The Export Potential of Traditional Varieties of Rice from Bangladesh

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GLOSSARY OF TERMS AND ABBREVIATIONS

ACP	Africa, Caribbean and Pacific
BRRI	Bangladesh Rice Research Institute
CCT	Common Customs Tariff
EU	European Union
FAO	Food and Agriculture Organisation
FOB	Free on Board
GATT	General Agreement on Trade and Tariffs
HYV	High Yielding Varieties
MAFF	Ministry of Agriculture, Food and Fisheries
MV	Modern Varieties
NFR	Net financial return
NRI	Natural Resources Institute
TOR	Terms of reference
TRIPS	Trade related aspects of international property rights
UAE	United Arab Emirates
USAID	United States Agency for International Development
aman	late monsoon rice crop (transplanted), grows June to November
aratdar	paddy/rice wholesaler
aus	early monsoon crop, growing season April to July
bepari	large itinerant trader
boro	winter season rice crop, irrigated, grows November to May
broken rice	broken kernels having a length of 2.5/10th or more of the average length of the unbroken kernel
cargo rice	rice from which the husk has been removed (also called brown, rough, or husked rice)
faria	small itinerant trader
head rice	kernels that retain the length of 8/10th or more of the average length of the unbroken kernel, after either head or tail part or both is broken
husked rice	rice from which the husk has been removed (also called brown, rough or cargo rice)
kutial	homebased paddy processor
paikar	small itinerant trader
parboiled rice	rice which has been steamed before husking
raw rice	rice which has not been parboiled
rough rice	rice from which the husk has been removed (also called brown, husked or cargo rice)

EXCHANGE RATES

November 1996

£ 1	=	Tk 71
US$ 1	=	Tk 42
US$ 1	=	0.7816 ecu

EXECUTIVE SUMMARY

1. This research is funded by the Overseas Development Administration's Crops Post Harvest Programme. The objective of the research is to bring together information on prevailing quality/price relationships for traditional varieties of rice in Bangladesh and for competing products on the world market in order to make a judgement about Bangladesh's ability to enter the export trade for speciality rices.

2. This report brings together findings from initial desk research and from a two week field visit to Bangladesh in September 1996.

3. Despite productivity increases in the 1980s and early 1990s, in recent years the prospects for Bangladesh achieving self sufficiency in rice production in the near future have receded as productivity growth rates have declined. In both 1995 and 1996 Bangladesh has imported about 1 million tonnes of rice.

4. Despite this, there is interest in the country in developing a high value export trade in speciality rice. A number of traditional varieties (kalijira, chinigura, kataribogh) are well known within Bangladesh for their aromatic quality and it is believed that these varieties could compete with basmati rice from India and Pakistan for the rapidly growing export market in speciality rices, particularly in Europe, the US and the Middle East.

5. Research by the World Bank and BRRI however suggests that on the supply side, a number of constraints stand in the way of increased production of aromatic varieties. Low yields and low farmgate prices discourage producers from growing aromatic rices in the face of superior returns from modern varieties.

6. Little is known about the marketing system for aromatic paddy and rice. Though the rice marketing system for ordinary rice has been studied extensively in recent years, the features of the trade in aromatic paddy and rice, which may be quite different given that aromatic varieties are only produced during the *aman* season, remain unknown.

7. Quality and grading issues present another challenge to potential exporters. By international standards, milling outturn standards are very low. At the same time incentives to invest in improved milling technology are negligible given the low quality standards operating in the domestic market where quantity of outturn takes precedence over quality.

8. With regard to Bangladesh's ability to compete on a price basis with other exporters, recently observed price rises for kalijira and chinigura rice have reduced the previously observed price competitiveness of Bangladeshi aromatic rice vis-à-vis basmati rice. At the same time there are strong indications that competition between India and Pakistan are leading to lower prices for basmati in world markets.

9. The European Rice Levy poses further problems. Despite concessionary terms on par with those granted to the ACP states, Bangladesh still faces much higher levies

on exports of aromatic rice entering the EU than India and Pakistan face for basmati rice.

10. Given these constraints, it is of no surprise that at present export trade in aromatic rice is negligible: one UK importer brings a few tonnes to the UK each year which is sold in specialist shops in areas where the is a large concentration of ethnic Bangladeshis.

11. Lack of product awareness creates further problems for potential exporters. Whilst basmati rice is now a very well established product in Western supermarkets, and is supported by a strong trade lobby in Brussels, the Bangladeshi aromatics are virtually unknown. They are also different to basmati in that they are very short grain varieties rather than the long grain, which is usually associated with quality rice. Significant promotional efforts would be needed to launch a new product to compete with basmati.

12. A more detailed study is proposed to look in greater depth at the market opportunity for aromatic/fragrant rice in the European, US, Middle and Far Eastern markets in order to provide a better indication of the potential for new market entrants, given established patterns of supply, changing patterns of demand and consumer preferences. A TOR for this study is provided in Appendix 5.

13. On the supply side, the research has already highlighted major constraints to the development of an export trade. More research is required to characterise the marketing system for aromatic rice, identify the returns to different agents along the marketing chain and to analyse their impact on production incentives. Informal survey work in three aromatic rice producing areas of the country is proposed during the aman season 1996/97 and a TOR is provided in Appendix 6.

14. During the course of this research, it is also proposed to collect samples of paddy and rice, both from mills and in the market, for laboratory testing. This will provide a precise indication of the current milling standards in Bangladeshi mills which can be set against international export standards. Such baseline data can then be used to develop a strategy for improving milling standards

15. A number of marketing testing activities are also proposed in further research. A quantity of kalijira, chinigura and kataribogh paddy will be test milled in Bangladesh to an acceptable international standard and freighted to the UK for various market testing exercises at NRI. It is envisaged that these will include taste panelling work, a survey of alternative trade organisations and a survey of restaurateurs.

16. Marketing testing activities, combined with the market opportunity study, will provide a much clearer indication of the potential demand for speciality rice from Bangladesh. This is an essential first step in assessing the marketing potential of any new product. Simultaneously, research in Bangladesh will provide a better understanding of the supply side constraints already identified. If the demand side activities indicate that potential does exist for export, then the next phase of the research will need to develop a strategy for overcoming these constraints.

The Export Potential of Traditional Varieties of Rice from Bangladesh

1. Introduction

1.1 Objectives of the Research Project

17. The Crops Post-Harvest Programme Country Framework Document for Bangladesh identified the export of traditional rice varieties from Bangladesh as a potential niche marketing opportunity. The development of new export opportunities is consistent with the Government of Bangladesh's commitment to export-based and labour intensive growth.

18. The importance of quality and price factors in determining Bangladesh's ability to take advantage of this opportunity was highlighted in the Framework Document. This research project will attempt to bring together information on prevailing quality/price relationships for traditional varieties of rice in Bangladesh and for competing products on the world market in order to make a judgement about Bangladesh's ability to enter the export trade for speciality rices. On the basis of this, a strategy will be outlined for developing Bangladesh's export potential.

19. This Progress Report is divided into three sections: in the first, an overview is provided of the international rice trade, with emphasis on the market for aromatic rice; in the second, issues of supply, quality and price of traditional rices within Bangladesh are examined. The third section provides conclusions and sets out in detail research activities to be undertaken to complete the project

1.2 Research activities to date

20. This report has been prepared following initial desk research at NRI and a two week field visit to Bangladesh in September 1996 by Tony Swetman, Food Technologist, and Rachel Stringfellow, Marketing Economist. Appendix 1 provides a list of those consulted in the UK during desk research and Appendix 2 lists those consulted in Bangladesh.

2. *An overview of the international rice trade*

2.1 Major exporters

21. About 4% of rice production enters world markets. This trade is particularly important to several developing countries because it constitutes their principal source of foreign exchange. Correspondingly, a number of governments have developed highly supportive policies for the rice sector to maintain their export position.

22. In 1989 Thailand accounted for 45% of the world rice trade with exports valued at US $1.5 billion. The Thai government has for a number of years sought to maintain the country's pre-eminent position in the rice trade by supporting its farmers with high paddy prices and by subsidising exports.

23. Throughout the 1980s China, the world's largest producer of rice, was usually the third largest exporter, although climatic conditions forced high levels of imports in some years. More recently China has been a net importer as there has been a general shift in its agriculture away from rice to higher value commodities.

24. Other key exporting countries are Pakistan, which aimed to increase exports in 1991 to 2 million tonnes, including 0.8 million tonnes of basmati; and Vietnam, which has emerged as one of the most aggressive export countries in recent years through a policy of internal liberalisation in rice trading, a reduction of taxes on producers and the introduction of HYVs. India, which for a long time prohibited the export of non-basmati rice, has started to export more freely with the liberalisation of the economy. Private traders have been free to export basmati rice (subject to a certain amount of government control and regulation which has decreased in recent years) for considerably longer. Two huge crops successively enabled India to become a net exporter of rice in 1990.

25. The US is another major exporter, its exports assisted by a vigorous export promotion policy which assists exporters with trade services and importers with extended credit terms in local currency. Between 1970 and 1990 annual exports were between 2 and 3 million tonnes, with up to 50% of these accounted for by export programmes. Table 1 provides information on the major rice exporters for 1991-1994.

Table 1 Major rice exporters, 1991-1994

Year/ Country	1991	1992	1993	1994
China	817,000	1,029,000	1,457,000	970,000
India	678,000	580,000	768,000	891,000
Pakistan	1,204,000	1,512,000	1,032,000	984,000
Thailand	3,581,000	4,681,000	4,338,000	4,267,000
USA	1,592,000	1,669,000	1,906,000	1,997,000
Viet Nam	1,033,000	1,946,000	1,765,000	1,970,000
World total	13,140,000	16,079,000	16,558,000	17,508,000

Source: FAO

2.2 Trends in prices

26. A number of factors influence prices in international markets. Climatic factors play a key role in determining supply and demand, especially in Asian countries where floods and droughts are frequent. The thinness of the international market, and the dominant part played by a small number of countries in supplying the market, accentuate the impact of these changes leading to substantial price fluctuations. Other factors that have influenced the market in recent years have been the political upheaval in eastern Europe and the former Soviet Union, wars in the Middle East and Africa, the access of importing countries to hard currency and the strength of the dollar - a weaker dollar stimulates increased buying. Longer term considerations such as the growth in real incomes, consumer tastes and the relative price of substitute goods on the demand side, and technological innovations and their adoption on the supply side, also play an important role in price formation.

