922	938	955	988	1005	+ 1.7
Developed countries	771	784	767	766	749	- 2.3
Per Caput Food Use	(..... kg/year ...)					
Developing countries	170.6	169.4	168.2	169.9	170.1	+ 0.1
Developed countries	133.8	130.9	133.0	135.2	134.8	- 0.3
WORLD STOCKS 4/	(..... million tons					
Rice (milled)	57	64	62	61	52	+ 14.5
Wheat	119	142	136	145	143	- 1.3
Coarse grains	129	142	133	160	126	- 21.2
All cereals	305	348	331	365	321	- 12.2
Developed countries	140	155	160	150	154	- 3.8
Developed countries	165	193	171	205	167	- 18.8
Stocks as % of world cereal consumption	(..... percentage					
consumption	18	20	19	21	18	

EXPORT PRICES ^{3/}	(..... U.S.\$/ton					
Rice (Thai, 100%, 2nd grade) ^{1/}	305	275	302	278	250	- 10.1
Wheat (U.S. No. 2 Hard Winter)	161	118	150	142	114 ^{6/}	- ^{5/}
Maize (U.S. No. 2 Yellow)	110	106	110	97	112 ^{6/}	- 16.5 ^{5/}
OCEAN FREIGHT RATES^{3/}						
From U.S. Gulf to Egypt	17.5	18.4	18.1	12.2	15.4 ^{6/}	- 23.5 ^{5/}
LOW-INCOME FOOD-DEFICIT COUNTRIES^{7/}	(..... Million tons					
Roots & tubers production ^{1/}	303	308	314	320	331	+ 3.4
Pulses production ^{1/}	28	29	31	28	30	+ 7.1
Cereal production ^{1/}	783	813	808	823	833	+ 1.2
Per caput production (k.g)	249	253	247	246	244	- 0.8
Cereal imports ^{2/}	57	56	63	63	58	- 2.7
of which: Food aid ^{3/}	8.2	9.7	10.2	9.8	7.0	- 28.6
Proportion of cereal import covered by food aid	(..... percentage					
	14	17	16	16	12	
Value of commercial cereal imports ^{3/}	(..... million U.S.\$					
	8 700	6 600	8 100	7 900	7 800	- 1.3

Source: FAO

Note: Totals and percentages computed from unrounded data.

^{1/} Data refer to the calendar year of the first year shown. ^{2/} July/June except for rice for which the data refer to the calendar year of the second year shown. ^{3/} July/June. ^{4/} Stock data are based on aggregate of national carryover levels at the end of national crop years. ^{5/} Change from corresponding period of previous year for which figures are not shown. ^{6/} Average of quotations for July 1993 February 1994. ^{7/} Includes all food deficit countries which per caput income below the level used by the World to determine eligibility for IDA assistance (i.e., US\$ 1305 in 1992), which in accordance with the guidelines and criteria agreed to by the CFA should be given priority in the allocations of food aid.

Appendix D -- Definitions of Terms Used in Rice Marketing

Definitions of Terms Used in the Rice Trade as adopted by the Working Party on Rice Grading and Standardization set up under the FAO Rice Study Group, 1972, given below. They are standard terms used in International Rice Trade.

A. GENERAL

Stalk paddy: Paddy with part of the stalk attached.

Paddy: Rice in the husk after threshing (called rough rice in some countries)

Rice: Kernels obtained after husking or milling of paddy

Sample: A small quantity taken from various portions of a lot so as to be representative of the lot.

B. INTRINSIC CHARACTER

Bold rice: The length of whole kernels is between two and three times their breadth. Also known as medium grain rice.

Extra heavy rice: 1000 whole milled kernels with 14 percent moisture weigh over 28g.

Extra long rice: Rice with 80 percent or more of whole milled kernels having an average length of 7.0 mm and above.

Glutinous rice: A special botanical variety whose grains are white and chalky in appearance. It tends to coagulate into a sticky mass when cooked.

Heavy rice: 1000 whole milled kernels with 14 percent moisture weigh 20-25 g.

Long rice: Rice with 80 percent or more of whole milled kernels having an average length of 6.00 to 6.99 mm.

Medium rice: Rice with 80 percent or more of whole milled kernels having and average length of 5.0 to 5.99 mm.

Moderately heavy rice: 1000 whole milled kernels with 14 percent moisture weigh under 20 g.

Round rice: The length of whole milled kernels is less than twice the breadth. Also known as short grain rice.

Shape: Relationship of length of breadth of a whole rice kernel.

Short rice: Rice with 80 percent or more of whole milled kernels having a length of less than 5.0 mm.

Size: Length of at least 80 percent of whole milled kernels.

Slender rice: The length of the milled kernel is over three times the breadth. Also known as long grain rice.

C. PROCESSING

Bran: The outer bran layer without part of the germ.

Coated rice: Milled rice which has been coated with special powder and glucose. Also known as glazed rice.

Degree of milling: Extent of milling expressed with reference to the removal of the germ, and the outer and inner bran layers.