27. Prices are further influenced by the operation of pricing policies in major rice producing countries where rice is the major food staple and thus of central importance to national food security. In response to price fluctuations on the international market many importing countries impose controls on imports to protect their domestic production and market and maintain stable prices. Export countries impose either export taxes or export subsidies to control domestic prices. However, under the GATT 1994 agreement a country's ability to operate such price control will be restricted as members agreed not to provide support in favour of domestic producers and exporters in excess of specified commitment levels [1]. The overall impact of this should be to encourage production and export in countries with a comparative advantage in rice production leading to lower prices, all other factors being equal. On the other hand, a lowering of export subsidies might lead to higher export prices.

28. Price sensitivity is exacerbated by the markedly segmented nature of the world market, differentiated by variety, quality and level of processing. The bulk of world trade is Indica, long grain rice grown principally in central and southern China, south and Southeast Asia and southern USA. Approximately 11% is Japonica rice, a round-shaped grain, grown in Japan, the Koreas, Taiwan, north-central and northern China, Australia and the Mediterranean area, northern Brazil, Uruguay and California. Aromatic and glutinous varieties of rice comprise about 10% of the market.

29. Figure 1 illustrates the movement of the price of white Thai B grade rice from 1990 until May this year. The average price is US $295 with a standard deviation of US $53.

2.3 Quality standards in world markets

30. FAO standard grade requirements for milled rice are given in Table 2.

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[1] How this has affected the EU rice regime is described in section 2.5.

Table 2 Standard grade requirements for milled rice

	Premium grade (%)	Grade 1 (%)	Grade 2 (%)	Grade 3 (%)
Head rice	95 min	85 min	75 min	65 min
Brokens	4 max.	12 max.	20 max.	28 max.
Passes	1 max.	3 max.	5 max.	7 max.
Yellow and damaged	0.5 max.	1 max.	2 max.	4 max.
Chalky and immature kernels	2 max.	4 max.	6 max.	8 max.
Paddy (number per 100 grains)	None	1	2	3
Other varieties	2 max.	4 max.	6 max.	8 max.
Red rice	None	0.5 max.	1 max.	1.5 max.
Foreign matter	None	0.25 max.	0.5 max.	1.0 max.

Source: FAO 1977

31. At the level of international trade, the most widely traded milled rices are premium grades by these standards. US milled No2/4 long grain has 4% brokens and Thai White Rice 100% B is 4.5% broken maximum. The lower quality US milled 5/20 LG (20% brokens) is common in US food aid.

2.4 Major importing countries

32. In volume terms, rice imports into Asia are the most important, with the major markets in the Middle East. The most significant importing countries are Iran, Iraq, Saudi Arabia and the United Arab Emirates which each import between 300,000 and 1 million tonnes annually. Major rice producing countries (Malaysia, Bangladesh, China, Indonesia, Sri Lanka) also import large volumes of rice (between 100,000 and 1 million tonnes) in years when harvests are poor or to meet changing supply and demand patterns.

33. Africa is the next most important importing region. Most countries import rice and a number of countries (Côte d'Ivoire, Ghana, Guinea Bissau, Liberia, Libya, Nigeria, Senegal, Sierra Leone and South Africa) import between 100,000 and 350,000 tonnes per year. Imports into Europe are a little more than half the volume entering African markets and are fairly steady at just over 2 million tonnes. The main importing countries are France, Germany, the Netherlands and the UK. Rice imports by region are given in Table 3.

Table 3 Rice imports by region

	1991	1992	1993	1994
Africa	3,658,000	3,698,000	3,801,000	3,688,790
Asia	4,066,990	5,713,920	5,938,000	7,516,000
North/Central America	1,118,000	1,362,000	1,481,000	1,487,000
South America	1,283,000	906,000	1,117,000	1,543,000
Europe	2,093,000	2,003,000	2,155,000	2,503,000
World Total	12,933,000	14,832,000	15,409,000	17,216,000

Source: FAO

2.5 The US market

34. Despite being a major exporter, the USA imports an increasing quantity of rice. This is because of the growing product differentiation within the US market which is influenced by the country's changing demography. The expanding US Asian population is not prepared to eat US rice on a regular basis. By 1990/91 US imports were 160,000 tonnes, 6% of domestic production.

35. Regular milled rice, including Thai jasmine rice, accounts for the largest volume (90%) and Thailand is the primary source for imports. Basmati is the second most important type of rice imported, accounting for 5%.

36. US import restrictions involve small fixed *ad valorem* tariffs on rough, brown, broken and milled rice and a much higher barrier on imports of parboiled rice.

2.6 The EU rice regime

37. The EU is the world's largest importer of rice at 1.2 million tonnes in 1990. It employs a variable levy (import duty) and subsidy system to protect and assist its own production. The EU produces about 2 million tonnes of rice annually, mainly medium and short grain, whereas it consumes mainly imported long grain rice. So although in volume terms the EU is virtually self-sufficient, over half its production is exported.

38. Import duty is calculated as follows. Under the GATT agreement, ceilings were established for the maximum duty-paid import price of rice entering the EU. For husked rice (brown) this has been set at about 180% of the EU intervention price (the intervention price is the theoretical floor to the EU price for paddy and is set this marketing year at 351 ecu/tonne (US$ 449) for both Indica and Japonica rice), and at about 265% for milled rice. A fortnightly reference price is set, based on EU CIF import prices for traded rice. The import duty is obtained by subtracting the reference price from the respective GATT ceiling and is then applied equally to every consignment entering the EU during the following fortnight. However the rates of duty calculated in this way cannot exceed those laid down in the Common Customs Tariff (CCT). In a Commission regulation of 29 July 1996 [2] these were set out as 290 ecus (US$ 371) per tonne for paddy, 363 ecus (US$ 464) for husked rice and 572 ecus (US$ 732) for semi-milled or wholly milled rice.

39. In around 90% of cases in the last marketing year, the calculated import duty for milled rice exceeded the maximum tariff in the CCT, and therefore it was this tariff that was applied to imports of milled rice for most of the year. It is likely that the same will happen this marketing year. However for husked rice, the lower rate of duty means that the calculated import duty is unlikely to exceed the CCT tariff limit and the rate of duty will be calculated fortnightly as described above.

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[2] See Appendix 3.

40. Concessionary rice import arrangements benefit a number of countries. ACP countries are eligible for a 65% reduction in duties subject to an overall quota of 125,000 tonnes husked rice equivalent. Under a Commission Regulation in 1990 [3] (amended in 1991) imports from Bangladesh are covered by the same concession subject to a quota of 4,000 tonnes husked rice equivalent and the payment of an export tax by exporters to the Bangladeshi authorities.

41. In July 1996 another Council Regulation set out new quotas for rice imports to compensate certain exporters to the EU for the raising of tariff barriers in the three new member states (Austria, Sweden and Finland) as a result of their accession to the EU. Under it an annual tariff quota of 63,000 tonnes of milled and semi-milled rice at zero duty has been opened, 20,000 tonnes of husked rice at a duty of 88 ecus (US$ 112) per tonne and a reduction by 28 ecus (US$ 36) per tonne on 80,000 tonnes of broken rice. The principal beneficiaries of these arrangements are Thailand and the US.

2.7 International trade in speciality rice

42. The major traded speciality rices are basmati and Thai jasmine rice. By the early 1990s the total world market for such rice had increased to approximately 1 million tonnes, some 10% of the world rice trade. The prices of speciality rices are usually well above those for other types of rice.

43. The origin of the word "basmati" can be traced to the Sanskrit word "vasumati" meaning Earth. The rice has an extra-long grain is soft textured and has a distinct aroma. Producers in Pakistan and India have so far successfully argued that the rare agro-climatic conditions of the Himalayan region endow basmati rice with certain characteristics not found elsewhere and therefore under the agreement on trade-related aspects of intellectual property rights (TRIPS), rice can only be called basmati if it comes from the Himalayan region. On the basis of this, India and Pakistan have been prepared to take legal action against a US firm, RiceTec, which tried to market a long grain hybrid variety as "Indian-style basmati".

44. In 1989/90 India's exports of basmati were 410,000 tonnes, exceeding those of Pakistan. In recent years Indian supply has been considered a higher value commodity and has fetched a higher price in international markets. Major customers are Saudi Arabia (which takes 60% of India's exports), Kuwait and the UAE. India exports about 40-50,000 tonnes of husked rice to the EU market.

45. Strong competition between India and Pakistan has had a downward impact on prices for basmati. The expanded planting of higher yield varieties of basmati in Pakistan led to a substantial price fall in 1990 from US $675 in December 1989 to US $350 in December 1990.

46. In the EU, following the GATT agreement, special arrangements were put in place for basmati (husked), which because of its particularly high traded value, would

[3] See Appendix 4.

have entered the market at prices well above the ceiling price, if the normal calculated duty was imposed. At the end of September 1996, "kernel basmati" and "super basmati" from Pakistan (high quality grades, up to a quota per annum of 9,000 tonnes) and Indian basmati were granted an equal 250 ecu/tonne reduction on the existing levy. This concession will take effect from about November 1996 and will place the two exporters on an equal footing (as, prior to this decision, Pakistan only received a reduction of 50 ecus) and is likely to have the effect of ensuring that imports from Pakistan into the EU are of a high quality.

47. As an example of the differing rates of duty for rice emanating from different countries, at the end of September 1996 (just prior to the introduction of the reduced levy for Pakistan), the duties were as follows for husked rice: from Third countries (except ACP countries and Bangladesh), 302 ecus (US$ 386); from ACP countries and Bangladesh, 147 ecus (US$ 188); from Pakistan, 252 ecus (US$ 322) and from India (for long grain rice of a length/width ratio equal to or greater than 3) 52 ecus (US$ 66).

2.8 The UK market for speciality varieties

48. The total rice market in the UK is some 340-350,000 tonnes per year, of which about 80-90,000 is represented by the retail trade (the major supermarkets). Basmati rice is the main speciality rice used in the UK and is widely available in supermarkets and smaller grocer shops. Demand for it is growing rapidly. One buyer based in the UK estimated that the size of the market is about 40,000 tonnes per year.

49. From July 1995 to June 1996, the UK imported 40,000 tonnes of husked Indian basmati and 2,000 tonnes from Pakistan (as noted above, the levy system favoured Indian exporters during this period). The two main importers of basmati rice in the UK are Tilda and Veetee Milling, which imports from its own mill in India. These companies mill, process and package at UK sites.

50. Under present arrangements, the two big importers mill in the UK to the required quality standards. Test milling of husked rice is carried out if a company is considering buying from a new supplier or developing a new product line. Minimum quality standards in the UK market are maximum 5% brokens, no discoloured grains or foreign matter. If a new product or supplier is acceptable, the minimum batch for processing at an economically acceptable cost is about 12 containers per year (approximately 250 tonnes).

51. No other speciality rices are marketed on any comparable scale to basmati in the UK. There is a much smaller market (perhaps 5% of the basmati market) for fragrant rices, almost entirely supplied by Thailand. Fragrant rices are shorter grain than basmati and go softer on cooking, unlike basmati which requires longer cooking and retains its form. The main consumers of these products are ethnic Chinese and other SE Asian communities. Demand is stronger in France and Germany than in the UK.

52. As well as Veetee and Tilda, a number of smaller trading companies are involved in the speciality rice market. Community Foods is an importing company with over 2,000 product lines, including 16 speciality rices with a total volume of 1000 tonnes per year. They supply to Country Harvest which in turn supplies the main supermarkets. A buyer at Community Foods expressed the view that the rice market is a difficult one to break into given that it is served by well established suppliers. A new product requires large investments in publicity and advertising. Volume sales are concentrated on a few products and the speciality rices have a tiny share of the market (with the exception of basmati rice). He sees greater potential for new exporters to get a share of the volume sales market rather than the niche markets which are so small.

53. Specialised sales to ethnic groups are often considered potential premium niche markets for new products. However the extent to which this is true for speciality rice is likely to be influenced by the fact that rice is a staple commodity. Any new product would have to compete on a price basis with established suppliers as price is likely to be the major factor influencing consumer choice.

3. *Supply, quality and price issues in the production of traditional speciality rices in Bangladesh*

3.1 Rice in Bangladesh: an overview

54. Bangladesh is very dependent on rice to feed its population of about 120 million. About 80% of cultivated land is occupied by rice. Per capita consumption is about 150 kg a year, nearly twice the national average in India and 60% higher than in China where more wheat is eaten. Most rice consumed is parboiled rice. Table 4 gives production data for 1980/81-1992/93 (milled rice equivalent, million tonnes)

Table 4 Rice Production in Bangladesh, 1980/81-1992/93

	Tonnes (million)
1980/81	13.9
1981/82	13.6
1982/83	14.2
1983/84	14.5
1984/85	14.6
1985/86	15.0
1986/87	15.4
1987/88	15.4
1988/89	15.4
1989/90	18.1
1990/91	18.3
1991/92	18.0
1992/93	18.2

Source: FAO

55. Bangladesh grows three crops of paddy a year: the aus, aman and boro. Production increases in the 1980s resulted from the rapid expansion of the boro crop due to improved irrigation and the introduction of new varieties. However despite some optimism in the early 1990s that Bangladesh might become self sufficient in rice and be able to enter world export markets, the country has had to import large quantities of rice during the past 2 years. Table 5 gives import volumes for Bangladesh for 1990-1996.

Table 5 Imports of rice into Bangladesh 1990-1996

	Rice imports (Tonnes)
1990	380,060
1991	15,470
1992	17,720
1993	20,860
1994	66,000
1995	1,300,000
1996 *	1,000,000

Source: FAO
* estimate

56. The main sources for imports into Bangladesh are India and Pakistan. In 1995 Bangladesh was expected to import about 1 million tonnes from India, 141,000 tonnes from Pakistan and the rest from Burma and Thailand.

57. The need to import has in part resulted from climatic factors but it has also been linked to a slow down in rice production growth in Bangladesh following the big jump in 1989/90. Trend growth for 1990/91-1993/94 was 0.37% compared to 3.07 % during 1984/85-1989/90 (Centre for Policy Dialogue, 1995), reflecting a decline in factor productivity estimates for both irrigation and fertiliser, the two key determinants of rice yields. The most recent study in Bangladesh on the country's ability to achieve self-sufficiency in rice suggests that Bangladesh will be an importer of rice up until 2010 under most scenarios (*op.cit.*).

58. The major challenge therefore facing policy makers is to restore productivity growth. Promoting the wider use of modern varieties is one strategy and another is the introduction of intensive fish-rice farming systems which a number of donor supported pilot projects are testing. Research on higher yielding varieties is also continuing. From the post harvest perspective, research to improve the efficiency of small processing will have an important role to play in increasing milling outturns and thus the productivity of the processing system.

59. The relevance of the present research within this context is that the export of high value quality rices has the potential to increase farm income by providing the producer with a new marketing opportunity. At the micro-level, the producer may invest this income in yield-enhancing technologies (fertiliser, irrigation systems). At the macroeconomic level, the foreign exchange earnings accruing to the country will contribute to meeting the costs of importing rice to meet any production shortfall.

60. However, to successfully enter the export trade for high quality rices, exports will have to compete on price and quality terms. This in turn requires that there is an adequate and reliable supply of paddy at reasonable cost which can be processed to the required international standards for export. In the following sections, these issues will be examined in turn.

3.2 Traditional speciality rices in Bangladesh

61. Landraces and old cultivars still play an important role in Bangladeshi agriculture although no serious studies on the significance of landraces have been undertaken in the country. Farmers grow and retain these cultivars mainly due to (i) non-availability of improved varieties and/or their seeds; (ii) their low input requirements; (iii) their adaptability to specific ecological niches (e.g. deep water rice, salinity tolerant varieties); (iv) their resistance to pests; (v) their specific qualities like finer grain, aroma, specific tastes.

62. R&D activities on traditional varieties are limited. The major policy emphasis in rice research has been on increased yield to overcome the consumption deficit. However research has begun at BRRI on traditional rices as a result of government interest in exploring their export potential. The Genetic Resources and Seed Division

evaluated 10 fine grain aromatic rices in 1995 and selected a number of these on the basis of yield and other agronomic traits for further evaluation. Breeders at BRRI are also working on a new variety of aromatic rice similar to basmati which they hope to release in 2 or 3 years time. This would combine high yielding with aromatic qualities.

63. The three most widely marketed traditional varieties are kalijira, chinigura and kataribogh. All have aromatic qualities. The kalijira and chinigura are very short, fine grain varieties whilst the kataribogh is a longer grain variety, although the aroma is said to be less marked. In marketing terms within Bangladesh, these rices are perceived as high value products for use on special occasions or religious festivals. They are also served in restaurants in Dhaka.

64. Table 6 sets out the physio-chemical properties of kataribogh, kalijira and basmati rice from the Punjab and Table 7 provides yield and ancillary characteristics from secondary yield trials undertaken by BRRI in 1995 for basmati, chinigura and kataribogh.

Table 6 Physio-chemical properties of selected aromatic rice varieties

Variety	Milling outturn (%)	100 grain wt (gm)	Grain length of milled rice (mm)	L/B ratio	Grain size and shape	Amylose content (%)	Protein content	Elong-ation ratio	Vol. expan-sion ratio
Basmati	72	2.6	5.4	3.1	MS	24.7	7.3	1.3	3.4
Kataribogh	69	2.3	5.1	3.4	MS	22.8	8.3	1.3	3.4
Kalijira	72	1.2	3.7	2.0	SB	22.7	6.9	1.4	3.4

Source: Genetic Resources and Seed Division, BRRI

Table 7 Yield and ancillary characteristics of selected aromatic rices in Secondary Yield Trail, Joydebpur, T.Aman, 1995

Variety	Seedling ht (cm)	Pl ht. (cm)	Days to maturity	Panicles per m²	Disease BB	Kernel length (mm)	Kernel breadth (mm)	Yield (kg/ha)
Basmati	40-48	126	134	365	5	6.03	2.02	1,895
Chinigura	35-47	135	143	237	5	4.05	2.00	1,815
Kataribogh	47-53	127	143	361	7	5.05	1.07	2,414

Source: Genetic Resources and Seed Division, BRRI

65. The varieties are only grown during the aman season and are traditionally grown on higher or marginal ground unsuitable for cultivation of modern varieties and are therefore catch crops for most farmers. Yields are low, about one half that of modern varieties. Aggregate production data is not readily available as figures collected by the Bureau of Statistics on paddy production are not disaggregated by variety. In its own survey of aromatic rice production, BRRI found that the average area devoted to aromatic rice in the aman season was 12.49%. On the basis of this estimate, and given that the aman season accounts for about 50% of annual production of some 18 million tonnes of rice, the maximum contribution of aromatic rices would

be just over one million tonnes, though given yields well below those for MVs, actual production might be half this figure. In fact anecdotal evidence suggests that the figure may be even lower: one market officer in Sylhet commented that for every hundred bags of ordinary rice he saw in the market, he only saw one bag of aromatic rice.

3.3 Production incentives for aromatic rice

66. Research has been undertaken by BRRI and the World Bank to calculate the financial incentives to aromatic paddy rice production.

67. In the World Bank study (World Bank 1995) net financial returns per hectare and financial cost/benefit ratios were derived from survey data for kalijira and kataribogh paddy. Net returns per hectare for each crop were compared to returns for HYV paddy produced during the same season (*aman*). The comparison is represented by the net financial return (NFR) ratio. The results are as follows:

Table 8 Net financial returns and financial cost/benefit ratios for kalijira and kataribogh paddy (World Bank survey)

Paddy	Yield (tons/ha)	\Net financial returns (taka/ha)*	Benefit/cost ratio	Net financial return ratio to HYV aman
HYV aman	3.50	9,550	1.7	1.0
Kalijira	1.85	4,505	1.4	0.5
Kataribogh	2.77	10,594	2.5	1.1

Source: World Bank

* 1991 prices

68. The results show that kataribogh yields marginally higher financial returns per hectare than common HYV aman rice but returns to kalijira are substantially lower than the common HYV returns and benefit-cost ratios are also well below the control crop levels. This suggests there is little incentive to produce kalijira at current farmgate prices.

69. The BRRI study in 1994 involved a whole farm survey of 577 farmers from 7 villages in three different locations in Bangladesh. Data was collected on the financial performance of aromatic (not differentiated by variety) and modern varieties of paddy during the aman season under irrigated and rainfed conditions.