Enriched rice: Milled rice which has been treated to enhance its nutritive value by adding vitamins and minerals and sometimes protective coating.

Extra well milled rice: Paddy from which the husk, the germ (in the case of round rice, part of the germ) and the bran layers have been completely removed.

Germ: Small white portion at one end of the rice kernel from where the seed germinates.

Husk: Out thick cover of paddy, the removal of which turns it into rice. Also known as hull.

Husked rice: Kernels from which only the husk has been removed. It is also known as brown rice, hulled rice, cargo rice, loonzain rice and sbramoto rice.

Milled rice: Paddy from which the husk has been removed and the layers of bran wholly or partly removed from the kernels (also known as white rice).

Nongelatinized rice: Whole or broken kernels of parboiled rice with distinct white or chalky areas due to incomplete gelatinization of the starch.

Oiled rice: Milled rice to which a thin coat of edible oil has been applied.

Parboiled rice: Rice which, before milling, has been soaked in hot water or steamed under pressure, and then dried.

Polishings: The outer bran layer, part of the germ and of the starchy grain.

Reasonably well milled rice: Paddy from which the husk, the germ (in the case of round rice, part of the germ), the outer bran layers and the greater part of the inner bran layers have been removed, but parts of the lengthwise streaks of the

bran layers may still be present on not more than 30 percent of kernels.

Undermilled rice: Paddy from which the husk, a part of the germ, and all or part of only the outer bran layers have been removed.

Well milled rice: Paddy from which the husk, the germ (in the case of round rice, part of the germ), the outer bran layers and the greater part of the inner bran layers have been removed, but parts of the lengthwise streaks of the bran layers may still be present on not more than 10 percent of the kernels.

Whole rice: A kernel or a piece of kernel having length greater than three quarters of the average length of the unbroken kernel (sometimes called head rice)

D. ACQUIRED CHARACTERISTICS

Big broken: Pieces of kernels equal to or smaller than three quarters but bigger than one half of the average length of the unbroken kernel.

Broken: Pieces of kernels equal to or smaller than three quarters of the average length of the unbroken kernel.

Chalky kernel: Kernel, whole or broken, one half or more of which is white like the colour of chalk.

Chemical residue: Chemical residue in or on rice acquired at any stage during growing, processing or marketing other than as approved substance added for human nutritional purposes.

Chips: Pieces of kernel that pass through a sieve which has round perforations not greater than 1.4 mm in diameter.

Commercially objectionable foreign odours: Odours entirely foreign to rice which render it unfit for its normal commercial usage.

Contrasting classes: Kernels, whole or broken, of varieties of rice other than the variety designated, wherein size and shape of kernels differ distinctly from characteristics of kernels of the variety or class designated.

Damaged kernels: Kernels, whole or broken, which are distinctly damaged by insects, water, fungi or any other means, including parboiled kernels in nonparboiled rice.

Discoloured kernels: Kernels, whole or broken, that have changed their normal colour as a result of heating, including parboiled kernels in nonparboiled rice which are as dark as those discoloured as a result of heating.

Foreign matter: All matter other than rice kernels, broken or whole, rice polishings and paddy.

Grade: A designation indicating the quality of rice determined with reference to its acquired characteristics.

Green kernels: Immature kernels which are unripe and green in colour.

Immature kernels: Kernels, whole or broken, which are unripe or underdeveloped.

Insect-free rice: Rice which does not contain live or dead weevils or other insects, insect webbing or insect refuse.

Lightly infested rice: Rice in which insects are not obvious before sieving, and there are not more than 20 living or dead insects, of which not more than 5 are weevils (*Sitophilus* spp.) per 100 kg of rice.

Medium broken: Those parts of a kernel which are equal to or smaller than one half but bigger than one quarter of the average length of the unbroken kernel.

Mixed rice: A lot of rice in which a minimum of 80 percent of whole milled kernels cannot be placed exclusively in any single variety, size, shape or weight classification.

Red kernels: Kernels, whole or broken, which have 25 percent or more of their surface coated with red bran.

Red streaked kernels: Kernels, whole or broken, having red streaks the total length of which amounts to one half or more of the length of the kernel, but which are free from red patches amounting to 25 percent of the surface area of the grain.

Small broken: Those pieces of a kernel which do not exceed one quarter of the average length of the unbroken kernel, the minimum limit varying with different grades of rice, but do not pass through a sieve with round perforations of 1.4 mm in diameter.

Stained or spotted kernels: Kernels, whole or broken, which show on their surface evident alterations in colour, including black streaks or dark haloes.

Yellow kernels: Kernels or pieces of kernel which possess yellow discoloration due to deterioration.

Appendix E — Glossary of Terms as is Used in Commodity Trading

Arbitrage: The simultaneous purchase and sale of similar commodities in different markets to take advantage of a price discrepancy.

Arbitration: The procedure of settling disputes between members, or between members and customers.

Assign: To make an option seller perform his obligation to assume a short futures position (as a seller of a call option) or a long futures position (as a seller of a put option).

At-the-Money Option: An option with a strike price that is equal, or approximately equal, to the current market price of the underlying futures contract.

Basis: The difference between the current cash price and the futures price of the same commodity. Unless otherwise specified, the price of the nearby futures contract month is generally used to calculate the basis.

Basis Risk: the risk associated with an unexpected widening or narrowing of basis between the time a hedging position is established and the time that it is lifted.

Bear: Someone who thinks market prices will decline.

Bear Market: A period of declining market prices.

Bid: An expression indicating a desire to buy a commodity at a given price; opposite of offer.

Black-Scholes Model: An option pricing formula initially derived by F. Black and M. Scholes for securities options and later refined by Black for options on futures.

Board of Trade: Any exchange or association, whether incorporated or unincorporated, of persons who are engaged in the business of buying or selling any commodity or receiving the same for sale on consignment.

Board of Trade Clearing Corporation: An independent corporation that settles all trades made at the Chicago Board of Trade acting as a guarantor for all trades cleared by it, reconciles all clearing member firm amounts each day to ensure that all gains have been credited and all losses have been collected, and sets and adjusts clearing member firm margins for changing market conditions. See **Clearinghouse**.

Broker: A person paid a fee or commission for executing buy or sell orders of a customer. In commodity futures trading, the term may refer to: (1) Floor Broker—a person who actually executes orders on the trading floor of an exchange; (2) Account Executive, Associated Person, Registered Commodity Representative or Customer's Man—the person who deals with customers in the offices of futures commission merchants; and (3) the Futures Commission Merchant.

Brokerage Fee: Sec Commission Fee.

Bull: Someone who thinks market prices will rise.

Buying Hedge (or Long Hedge): Hedging transaction in which futures contracts are bought to protect against possible increases in the cost of commodities, See **Hedging**.

Call Option: An option that gives the buyer the right, but not the obligation, to purchase (go "long") the underlying futures contract at the strike price on or before the expiration date.

Carrying Charge: For physical commodities such as grains, the cost of storage space, insurance, and finance charges incurred by holding the commodity. Also referred to as *cost of carry or carry*.

Cash Commodity: An actual physical commodity someone is buying or selling, e.g., soybeans, corn, gold, silver, Treasury bonds, etc. Also referred to as *actuals*.

Cash Contract: A sales agreement for either immediate or future delivery of the actual product.

Cash Market: The market for the cash commodity (as contrasted to a futures contract), taking the form of: (1) an organized, self-regulated central market (e.g., a commodity exchange); (2) a decentralized over-the-counter market; or (3) a local organization, such as a grain elevator or meat processor, which provides a market for a small region.

Cash Settlement: Transactions generally involving index-based futures contracts such as feeder cattle or stock index futures that are settled in cash based on the actual value of the index on the last trading day, in contrast to those that specify the delivery of a commodity or financial instrument.

Cheap: Colloquialism implying that a commodity is underpriced.

Clearing: The procedure through which the clearinghouse or association becomes buyer to each seller of a futures contract, and seller to each buyer, and assumes responsibility for protecting buyers and sellers from financial loss by assuring performance on each contract.

Clearing Corporation: See **Board of Trade Clearing Corporation**.

Clearinghouse: An agency or separate corporation of a futures exchange that is responsible for settling trading accounts, clearing trades, collecting and maintaining margin monies, regulating delivery, and reporting trading data. Clearinghouses act as third parties to all futures and options contracts—acting as a buyer to every clearing member seller and a seller to every clearing member buyer.

Clearing Member: A member of an exchange clearinghouse. Memberships in clearing organizations are usually held by companies. Clearing members are responsible for the financial commitments of customers that clear through their firms.

Commission Fee: A fee charged by a broker for executing a transaction. Also referred to as *Brokerage fee*.

Commission House: See **Futures Commission Merchant (FCM)**

Commodity: An article of commerce or a product that can be used for commerce. In a narrow sense, products traded on an authorized commodity exchange. The types of commodities include agricultural products, metals, petroleum, foreign currencies, and financial instruments and indexes.

Commodity Futures Trading Commission (CFTC): A federal regulatory agency established under the Commodity Futures Trading Commission Act, as amended in 1974, that oversees futures trading in the United States. The commission is comprised of five commissioners, one of whom is designated as chairman, all appointed by the President subject to Senate confirmation, and is independent of all cabinet departments.

Contract Grades: See **Deliverable Grades**

Convergence: The tendency for prices of physical and futures to approach one another, usually during the delivery month. Also called a "narrowing of the basis".

Cost of Carry (or Carry): See **Carrying Charge**.

Crop (Marketing) Year: The time span from harvest to harvest for agricultural commodities. The crop marketing year varies slightly with each ag commodity, but it tends to begin at harvest and end before the next year's harvest, e.g., the marketing year for soybeans begins September 1 and ends August 31. The futures contract month of November represents the first major new-crop marketing month, and the contract month of July represents the last major old-crop marketing month for soybeans.