Table 9 Net financial returns and financial cost/benefit ratios for aromatic and MV paddy (BRRI survey)

Paddy	Net financial returns (taka/ha)	Benefit/cost ratio	Net financial return relative to MV aman (irrigated)
MV aman (irrigated)	14,993	2.17	1.0
MV aman (rainfed)	11,711	1.88	0.78
Aromatic (irrigated)	11,740	1.92	0.78
Aromatic (rainfed)	13,125	2.05	0.88

Source: Agricultural Economics Division, BRRI

70. In this analysis, the incentives to grow aromatic rice over MVs only exist when irrigation is not available. The principle reason for the lower financial returns for the aromatic rices was yield which was not offset by a sufficiently high producer price. Yields for MVs averaged 2.805 tonnes/ha [4] compared to 1.953 for aromatic rice.

71. According to BRRI researchers reasons given by farmers for not growing aromatic rice were primarily poor returns and lack of land. The World Bank study found that the reasons cited were primarily insufficient profits, unavailability of labour and inaccessible markets.

72. Overall the two studies appear to coincide in concluding that lower financial returns relative to irrigated production of modern rice varieties are an important constraint to increased aromatic rice production. Unless yields can be improved and/or farmers receive a higher farmgate price, an increased supply of aromatic rice is unlikely.

3.4 The marketing system

73. The most extensive study of the rice marketing system in Bangladesh in recent years was carried out by Nuimuddin Chowdhury in 1992 under the USAID funded Bangladesh Food Policy Project (Chowdhury, 1992). This did not include a separate study of the marketing of aromatic rice and relatively little information appears to have been collected on this subject. The main findings of Chowdhury's work are set out below, followed by consideration of what factors might cause the picture relating to the marketing of aromatic rices to diverge from that of ordinary rice.

74. In the year of the study (1990) about half of paddy output in Bangladesh was marketed (this indicates a very significant increase in the commercialisation of the foodgrain sector from about 15% of total production in 1972). Farmers sold about 70% of their paddy at the farmgate even though the price was lower than at the

[4] This is a lower than normal yield due to a drought during the survey year estimated to have reduced yields by 10-20%.

primary market. Evidence suggests that the price difference between them covered little more than the cost of connecting the farmer with the primary market plus a margin for profit and risk-taking - suggesting that markets are well integrated between farmgate and the primary stage. However speciality rices which are not so widely traded were mostly taken to market for sale as itinerant traders visiting the villages preferred to buy easily marketed varieties.

75. Farmers face a variety of potential buyers for their paddy. The smallest itinerant traders are the *farias* and *paikars*, of whom there are estimated to be some 40,000. Also very prominent farmgate purchasers are the *kutials*, homebased paddy processors who parboil and dry paddy using household labour, and custom mill paddy locally at a small rice or husking mill. There are estimated to be some 15,600 such processors. Larger itinerant traders, the *beparis*, also buy at the farmgate as do small rice mills and even the agents of the paddy wholesalers (*aratdars*). Farmgate prices do not significantly differ between small and non-small farmers. The incidence of tied sales by farmers to repay production loans advanced by traders in kind at equivalent high rates of interest was not found to be very significant (about 4%) [5].

76. At the processing level, two broad classes of mill exist: the Engleberg type hullers and the modern rubber roll sheller. In 1988 there were only 88 of the rubber roller kind (automatic mills) and some 50,780 Englebergs. Of these 486 were major rice mills, 19,670 were small rice mills and the remaining were husking units. Automatic and major mills processed only 10% of privately marketed rice, indicating that the thousands of small and labour-intensive processors predominate in the Bangladesh trade and therefore that the bulk of derived paddy demand originates from an extremely large number of geographically scattered small rice mills.

77. Once processed the flow of rice is from small mills selling to *paikars* who in turn supply virtually all their purchase to rice wholesalers (*aratdars*) in terminal markets. The *kutials* also tend to market though *paikars* and *aratdars* rather than directly to consumers. Thus *aratdars*/wholesalers handle between 80-90% of all rice traded. Recruitment of new agents at this level has been considerable as the marketed volume of rice has increased, offsetting any tendency towards higher sales concentration and a reduction in competition at that level of the marketing system.

78. Prices across the seasons do follow a rising and falling pattern. Starting from seasonal lows, in November-December, prices rise through to mid April when the onset of the boro harvest leads to a decline. Prices begin to rise again, reflecting cost of storage, up to October -November when the aman harvest begins. However the degree of variability has decreased with the introduction of a third paddy harvest, a higher proportion of commercialised production and the corresponding development of a more efficient marketing system. In addition, increased on-farm storage by producers has demonstrated a significant capacity by them to play the market. By

[5] A series of micro-level studies by Crow (1989) and Crow and Murshid (1994) had argued that the interlinkage of credit and food grain markets at the village level facilitated the exercise of monopoly power by large traders. Chowdhury's finding that such arrangements are relatively insignificant in number casts doubt on this hypothesis.

contrast, traders commonly hold only working stocks, as diminished intra-seasonal price variation has reduced the returns to speculative storage.

79. According to Chowdhury's study, there is evidence that market margins relative to the retail price are at worst static and at best falling. As the market has grown and become geographically decentralised, overall distribution costs including traders' profit, have stayed low relative to the retail price. The farmers' share in the retail price may have increased as a result.

80. Overall Chowdhury's study presents a fairly positive view of the development of rice marketing in Bangladesh. A greater volume marketed, due to technology improvements, has in turn allowed the expansion of a dynamic localised processing and trading network in which entrepreneurs face considerable competition. A more consistent sales offer of paddy across the year has decreased intraseasonal price variation, reducing incentives for speculative storage which has had a further dampening effect on price variation.

81. This picture of increased production, greater competition and diminished incentives to speculate on prices may not hold true however for aromatic rice. These continue to be harvested only once a year and, as discussed above, yields are low as these are traditional, not improved, varieties. This hypothesis appears to be supported by Figure 2 which shows monthly wholesale prices for aromatic and fine rice in Dhaka from 1992-1996.[6] Given the much lower volume of aromatic paddy traded, traders may prefer to buy only the improved varieties at the farmgate, as suggested by Chowdhury. In these circumstances the farmer may face less marketing options for the aromatics, with the result that the offer price is less attractive. If he is able to store, then he may be able to take advantage of a much more pronounced intra-seasonal price rise. Alternatively, difficulties with storing on farm beyond a few months might encourage him to sell soon after harvest, allowing the trader or processor to appropriate any returns to speculative storage across the year. This might explain the World Bank's finding that although incentives to produce aromatic rice at the farmgate were poor, further downstream in the marketing chain they show a substantial improvement.

82. Research work with farmers and traders and processors of aromatic rice is required to throw more light on these issues. This will be undertaken during fieldwork between December 1996 and January 1997 when the new aman crop is harvested and marketed. Key questions which researchers will seek answers to are:
(i) Do farmers face as many marketing options for aromatic paddy as for the ordinary varieties?
(ii) Do farmers store aromatic paddy for longer than ordinary rice, given the potential greater returns to storage? If not, why not?
(iii) Are there specialist traders in aromatic paddy/rice and do they speculate more than traders in ordinary rice?

[6] The standard deviation for aromatic rice is 582 about a mean of Tk 2,511 per 100 kg; for fine rice it is 154 about a mean of Tk 1,460. In both cases a constant trend was assumed.

(iv) How does the farmers' share of the retail price for ordinary rice compare to that for aromatic rice?

3.5 Milling

83. As mentioned above, most rice in Bangladesh is milled in small, geographically disbursed units using steel hullers. The number of modern mills is very small relative to all other rice processing units. Table 10 presents the different parameters of rice processing devices.

Table 10 Rice processing in Bangladesh

Rice mill	Type	Major components	Capacity	Power	Hulling/ polishing	Hull, bran separation and grading	Suitable for
Village	traditional	Dheki	40 kg/day	2 women	separately by same device	manually	raw, parboiled, aromatic paddy
	mechanical (custom hire)	Engelberg huller	0.3-0.5 t/hr	10-20 hp	single operation	manually	parboiled paddy
Semi-modern	small	soaking tank; parboiling pan; drying floor; Engelberg huller	0.5-1.0 t/hr	15-30 hp	single operation	manually	parboiled paddy
	large	soaking tank; steam parboiler; drying floor; Engelberg huller; cleaner	1.0-2.0 t/hr	20-40 hp	separately by same device; grading manually	hull, bran separation mechanical ly	parboiled paddy
Modern	small	rubber roll huller; paddy separator; polisher	0.3-1.0 t/hr	8-15 hp	separately by different devices	hull, bran separation mechanical ly; grading manually	raw, parboiled, aromatic paddy
	large	precleaner; soaking tank; boiler; steam pressure parboiler; dryer; rubber roll sheller; paddy separator; polisher; bran separator; grader	2.0 - 6.0 t/hr	65-100 hp	separately by different devices	all activities mechanical ly	raw, parboiled, aromatic paddy

Source: BRRI

84. At least 90% of rice produced in Bangladesh is parboiled. The reasons include tradition, the taste preference for relatively tender freely-separating cooked grains, the

extreme dislike of sticky rice, the higher milling yields, and the longer storage period. Only in the areas of Chittagong and Sylhet is white rice consumed without parboiling

85. Research by BRRI indicates that there is much excess capacity in the rice milling industry. The indicated utilisation rate of the different types of rice mills in a survey conducted in 1982-83 was only 40% of capacity at peak month for the husking mills; 56% of capacity for the small commercial mills and 65% of capacity for the large commercial mills. Significantly reduced procurement activity by the Ministry of Food has since then had the effect of reducing the flow of paddy to the larger mills which used to rely to a large extent on government contracts for business. Many of these are therefore in a weak financial position.

86. Aromatic paddy is not processed at the modern mills but by small traditional millers in the areas in which it is grown.

3.6 Quality and grading

87. Table 11 gives the performance of different rice processing devices in Bangladesh.

Table 11 Milling performance

Rice mills	Type	Paddy	Milling outturn (%)	Broken (%)	Head rice recovery (%)	Degree of milling
Village	traditional	raw	67-70	10-20	80-90	5-6
		parboiled	70-72	5-10	90-95	5-6
	mechanical (custom hire)	raw	60-65	30-40	60-70	8-12
		parboiled	63-67	10-25	75-90	8-10
Semi modern	small	raw	60-65	30-40	60-70	8-12
		parboiled	63-67	7-20	80-97	8-10
	large	raw	60-65	20-30	70-80	8-12
		parboiled	65-68	7-15	85-93	8-10
Modern	small	raw	66-69	10-15	85-90	7-8
		parboiled	69-72	2-10	90-98	6-7
	large	raw	66-69	10-15	85-90	7-8
		parboiled	69-72	2-10	90-98	6-7

Source: BRRI

88. By international standards, outturn quality is low. Raw rice from the modern mills would reach a grade of between Grade 1 and Grade 2 (see Table 2) and from the mechanised traditional mills, the high level of brokens for raw rice place the grade below Grade 3. As mentioned above, aromatic paddy is not processed at the modern mills where rubber rollers are used but in traditional mills which produce a high proportion of brokens. This has obvious implications for Bangladesh's potential to export aromatic rice.

89. Survey information on other quality standards (relating to the presence of a variety of defects including extraneous matter, unprocessed grains as well as damaged, immature and mixed variety grains) was not readily available and it is proposed that further research should involve the collection of samples from a number of mills to determine milled rice quality in relation to these standards. However it was the general opinion among researchers that quality standards were well below the standard grades introduced by the Directorate of Food in 1981. These are reproduced in Table 12.

Table 12 Standard grades for white rice

Grading factor	Grade requirements (max. limits %)				
	I	II	III	IV	FAQ
Moisture content	14	14	14	14	14
Big brokens	15	15	15	15	15
Small brokens	5	10	15	20	4
Chalky, immature, discoloured, red	0.5	1	2	3	1
Damaged	0.5	1	2	3	1
Contrasting varieties	2	5	10	15	10
Paddy (grain per kg)	-	1	2	3	1
Foreign matter	0.1	0.25	0.5	1	0.5
Head rice (min.)	80	75	70	65	76
Milling degree	Extra well	Well milled	Reasonably milled	Ordinary milled	Well milled

Source: Directorate of Food, 1981

90. BRRI has identified many factors affecting the milling quality of rice (Baqui et al., 1996). These relate to delays in harvesting and threshing as well as improper threshing practices; inadequate drying of paddy; poor storage; under or over parboiling of paddy; and hulling and polishing through a single pass by a steel huller which causes high breakages and over-polishing. In addition, preharvest factors, including the milling characteristics of different varieties, and the absence of standardised grades for procuring paddy have an important influence on quality.

91. However though all these factors combine to take milling standards in Bangladesh well below export standards, this in itself does not represent a major problem for the rice industry as a whole whilst the country remains a net importer of rice. Despite some optimism in 1993 about the ability of the country to achieve self sufficiency in rice consumption, recent developments suggest that Bangladesh is likely to remain a significant rice importer in the years ahead (see Section 3.1 above). Without a surplus, and a consequent lowering of prices to export parity levels, the incentives for millers to invest in improved milling systems to meet export grades do not exist. Equally, until the country is at least self-sufficient in rice, the concern of

breeders is likely to continue to be to increase yield rather than to improve milling quality.

92. In relation to Bangladesh's potential as an exporter of high quality aromatic rice, low milling standards are clearly a major problem. The existing processing system is not producing rice to the required standard and therefore any serious effort to enter the export trade will require a strategy to overcome this constraint.

3.7 Export parity prices

93. As well as factors relating to supply and quality, a key determinant of Bangladesh's ability to export aromatic rice is its ability to compete on a price basis with other exporters. In an International Food Policy Research Institute Study on prospects for rice export by Bangladesh (Jahangir et al., 1992), the authors concluded that whilst price comparisons between domestic prices and border prices indicated that ordinary varieties of rice were not competitive in international markets, preliminary comparisons of aromatic rice varieties with basmati rice indicated that there was some scope for export. The research compared domestic wholesale prices of best quality kalijira and kataribogh rice with the export parity price which was represented by the FOB price of Pakistani basmati rice adjusted to take into account an estimate of the cost and profit margin of the exporters.

94. Figure 3 shows the relative prices of kalijira and kataribogh rice against the export parity price for 1975 to 1991. In the case of kalijira rice, in five out of the seventeen years the price went above the export parity price, whilst for kataribogh this happened twice. This provides the evidence for the authors' conclusions that on the basis of price comparisons, there was scope for export.

95. However wholesale market data collected in September 1996 suggests that the price of aromatic rice has increased since 1991, the last year for which data was available in the IFPRI study. Figure 4 reproduces the data in Figure 3 but adds the more recent price data for aromatic rice. It is clear that from the middle of 1995 there has been a steep rise in the price of aromatic rice, well above the previous trend. The reason for this may be linked to the poor aman harvest in 1995/96.

96. A complete set of FOB price data for Pakistani basmati rice after 1991 has not yet been identified [7]. It is therefore not possible to compare the domestic wholesale price to the export parity price after 1991. However there are some indications that strong competition between India and Pakistan to supply basmati is depressing prices. If this is the case, the upward trend in export parity prices observed from 1975 may stabilise or even decline. Overall, a rise in the price of domestically produced aromatic rice combined with a fall in the export parity price is likely to lead to a reduction in the international price competitiveness of Bangladeshi aromatic varieties.

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[7] Rice trade data is not collected by variety but by form, i.e. grain length, paddy, husked, polished etc. Official data sources therefore (Customs and Excise, MAFF etc.) do not keep data series on basmati prices and the author is still trying to locate such data through commercial sources.

3.8 The existing export trade

97. Figures provided by the Bangladesh Export Promotion Board indicates that export trade in aromatic rice is insignificant. During the marketing year 1994/95, a total of 40 tonnes of aromatic rice were exported and in 1995/96, 55 tonnes.

98. The sole importer of kalijira rice to the UK is Mr Abul Hasan Azad of Hold Choice Company in Essex. He has been importing kalijira rice for the last 7 years. He reports that demand is low however, only around 10 tonnes a year, because it cannot compete with the much lower priced basmati rice. As mentioned above, husked basmati rice benefits from a 250 ecu reduction in the levy, bringing the import duty down to 52 ecus (US$ 66) [8]. As the kalijira rice is imported ready milled, the corresponding levy is 264 ecus (US$ 338). It would fall to 147 ecus (US$ 188) if the paddy was husked and in theory an importer of kalijira rice could bring in husked rice and mill in Europe but for this to be cost effective, the consignment would have to be at least 100 tonnes in size. Thus importers are caught in something of a "chicken-and-egg" situation: until demand increases by about 10 times the present level, it is not economic to mill in Europe, but if an importer does not mill in Europe, the price remains uncompetitive relative to other alternative rices and demand remains stagnant.

99. Another problem is the quality of the rice imported, a direct result of the low quality standards operating in the milling sector in Bangladesh, as described above. Samples of kalijira rice purchased in London were found to contain a high number of brokens (around 35%) and some foreign matter including stones, characteristics completely unacceptable to western consumers.

100. Despite these problems, Mr Azan believes there is potential for increasing exports from Bangladesh to the UK. With a population of some 100,000 Bangladeshis, and with the vast majority of the UK's 8,000 "Indian" restaurants owned by Bangladeshis, he believes that much larger volumes of kalijira rice would be used particularly in the restaurant trade, where it could substitute for basmati rice, if the price was comparable or a little lower.

[8] For the 2 week period from 26/9/96.

4. *Preliminary conclusions and proposed further research activities*

101. Research so for indicates that there are considerable constraints to the development of an export trade in aromatic rice from Bangladesh. On the demand side, although the market for speciality rice is increasing, basmati rice from India and Pakistan is now a very well established product capable of meeting the high quality standards demanded by Western consumers at increasingly competitive prices. Furthermore, the success of both countries in winning trade concessions from the EU suggests a well organised lobbying capacity, a factor which will make it much harder for any competing producers to take a share of the market, as the experience of the US firm RiceTec demonstrates. Although Bangladesh benefits from the same concessions as the ACP countries in the EU, the levy on husked rice from Bangladesh would still be well in excess of that applied to Pakistan and India.

102. The Bangladeshi aromatics face a further disadvantage vis-à-vis basmati in that they are short grain varieties with quite a different appearance and texture. The rice industry in Europe and North America has generally promoted the idea that long grain is associated with quality rice (although of course in Japan, the demand is for short grain varieties). Persuading buyers to take an interest in short grain aromatics might be very difficult. In the view of one trader at Jackson's and Co. in London, aromatic rice is long grain rice by definition.

103. A more detailed study is proposed to look in greater depth at the market opportunity for aromatic/fragrant rice in the European, US, Middle and Far Eastern markets in order to provide a better indication of the potential for new market entrants, given established patterns of supply, changing patterns of demand and consumer preferences. A TOR for this study is provided in Appendix 5.

104. On the supply side, research has already highlighted major constraints in the way of the industry producing a product of adequate quality and low enough cost to compete internationally. At the farm level, it appears that the incentives to produce aromatic rice are weak, given the price paid for paddy relative to other varieties. However at the retail level, the price differential between ordinary and aromatic rice is much greater. More research is required to characterise the marketing system for aromatic rice, identify the returns to different agents along the marketing chain and to analyse their impact on production incentives. Informal survey work in three aromatic rice producing areas of the country is proposed during the aman season 1996/97 and a TOR is provided in Appendix 6.

105. During the course of this research, it is also proposed to collect samples of paddy and rice, both from mills and in the market, for laboratory testing. This will provide an indication of the current milling standards being achieved in Bangladeshi mills which can be set against international export standards. Such baseline data can then be used to develop a strategy for improving milling standards

106. Poor milling standards in Bangladesh present a further problem to export development. To win interest in any new product, an exporter needs to provide

potential buyers with samples. At present the only milled product available is processed by traditional mills which produce a high percentage of brokens, making the product unacceptable by international standards. Equally, any taste panelling work, or other forms of market testing to establish consumer acceptability, are impossible without a product of reasonable quality. It is therefore proposed that a quantity of kalijira, chinigura and kataribogh paddy is test milled in Bangladesh by the Bangladesh Rice Research Institute to an acceptable international standard and freighted to the UK for various market testing exercises at NRI. It is envisaged that these will include taste panelling work, a survey of alternative trade organisations and a survey of restaurateurs.

107. Marketing testing activities, combined with the market opportunity study, will provide a much clearer indication of what the potential demand for the Bangladeshi speciality rices might be. This is an essential first step in assessing the marketing potential of any new product. Simultaneously, research in Bangladesh itself will provide a better understanding of the supply constraints already identified. If the demand side activities indicate that potential does exist for export, then the next phase of the research will need to develop a strategy for overcoming the constraints in the way of producing a competitively priced and high quality product.