Cross-Hedging: Hedging a cash commodity using a different but related futures contract when there is no futures contract for the cash commodity being hedged and the cash and futures markets follows similar price trends (e.g., using corn futures to hedge grain sorghum).

Crush: The purchase of soybean futures (or cash soybeans) and the simultaneous sale of soybean oil and meal futures (or cash soybean oil and meal). This spread approximates returns to processing and can be used to minimize the financial risks of sudden increases in soybean costs or declining values of finished soybean oil and meal.

Customer Margin: Within the futures industry, financial guarantees required of both buyers and sellers of futures contracts and sellers of options contracts to ensure fulfillment of contract obligations. Futures commission merchants are responsible for overseeing customer margin accounts. Margins are determined on the basis of market risk and contract value. Also referred to as *performance-bond*.

Deck: Customer orders for purchase or sale of futures and option contracts held in the hands of a floor broker.

Deferred Futures: The futures contracts that expire during the most distant months. Also called *back months*.

Deliverable Grades: The standard grades of commodities or instruments listed in the rules of the exchanges that must be met when delivering cash commodities against futures contracts. Grades are often accompanied by a schedule of discounts and premiums allowable for delivery of commodities of lesser or greater quality than the standard called for by the exchange. Also referred to as *contract grades*.

Delivery: The tender or receipt of the actual commodity, of the cash value of the commodity, or of a delivery instrument covering the commodity (e.g., warehouse receipts or shipping certificates), used to settle a futures contract.

Delivery Day: The third day in the delivery process at the Chicago Board of Trade, when the buyer's clearing firm presents the delivery notice with a certified check for the amount due at the office of the seller's clearing firm.

Delivery Points: The locations and facilities designated by a futures exchange where stocks of a commodity may be delivered in fulfillment of a futures contract, under procedures established by the exchange.

Delta: A measure of how much an option premium changes, given a unit change in the underlying futures price. Delta often is interpreted as the probability that the underlying futures price will move in-the-money by expiration.

Differentials: Price differences between classes, grades, and delivery locations of various stocks of the same commodity.

Equilibrium Price: The market price at which commodity supply equals demand.

Exercise: To take advantage of the right (but not the obligation) conferred by an option contract by electing to acquire a position long (if a call holder) or short (if a put holder) the underlying futures contract.

Exercise Price: See **Strike Price**

Expiration Date: Options on futures generally expire on a specific date during the month preceding the futures contract delivery month. For example, an option on a March futures contract expires in February but is referred to as a March option because its exercise would result in a March futures contract position.

Extrinsic Value: See **Time Value**

Feed Ratio: A ratio used to express the relationship of feeding costs to the dollar value of livestock. See **Hog/Corn Ratio** and **Steer/Corn Ratio**.

First Notice Day: According to Chicago Board of Traded rules, the first day on which a notice of intent to deliver a commodity in fulfillment of a given months's futures contract can be made by the clearinghouse to a buyer. The clearinghouse also informs the sellers who they have been matched up with.

Floor Broker: Any person who, in or surrounding any pit or other place provided by a contract market for the meeting of persons similarly engaged, executes for another person any orders for the purchase or sale of any commodity for future delivery.

Forward (Cash) Contract: A contract in which a seller agrees to deliver a specific cash commodity to a buyer sometime in the future. In contrast to futures contracts, forward contracts are privately negotiated and are not standardized.

Full Carrying Charge Market: A futures market where the price difference between delivery months reflects the total costs of interest, insurance, and storage.

Futures Commission Merchant (FCM): An individual or organization that solicits or accepts orders to buy or sell futures contracts or options on futures and accept money or other assets from customers to support such orders. Also referred to as *a commission* or *wire house*.

Futures Contract: A legal binding agreement made on the trading floor of a futures exchange to buy or sell a commodity or financial instrument sometime in the future. Futures contracts are standardized according to the quality, quantity, and delivery time and location for each commodity. The only variable is price, which is discovered on an exchange trading floor.

Gross Processing Margin (GPM): The difference between the cost of soybeans and the combined sales income of the processed soybean oil and meal.

Hedger: An individual or company owning or planning to own a cash commodity—such as corn, soybeans, wheat, or U.S. Treasury bonds-- and concerned that the cost of the commodity may change before either buying or selling it in the cash market. Short hedgers achieve protection against changing cash prices by selling futures contracts of the same or similar commodity and later offsetting that position by purchasing futures contracts of the same quantity and type as the initial transaction. Long hedgers reverse that order, buying futures initially and selling them later to offset the hedge position.

Hedging: The practice of offsetting the price risk inherent in any cash market position by taking an equal but opposite position in the futures market. Hedgers use the futures markets to protect their businesses from adverse price changes. See **Selling (Short) and Purchasing (Long) Hedge**.

Holder: See **Option Buyer**.

Initial Margin: The amount a futures market participant must deposit into his margin account at the time he places an order to buy or sell a futures contract.

In-the-Money Option: An option having intrinsic value. A call option is in-the-money if its strike price is below the current price of the underlying futures contract. A put option is in-the-money if its strike price is above the current price of the underlying futures contract. See **Intrinsic Value**.

Intrinsic Value: A measure of the value of an option if immediately exercised. The amount by which the current price for the underlying commodity or futures contract is above the

strike price of a call option or below the strike price of a put option for the commodity or futures contract.

Introducing Broker (IB): A person or organization that solicits or accepts orders to buy or sell futures contracts or commodity options but does not hold money or other assets from customers to support such orders. Rather, FCMs hold customer funds in segregated funds for maximum safety.

Inverted Market: A futures market in which the nearer months are selling at prices higher than the more distant months; a market displaying "inverse carrying charges," characteristic of markets with supply shortages.

Last Trading Day: According to Chicago Board of Trade rules, the final day when trading may occur in a given futures or options contract month. Futures contracts outstanding at the end of the last trading day must be settled by delivery of the underlying commodity or securities or by agreement of monetary settlement.

Limit Order: An order in which the customer specifies a price limit or other condition, such as time of an order, as contrasted with a market order, which implies that the order should be filled as soon as possible.

Liquid Market: A market in which selling and buying can be accomplished with minimal price change.

Liquidate: Selling (or purchasing) futures contracts of the same delivery month purchased (or sold) during an earlier transaction or making (or taking) delivery of the cash commodity represented by the futures contract. See **Offset**.

Local: A member of a U.S. exchange who trades for his own account or fills for customers and whose activities provide market liquidity. See **Floor Broker**.

Long: (1) One who has bought a futures contract to establish a market position; (2) a market position which obligates the holder to take delivery; (3) one who owns an inventory of commodities, See **Short**.

Long Hedge: See **Purchasing Hedge**.

Long the Basis: A person or firm that has bought the spot commodity and hedged with a sale of futures is said to be long the basis.

Maintenance Margin: A set minimum amount that a customer must maintain in his brokerage account.

Margin Call: (1) A request from a brokerage firm to a customer to bring margin deposits up to maintenance levels; (2) a request by the clearinghouse to a clearing member to make a deposit of original margin, or a daily or intra-day variation payment, because of adverse price movement, based on positions carried by the clearing member.

Market Order: An order to buy or sell a futures contract of a given delivery month to be filled at the best possible price and as soon as possible.

Market-to-Market: Daily cash floor system used by U.S. futures exchanges to maintain a minimum level of margin equity for a given futures or option contract position by calculating the gain or loss in each contract position resulting from changes in the price of the futures or option contracts at the end of each trading day.

Minimum Price Fluctuation: See **Tick**.

National Futures Associations (NFA): An industry-wide, industry supported, self-regulatory organization for futures and options markets. The primary responsibilities of the NFA are to enforce ethical standards and customer protection rules, screen futures professional for membership, audit and monitor professionals for financial and general compliance rules, and provide for arbitration of futures-related disputes.

Nearby (Deliver) Month: The futures contract month closest to expiration. Also referred to as *spot month*.

Notice Day: According to Chicago Board of Trade rules, the second day of the three-day delivery process when the clearing corporation matches the buyer with the oldest reported long position to the delivering seller and notifies both parties. See **First Notice Day**.

Offer: An expression indicating one's desire to sell a commodity at a given price; opposite of bid.

Offset: Taking a second futures or options position opposite the initial or opening position. See **Liquidate**.

Open Interest: The total number of futures or options contracts of a given commodity that have not yet been offset by an opposite futures or option transaction nor fulfilled by delivery of the commodity or option exercise. Each open transaction has a buyer and a seller, but for calculation of open interest, only one side of the contract is counted.

Open Outcry: Method of public auction for making verbal bids and offers in the trading pits or rings of futures exchanges.

Option: A contract that conveys the right, but not the obligation, to buy or sell a particular commodity at a certain price for a limited time. Only the seller of the option is obligated to perform.

Option Buyer: The purchaser of either a call or put option. Option buyers receive the right, but not the obligation, to assume a futures position. Also referred to as the holder.

Option Premium: The price of an option — the sum of money that the option buyer pays and the option seller receives for the rights granted by the option.

Option Seller: The person who sells an option in return for a premium and is obligated to perform when the holder exercises his right under the option contract. Also referred to as the *writer*.

Out-of-the-Money Option: An option with no intrinsic value, i.e., a call whose strike price is above the current futures price or a put whose strike price is below the current futures price.

P&S (Purchase and Sale) Statement: A statement sent by a commission house to a customer when his futures or options on futures position has changed, showing the number of contracts bought or sold, the prices at which the contracts were bought or sold, the gross profit or loss, the commission charges, and the net profit or loss on the transactions. Also known as a *commission house statement*.

Performance Bond Margin: The amount of money deposited by both a buyer and seller of futures contract or an options seller to ensure performance of the term of the contract. Margin in commodities is not a payment of equity or down payment on the commodity itself. Rather, it is a security deposit.

Pit: The area on the trading floor where futures and options on futures contracts are bought or sold. Pits are usually raised octagonal platforms with steps descending on the inside that permit buyers and seller of contracts to see each other.