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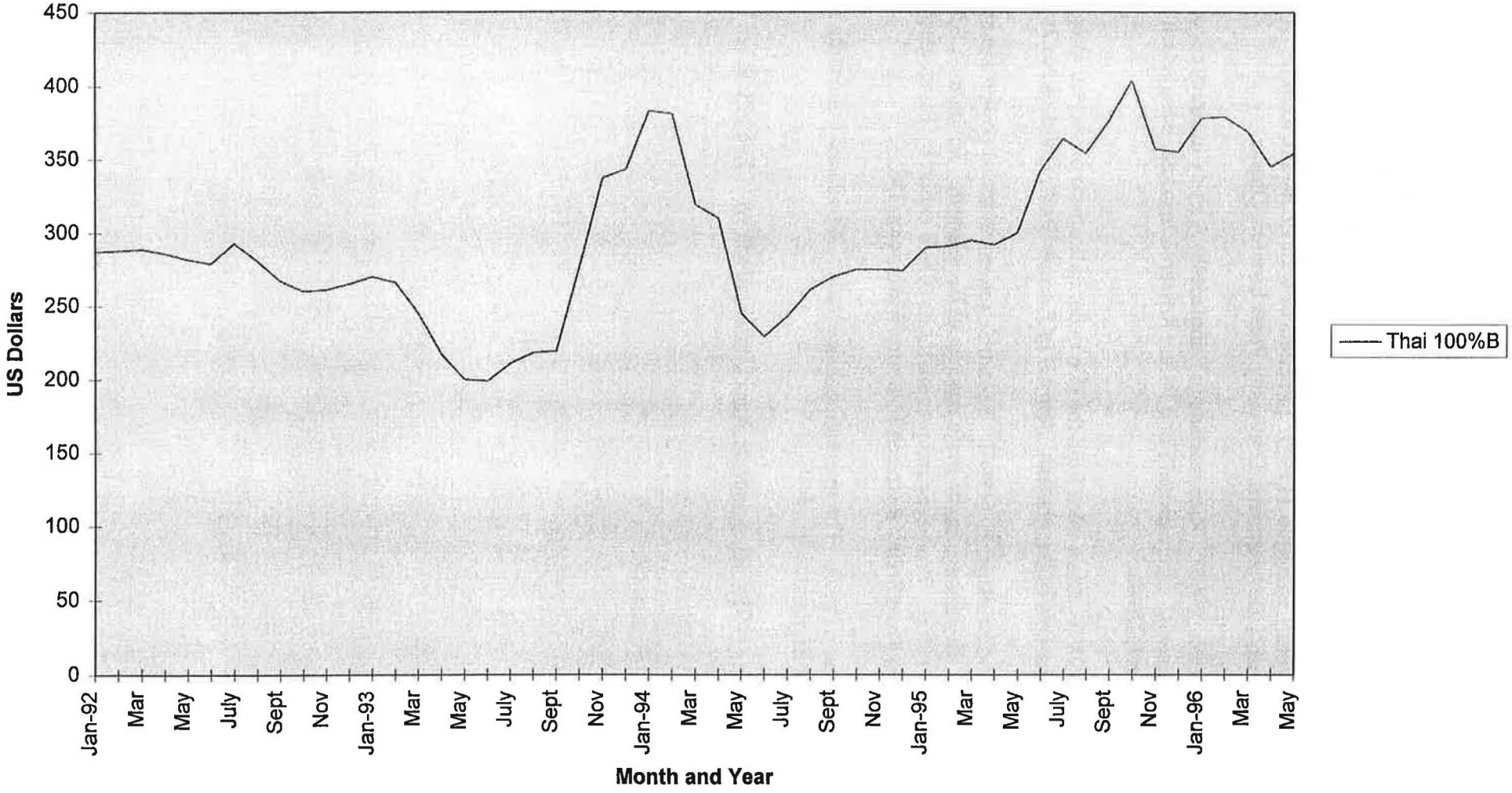
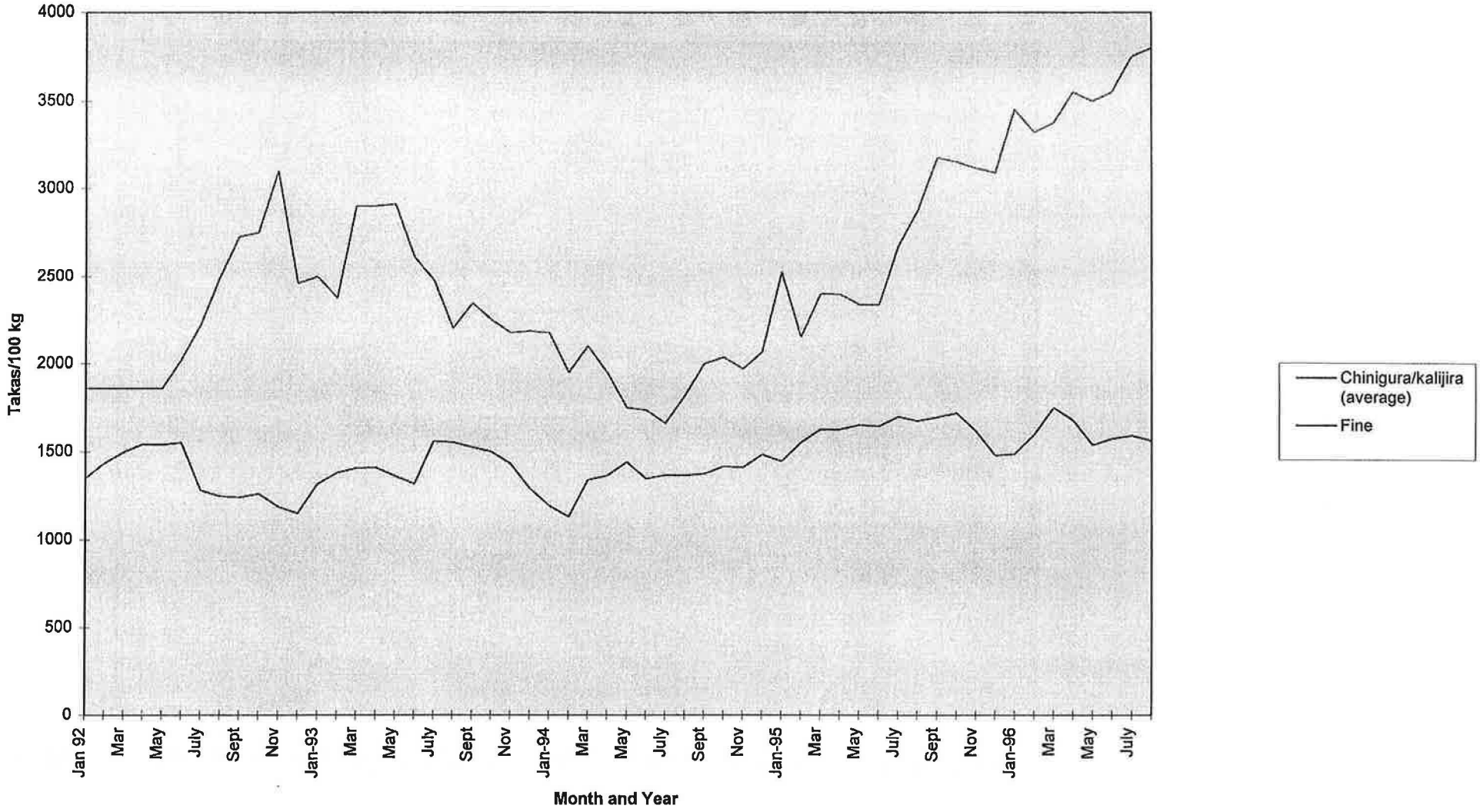
Figure 1: Monthly prices of Thai 100% B grade, January 1992 to May 1996