Position: A market commitment. A buyer of futures contracts is said to have a long position. Conversely, a seller of futures contracts is said to have a short position.

Position Day: According to Chicago Board of Trade rules, the first day in the process of making or taking delivery of the actual commodity on the futures contract. The clearing firms representing the sellers notify the Board of Trade Clearing Corporation that their short customers want to deliver on a futures contract.

Position Limit: The maximum number of speculative futures contracts one can hold as determined by the Commodity Futures Trading Commission or the exchange upon which the contract is traded. Also referred to as *trading limit*.

Premium: (1) The additional payment allowed by exchange regulation for delivery of higher-than-required standards or grades of a commodity against a futures contract. (2) In speaking of price relationships between different delivery months of a given commodity, one is said to be "trading at a premium" over another when its price is greater than that of the other.

Price Discovery: The process of determining the price level for a commodity based on supply and demand factors.

Price Limit order: A customer order that specifies the price at which a trade can be executed.

Purchasing Hedge (or Long Hedge): Buying futures contracts to protect against a possible price increase of cash commodities that will be purchased in the future. At the time the cash commodities are bought, the open futures position is closed by selling an equal number and type of futures contracts as those that were initially purchased. Also referred to as a *buying hedge*. See **Hedging**.

Put Option: An option that given the option buyer the right but not the obligation to sell (go "short") the underlying futures contract at the specified strike price on or before the expiration date.

Risk Disclosure Statement: A document enumerating some of the risks involved in trading futures and options on futures that a customer who wishes to trade futures or options of futures must sign before opening an account with a brokerage firm.

Scalper: A speculator on the trading floor of an exchange who buys and sells rapidly, with small profits or losses, holding his positions for only a short time during a trading session. Typically, a scalper will stand ready to buy at a fraction below the last transaction price and to sell at a fraction above, thus creating market liquidity.

Selling Hedge (or Short Hedge): Selling futures contracts to protect against possible declining prices of commodities that will be sold in the future. At the time the cash commodities are sold, the open futures position is closed by purchasing an equal number and type of futures contracts as those that were initially sold. See **Hedging**.

Settle: See **Settlement Price**

Settlement Price: The last price paid for a commodity on any trading day. The exchange clearinghouse determines a firm's net gains or losses, margin requirements, and the next day's price limits, based on each futures and options contract settlement price. If there is a closing range of prices, the settlement price is determined by averaging those prices. Also referred to as *settle* or *closing price*.

Short: (noun) One who has sold futures contracts or plans to purchase a cash commodity. (verb) Selling futures contracts or initiating a cash forward contract sale without offsetting a particular market position.

Short the Basis: A person or firm that is short the cash commodity and has hedged with a purchase of futures is said to be short the basis.

Speculator: A market participant who tries to profit from buying and selling futures and options contracts by anticipating futures price movements. Speculators assume market price risk and add liquidity, capital, and information to the futures markets.

Spot: Usually refers to a cash market price for a physical commodity that is available for immediate delivery.

Spot Month: See **Nearby (Delivery) Month**.

Spread (or Straddle): The purchase of one futures delivery month against the sale of another futures delivery of the same commodity; the purchase of one delivery month of one commodity against the sale of that same delivery month of a different commodity; or the purchase of one commodity in one market against the sale of that commodity in another market, to take advantage of and profit from a change in price relationships. The term spread is also used to refer to the difference between the price of one futures month and the price of another month of the same commodity. A spread can also apply to options.

Spreading: The simultaneous buying and selling of two related markets in the expectation that a profit will be made when the position is offset. See **Spread (or Straddle)**.

Stop-Limit Order: A variation of a stop order in which a trade must be executed at the exact price or better. If the order cannot be executed, it is held until the stated price or better is reached again.

Stop Order: An order to buy or sell when the market reaches a specified point. A stop order to buy becomes a market order when the commodity or security trades (or is bid) at or above the stop price. A stop order to sell becomes a market order when the commodity or security trades (or is offered) at or below the stop price.

Strike Price: The price at which the futures contract underlying a call or put option can be purchased (if a call) or sold (if a put). Also referred to as *exercise price*.

Supply, Law of: The relationship between product supply and its price.

Synthetic Futures: A position created by combining call and put options. A synthetic long futures position is created by combining a long call option and a short put option for the same expiration date and the same strike price. A synthetic short futures is created by combining a long put and a short call with the same expiration date and the same strike price.

Tick: The smallest allowable increment of price movement for a contract. Also referred to as *minimum price fluctuation*.

Time Value: The amount of money option buyers are willing to pay for an option in the anticipation that, over time, a change in the underlying futures price will cause the option to increase in value. In general, an option premium is the sum of time value and intrinsic value. Any amount by which an option premium exceeds the option's intrinsic value can be considered time value. Also referred to as *extrinsic value*.

Underlying Futures Contract: The specific futures contract that is bought or sold by exercising an option.

Variation Margin: During periods of great market volatility or in the case of high-risk accounts, additional margin deposited by a clearing member firm to an exchange clearinghouse.

Volatility: A measurement of the change in price over a given time period. It is often expressed as a percentage and computed as the annualized standard deviation of percentage change in daily price.

Volume: The number of purchases or sales of a commodity futures contract made during a specified period of time, often the total transactions for one trading day.

Warehouse Receipt: A document guaranteeing the existence and availability of a given quantity and quality of a commodity in storage; commonly used as the instrument of transfer of ownership in both cash and futures transactions.

Wire House: See **Futures Commission Merchant (FCM)**.

Source: Chicago Board of Trade: Commodity Marketing, Keith Schap, 1993

Appendix F — Standard Security Agreement and Assignment of Hedging Account

WHEREAS, the undersigned, _____ hereinafter called the Debtor, whose address is _____ carries an account (Number _____) with the firm of _____ as brokers, hereinafter called the broker, whose address is _____ for trading _____

WHEREAS, Debtors are now and/or may hereafter become indebted to Bank _____ hereinafter called the Secured party, whose address is _____

NOW THEREFORE, it is agreed by and between the parties hereto as follows:

1. As security for the obligations of Debtors to Secured Party, and for the payment of all monies which the Secured Party may hereafter loan or advance to Debtors, Debtors hereby grant a security interest in and assign and transfer to Secured party all funds which may hereafter accumulate or become withdrawable from or paid out of the above described account of the Debtors with Broker, including any balance which may remain to the credit of said account upon the closing thereof; subject, however to the prior payment of the indebtedness of Debtors to Broker as such may exist from time-to-time, which arises out of transactions connected with said account, but not otherwise, including fees and commissions, which may have been incurred in connection with Debtor's transaction with Broker affecting said account, and to the Broker's lien, and the right of foreclosure thereof in connection with the indebtedness of Debtors to Broker incurred in connection with said account (including any right of the Broker to close out open positions without prior demand for additional margin and without prior notice).
2. The Broker is hereby authorized and directed to pay to the Secured party upon its demand all funds that may hereafter be withdrawable or payable out of said

account of the Debtor with the Broker and the Debtor agrees that they will not withdraw or attempt to withdraw any funds or other property from said account except as permitted by this Agreement. The Secured Party is hereby authorized and fully empowered without further authority from the Debtors to request the Broker to remit to the Secured Party any funds that may be due to the Debtors, and the Broker is hereby authorized and directed to pay to the Secured party such sums as it shall so request or demand without the consent of or notice to the Debtors.

3. Debtors hereby constitute and appoint Secured Party their true, lawful and irrevocable attorney to demand, receive and enforce payments and to give receipts, release, satisfaction for, and to sue for all monies payable to Debtors or either of them, and this may be done in the name of the Secured party with the same force and effect as Debtors could do had this Security Agreement not been made. Any and all monies or payments which may be received by Debtors as trustee for Secured Party will be immediately delivered in kind to Secured Party without commingling.
4. Nothing herein contained shall be construed so as to prevent Debtors from remaining the owner, subject to the interest of Secured Party as it may appear, of the account with broker. Until the Secured Party elects to the contrary and delivers notice of such election by telephone (with written confirmation being furnished within 48 hours) to Broker, Debtor may make such additional transactions in said account with Broker as Broker shall be willing to accept for execution. In the event Secured party does make such election and does deliver notice to broker, Debtors shall not thereafter execute any transactions in said account and Broker shall not accept for execution any such transactions without the concurrence of Secured Party, except transactions in liquidation of any then outstanding commodity or commodity futures positions.
5. Whenever Secured party deems it necessary for its protection it shall be entitled, without the consent or concurrence of, or prior notice to Debtor, to direct Broker to liquidate any or all then outstanding open positions in said commodity account and to direct the Broker to pay to Secured Party the credit balance as shall exist

transactions in this account.

6. Any sums paid by Broker from said account to Secured party shall be applied by Secured party to the payment of any indebtedness owing by Debtors to Secured party. The balance remaining after the payment of said indebtedness shall be paid by Secured party to Debtors. The receipt or receipts of Secured Party for such funds so paid to it by Broker shall as to Broker operate as the receipt of Debtors as fully and as completely as if funds had been paid to Debtors in person and receipted for by Debtors.
7. If at any time during the continuance of any such contract or contracts, Broker may require additional margin in order to protect such contract or contracts. Secured Party may advance to broker on behalf of Debtors such amounts as may be required to protect such contracts, provided, however, that the Debtors shall in all respects remain liable to Secured Party for any amounts so advanced.
8. Secured party is hereby authorized and empowered to receive from Broker, and Broker is authorized and directed to deliver to Secured Party copies of all confirmations on all contracts executed for the account of Debtors, copies of the monthly position and ledger account of Debtors, and copies of any and all matters pertaining to said account of the Debtor with the Broker.
9. As between Debtors and Secured Party, this instrument shall remain in full force and effect until cancelled in writing by Secured party or by Debtors when and if Debtor no longer is indebted to Secured Party. Any cancellation of this instrument shall be without effect as to broker until broker is notified at its home office in _____ in writing by the Secured Party.
10. Debtors hereby represent and warrant to Secured party that the account or accounts above assigned have not heretofore been alienated or assigned.
11. This Agreement shall be binding upon the Debtors, and upon his executors, administrators or assigns, and it shall be binding upon and inure to the benefit of any successors of the Secured Party and the Broker.
12. This account will not be transferred to another Broker without the written consent of the Secured Party.