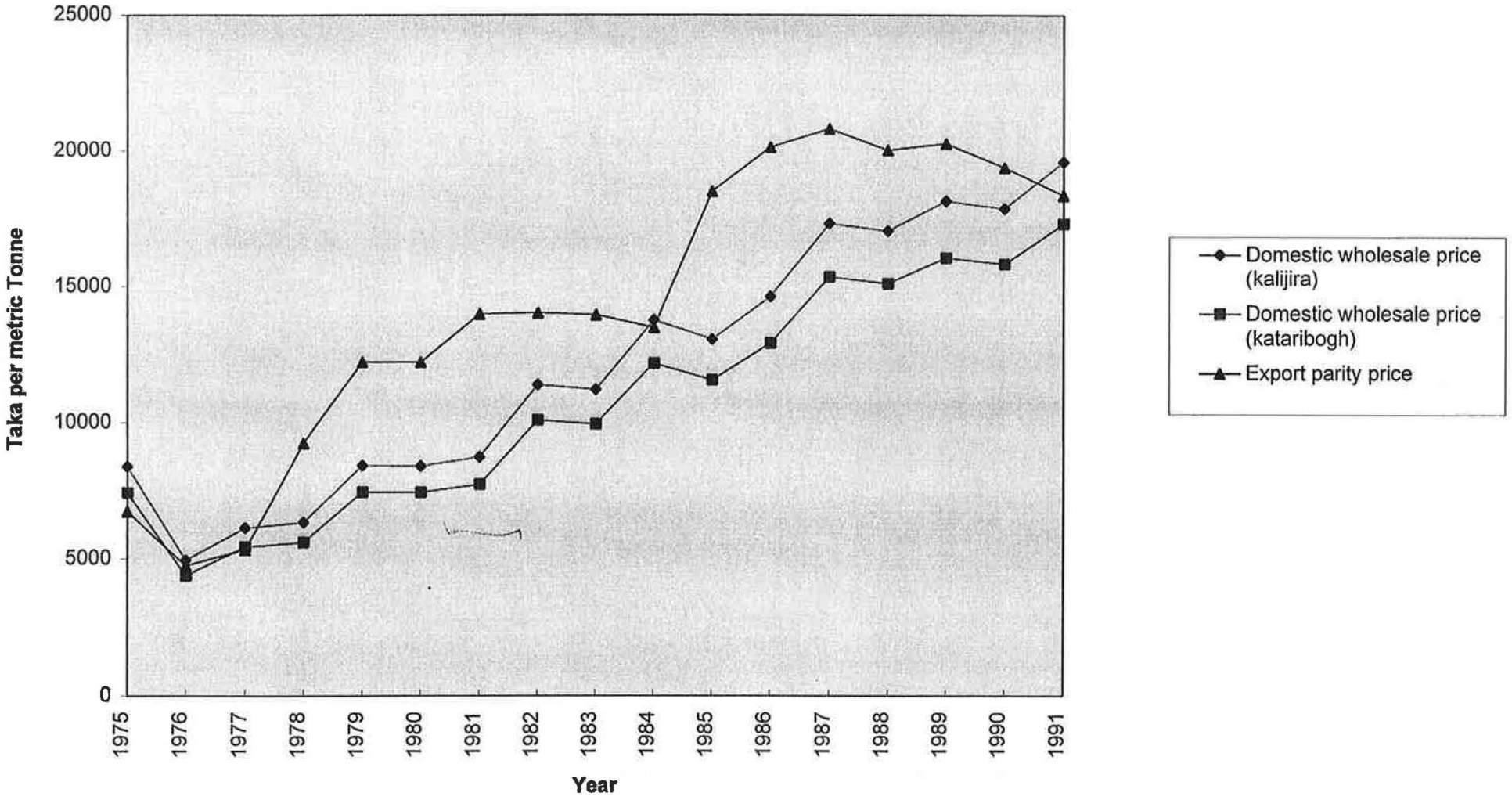
Source: FAO

Figure 2: Monthly wholesale prices of aromatic and fine rice, Dhaka 1992-1996



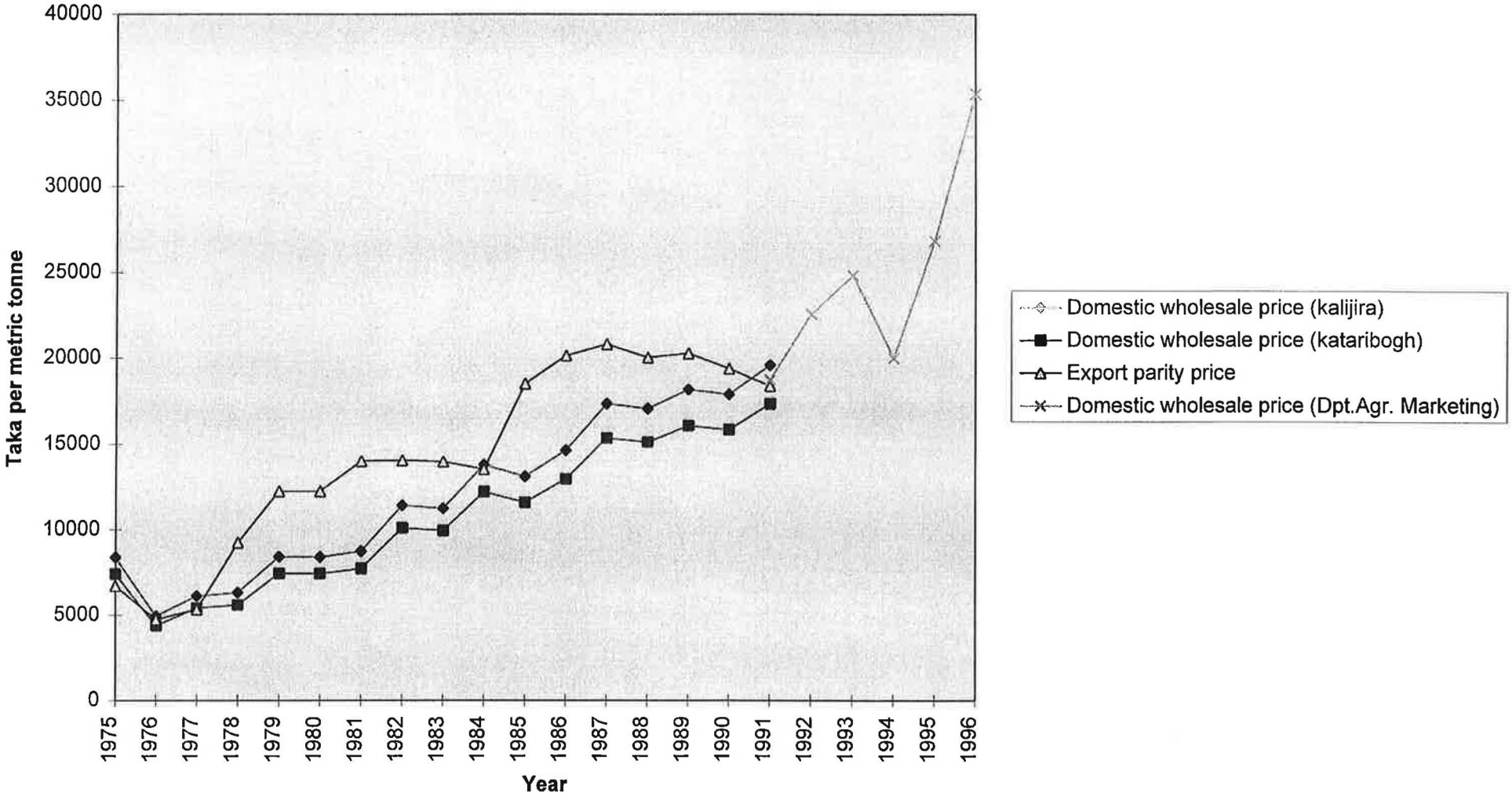
Source: Department of Agricultural Marketing, Ministry of Agriculture, Dhaka

Figure 3: Domestic and export parity prices for aromatic rice, 1975-1991



Source: Jahangir et al., IFPRI, 1992

Figure 4: Domestic wholesale prices and export parity price for aromatic rice, 1975-1996



Source: Jahangir et al., 1992 and Department of Agricultural Marketing, Ministry of Agriculture, Dhaka

NB Figure for 1996 is up to August 1996

APPENDIX 1

List of those consulted in the UK

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APPENDIX 2

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Dr T.M.Tajul Islam, Agriculturalist, Agriculture and Natural Resources Unit
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Mr M A Rahim Khan, Director
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At the Department of Agricultural Marketing, Ministry of Agriculture, Khamarbari (Front Building 4th Floor), Farmgate, Dhaka-1215. Tel: 9114310
Md.Aminul Islam, Director
Md.Nasar Uddin, Deputy Director
Ms Shahana Parvin, Deputy Director
Mr Mojibwe Rahaman, District Marketing Officer, Zila Marketing Office, Zallarpar, Sylhet

At USAID:
Mr A.S.M.Jahangir, Acting Chief, Ag.and Food Policy Div., Office of Food and Agriculture, US Agency for International Development, American Embassy, Madani Avenue, Baridhara, Dhaka. Tel: 884700-22, ext.518; Fax 880-2-883648. E-mail: ajahangir@usaid.gov

Sqn. Ldr. Mahfoozur Rahman (Retd.), Managing Director, Karotoa Enterprises Ltd., Shuvo Automatic Rice Mills Ltd., 11/2 Toynbee Circular Road, Motijheel C.A. Dhaka-1000. Tel: 955 9720.

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APPENDIX 3

COMMISSION REGULATION (EC) No 1503/96

of 29 July 1996

on the detailed rules for the application of Council Regulation (EC) No 3072/95 with regard to import duties on rice

THE COMMISSION OF THE EUROPEAN COMMUNITIES,

Having regard to the Treaty establishing the European Community,

Having regard to Council Regulation (EC) No 3072/95 of 22 December 1995 on the common organization of the market in rice (1), and in particular Article 11 (2) and (4) thereof,

Whereas the third subparagraph of Article 11 (2) of Regulation (EC) No 3072/95 lays down the method for calculating the percentage by which the intervention price valid on the day of import is to be increased in order to calculate the import duties on milled rice; whereas that method takes account of the conversion rate, processing costs and the value of by-products and an amount for the protection of industry; whereas the day of importation should be fixed as the date of acceptance of the declaration by the customs authorities as laid down in Article 67 of Council Regulation (EEC) No 2913/92 of 12 October 1992 establishing the Community Customs Code (2), as last amended by the Act of Accession of Austria, Finland and Sweden;

Whereas Article 11 of Regulation (EC) No 3072/95 provides that the rates of duty in the Common Customs Tariff shall be levied on the products referred to in Article 1 of that Regulation when they are imported; whereas, however, in the case of products referred to in Article 11 (2) the import duty will be equal to the intervention price valid for those products on importation, increased by a certain percentage according to whether it is husked or milled rice, indica rice or japonica rice, and minus the import price, provided that duty does not exceed the rate of the Common Customs Tariff duties;

Whereas there are particular difficulties in the rice sector concerning the verification of the value of imported products; whereas a system of flat-rate values is therefore most suitable for the implementation of the results of the Uruguay Round of negotiations; whereas, however, technical discussions between the partners concerned are still in progress; whereas, pending the outcome of those discussions, the system applied in 1995/96 should be maintained as a precaution;

Whereas in order to classify the consignments imported, the products referred to in Article 11 (2) of Regulation (EC) No 3072/95 must be subdivided into a number of qualities; whereas the combined nomenclature codes to which these qualities correspond must therefore be specified;

Whereas, for the purposes of calculating the import duty using the flat-rate import value, the representative cif import prices should be calculated for each of the qualities defined; whereas, for the purposes of establishing those prices, price quotations for the different qualities of rice must be specified; whereas these quotations should therefore be defined;

Whereas, in the interests of clarity and transparency, the quotations for the different types of rice in publications by the Department of Agriculture of the United States of America constitute an objective basis for establishing representative cif import prices for rice in bulk; whereas representative prices on the United States market, the Thai market or of other origins may be converted into representative cif import prices by adding the maritime freight costs on the charter market between the ports of origin and the Community port; whereas, taking account of the volume of freight and of trade in the ports of northern Europe, those ports constitute the Community destination for which the quotations of maritime freight prices are best known publicly, are most transparent and most easily available; whereas, therefore, the ports of northern Europe (Antwerp, Rotterdam, Amsterdam, Ghent) should be adopted as the Community destination ports;

Whereas, in order to monitor the trends in representative cif import prices thus established, it is appropriate to provide for weekly monitoring of the elements contributing to their calculation;

Whereas, for the purposes of fixing import duties for the rice referred to in Article 11 (2) of Regulation (EC) No 3072/95, a period of two weeks for determining representative cif import prices for rice in bulk takes account of market trends without introducing elements of uncertainty; whereas, on this basis, import duties for that product should be established taking account of the average of representative cif import prices noted over the abovementioned period, every two weeks on a Wednesday, and on the last working day of each month;