THIS IS A CONTRACTUAL AGREEMENT. DO NOT SIGN UNTIL YOU HAVE READ IT CAREFULLY.

BANK _____

BY _____
VICE PRESIDENT

DEBTOR

SIGNATURE

ACKNOWLEDGEMENT

The undersigned officer of _____ whose address is _____ hereby acknowledges receipt of a copy of the above Security Agreement and agrees to abide by the provisions thereof. No previous assignment or claim against the above described account or accounts has been received by the undersigned.

Copy received and dated on: _____

Signature

Title

Source: Chicago Board of Trade, Keith Schap, Commodity Marketing 1993.

Appendix G — Country Elevator, Price Sheet: Gilman, IL, USA

	Soybean Closes	Gilman Corn			Gilman Sybean			Gilman Wheat				Corn Closes
SK	657 ⁶										CK	274
SN	656 ⁴	APR	-4 K	270	APR	+5 K	663				CN	277 ⁴
SQ	650 ⁶	MAY	-2 K	272	MAY	+5 K	663	PIK			CU	266 ⁴
SU	63 ²	JUN	-6 N	271 ⁴	JUN	N					CZ	257 ²
SX	616 ⁶	JUL	-4 N	273 ⁴	JLY	N					CH	263 ⁴
SF	622 ⁶	OCT/N OV	-12 Z	245	OCT/N OV	-12 X	605				CK	268 ⁴
SH	627 ⁴	DEC	-13 H	250 ⁴								
SK	629	JAL	-10 H	253 ⁴		-10 F	613					
S												

+4 Danville (KBSR)
 +2 Martin ton
 FOB Mومence

Domestic Corn Bids

Morris
 Bids

	Wheat Closes	SBD			SBD-dlvd MVN			MOP (SSL)			10 CARS	Corn	Beens
WN													
W													
W													
W													
W													
W												+5 for 25 cars Corn or Beans	
W												Fountain Creek Sout + 1 for 3's, + 1¼ for Corn or Beans	

Appendix H – Country Elevator: Price Sheet: Lockport, IL, USA.

Date: 4-7-94 Hours: 700.4

275	278 ²	267	257 ²	263 ²	267 ⁶
K	N	U	Z	H	K

CORN

DELV	CIF	FRT %	FRT X	FOB	BASIS	FLAT	ADM	CGL	CIL	Milw	CGU
APR	22	100	15	+7	+3 ⁴	278 ⁴		SPOT	+8 _{1/2} /283		4 _{1/2} /275
MAY	23	105	15	+8	+4 ⁴	279 ⁴		LH APR	+9 _{1/2} /284		
JUN/ JUL	21	100	15	+6 ⁴	+3 ²	281 ⁴		MAR	+11 _{1/2} /286		
OCT/ NOV	23	175 150	26 22 ⁴	-3 +0 ⁴	-7 ²	250					
DEC	25	130	14 ⁴	+5 ⁴	+2 ⁶	260			+3 _{1/2} /260		8 _{1/2} /299
JAN	22	145	21 ⁴	+0 ⁴	-4 ⁶	258 ⁴			+4 _{1/2} /259		+5 _{1/2} /252
FEB	23	147	21 ²	+1 ₆							
MAR	24	135	20	14							

655	654 ⁴	649 ⁴	632	618 ⁴	624 ²	630	632
X	N	Q	U	X	P	H	K

BEANS

DELV	CIF	FRT%	FRT	FOB	BASIS	FLAT	ADM	CGL		Milw	CGD
APP	27		16	+11	+4 ⁴	654 ⁴		SPOT			6 _x /655
MAY	27 ⁴		16	+11 ⁴	+5	660		LH/ APR			
JUN/ JUL	27 ⁴		16	+11 ⁴	+5	654 ⁴		MAR			
OCT/ NOV	24 ⁴ 28		28 ² 24 ⁶	-3 ⁶ +3 ²	-10	608 ⁴					-8/ 610
DEC	26		20 ⁶	+5 ²	-1 ²	623					-5 _{1/2} / 619
JAN	30		23	+7	+0 ⁶	625					
FEB	26		22 ⁶	+3 ²							
MAR	28		21 ⁴	+6 ⁴							

344 ⁶	335 ⁴	337 ⁴		
K	N	U		

WHEAT

DELV	CIF	FRT %	FRT %	FOB	BASIS	FLAT	NUM	CGL	CIC		C60
JUN/ JUL	21 20		16	+5 +4		335 ⁴					