Whereas the import duty thus calculated can be applied over a two-week period without substantially affecting import prices, duties paid; whereas, however, where no quotation is available for a given product over the period of calculation of representative cif import prices or where, following sudden changes in the elements making up the

(1) OJ No L 329, 30. 12. 1995, p. 18.
(2) OJ No L 302, 19. 10. 1992, p. 1.

calculation, those representative cif import prices undergo major fluctuations during the period in question, measures must be taken in order to maintain the representative nature of the cif import prices of the product concerned;

Whereas the price of basmati rice originating in India and Pakistan is normally higher on the market than the established representative price; whereas in 1993/94 the difference was of the order of ECU 250 per tonne in the case of basmati rice originating in India and ECU 50 per tonne in the case of basmati rice originating in Pakistan; whereas, as a result, the import duty on those rice varieties should be reduced by the aforementioned amounts in order to comply with the principle laid down in Article 11 of Regulation (EC) No 3072/95 and the Community's international commitments;

Whereas, where there is no quotation, it is appropriate to continue to apply the amount of duty fixed for the preceding period and, in the case of major fluctuations in the quotation, the cost of maritime freight or the exchange rate used for the calculation of the representative cif import price of the product concerned, the representative nature of that price must be restored, taking account of those changes, by adjusting the duty fixed in line with the difference noted; whereas, even where such adjustments are made, the regular dates for fixing duties will not be affected;

Whereas the Management Committee for Cereals has not delivered an opinion within the time limit set by its chairman,

HAS ADOPTED THIS REGULATION:

Article 1

The import duties referred to in Article 11 (1) and (2) of Regulation (EC) No 3072/95 shall be those applicable at the time laid down in Article 67 of Regulation (EEC) No 2913/92.

Article 2

The import duty for milled rice falling within CN code 1006 30 shall be equal to the intervention price valid at the moment of import increased by:

— 163 % in the case of indica rice,

— 167 % in the case of japonica rice,

minus the import price.

However, that duty must not exceed the rates of duty in the Common Customs Tariff.

Article 3

1. For the purposes of this Regulation indica rice shall be deemed to be rice falling within CN codes 1006 20 17, 1006 20 98, 1006 30 27, 1006 30 48, 1006 30 67 and 1006 30 98.

2. Any other products falling within CN codes 1006 20 and 1006 30 shall be deemed to be japonica rice.

Article 4

1. The import duties for the products referred to in Article 3 shall be calculated every week but shall be fixed by the Commission every two weeks on a Wednesday and on the last working day of each month, and for the period up to the first Thursday of July 1995 from 1 July of that year, in accordance with the method provided for in Article 5 and shall apply from the first working day following their fixing and the first day of the following month, respectively.

However, if the calculation of the week following this fixing shows that the import duty is higher or lower by ECU 10 per tonne than the duty in force, a corresponding adjustment shall be made by the Commission.

The fixing made on the last working day of each month shall be based on the intervention price for the following month.

Where the Wednesday on which import duties would be fixed is not a working day for the Commission, the duties shall be fixed on the first working day following that Wednesday.

2. The price valid on the world market to be used for the calculation of the import duty shall be the average of the weekly representative cif import prices for rice in bulk determined using the method provided for in Article 5 and established over the period of the two preceding weeks.

3. The import duties fixed in accordance with this Regulation shall apply until new duties are fixed and enter into force.

However, where no quotation is available for a given product from the reference source provided for in Article 5 over the two weeks preceding the next periodic fixing, the import duty previously fixed shall remain in force.

Every time the duty is fixed or adjusted, the Commission shall publish the import duties and the factors used for their calculation in the *Official Journal of the European Communities*.

4. Basmati rice falling within CN codes ex 1006 20 17 and ex 1006 20 98 may benefit from a reduction in the import duty by an amount of ECU 250 for rice originating in India and ECU 50 for rice originating in Pakistan.

This reduction shall be made if, when a product is released for free circulation, an import licence whose issue is conditional on provision of a security, and a certificate of product authenticity are presented.

By way of derogation from Article 10 (a) of Commission Regulation (EC) No 1162/95 (1), the security to be provided shall be ECU 275 per tonne for basmati rice originating in India and ECU 75 per tonne for basmati rice originating in Pakistan.

(1) OJ No L 117, 24. 5. 1995, p. 2.

The certificate of authenticity shall be drawn up on the form a specimen of which is shown in Annex II to this Regulation. It shall be issued pursuant to the relevant provisions of Commission Regulation (EEC) No 81/92 (1).

The amounts provided for in the first subparagraph of this paragraph may be revised in response to market trends.

Article 5

1. To determine the import prices of the rice referred to in Article 11 (4) of Regulation (EC) No 3072/95, the following factors shall be used for the different types of rice in bulk referred to in Article 3:

(a) the cif price at Rotterdam;

(b) the representative price on the Thai market;

(c) the representative price on the United States market;

(d) the representative price on other markets;

(e) the average cost of sea freight between the port of origin and one of the ports of Antwerp, Rotterdam, Amsterdam and Ghent.

The import price shall normally be the price indicated under (a), but, in the absence of such a price, shall be determined on the basis of the factors listed under (b), (c) and (e); the prices referred to in (d) shall only be used in the absence of the prices referred to under (a), (b) and (c).

In the absence of quotations for the cost of sea transport of rice, those for cereals shall be used.

2. The factors used for the calculation shall be established and checked each week on the basis of the sources and the reference qualities listed in Annex I to this Regulation. The cost of sea freight shall be established on the basis of information publicly available.

If the price established is expressed as C&F, it shall be increased by 0,75 %.

Article 6

This Regulation shall enter into force on the day of its publication in the *Official Journal of the European Communities*.

It shall apply from 1 September 1996.

This Regulation shall be binding in its entirety and directly applicable in all Member States.

Done at Brussels, 29 July 1996.

For the Commission

Franz FISCHLER

Member of the Commission

(1) OJ No L 10, 16. 1. 1992, p. 9.

APPENDIX 4

I

(Acts whose publication is obligatory)

Note - The main aim to change relate to change as a result of the GATT Uruguay Round Agreement (the conclusion of tariff reductions), while the increase in the flat-rate reduction relate to changes in the equivalent system.

Jill Ponis 4/10/96

COUNCIL REGULATION (EEC) No 3491/90
of 26 November 1990
on imports of rice originating in Bangladesh

THE COUNCIL OF THE EUROPEAN COMMUNITIES,

Having regard to the Treaty establishing the European Economic Community, and in particular Article 113 thereof,

Having regard to the proposal from the Commission,

Whereas the Community has undertaken, in the context of the Uruguay Round mid-term review, to offer preferential import arrangements for rice originating in the least-developed non-ACP States having shown an interest and which are listed in Annex V to Council Regulation (EEC) No 4258/88 of 19 December 1988 applying generalized tariff preferences for 1989 in respect of certain agricultural products originating in developing countries (1);

Whereas the preferential import arrangements which are the subject of the offer addressed to the least-developed countries involve a reduction in the levy on imports into the Community within the limits of those quantities traditionally imported by the Community, providing that an export tax of an amount corresponding to the reduction is collected by the exporting country;

Whereas one of the countries to which the offer was addressed, Bangladesh, has indicated its interest in the development of trade in rice;

Whereas a certificate of origin could ensure that the advantages of the arrangements are restricted solely to rice originating in Bangladesh,

HAS ADOPTED THIS REGULATION:

Article 1

1. For imports originating in Bangladesh and within the limits of the quantities laid down in Article 2, the import levy on rice falling within CN codes 1006 10 (excluding CN coe 1006 10 10), 1006 20 and 1006 30 shall be equal to the levy applicable on imports from third countries, minus:

(a) for paddy rice falling within CN code 1006 10, excluding CN code 1006 10 10;

— 50 %,
and
— ECU 3.6; 4.34

(b) for husked rice falling within CN code 1006 20:

— 50 %
and
— ECU 3.6; 4.34

(c) for semi-milled and wholly-milled rice falling within CN code 1006 30:
— less 16.78 ecu
— the amount for the protection of the industry referred to in Article 14 (3) of Regulation (EEC) No 1418/76 (2), as last amended by Regulation (EEC) No 1806/89 (3), in the case of semi-milled rice, in line with the conversion rate for wholly-milled and semi-milled rice as referred to in the third indent of Article 19 (a) of that Regulation,
— 50 %
and
— ECU 5.4; 6.52

2. Paragraph 1 shall apply solely:

— to imports for which the importer provides proof that an export tax of an amount corresponding to the reduction referred to in that paragraph has been collected by the exporting country,

— to the product for which the competent authority of the exporting country has issued a certificate of origin.

Article 2

1. The reduction in the levy provided for in Article 1 shall be limited, by calendar year, to a quantity equivalent to 4 000 tonnes of husked rice.

The quantities at stages of milling other than the husked-rice stage shall be converted using the conversion rates fixed in Article 1 of Regulation No 467/67/EEC (4), as last amended by Regulation (EEC) No 2325/88 (5).

(1) OJ No L 375, 31. 12. 1988, p. 47.

(2) OJ No L 166, 25. 6. 1976, p. 1.
(3) OJ No L 177, 24. 6. 1989, p. 1.
(4) OJ No 204, 24. 8. 1967, p. 1.
(5) OJ No L 202, 27. 7. 1988, p. 41.

2. The Commission shall suspend the application of Article 1 once it ascertains that, during the year in progress, imports qualifying under the provisions of the said Article have attained the quantity indicated in paragraph 1.

Article 3

Detailed rules for the application of this Regulation shall be adopted in accordance with the procedures laid down in Article 27 of Regulation (EEC) No 1418/76.

Article 4

This Regulation shall enter into force on the day of its publication in the *Official Journal of the European Communities*.

It shall apply with effect from 1 November 1990.

This Regulation shall be binding in its entirety and directly applicable in all Member States.

Done at Brussels, 26 November 1990.

For the Council

The President

C. DONAT CATTIN

END

APPENDIX 5

TERMS OF REFERENCE FOR THE MARKET OPPORTUNITY STUDY FOR AROMATIC AND FRAGRANT RICE IN THE EUROPEAN, UNITED STATES, MIDDLE AND FAR EASTERN MARKETS

Study objective: To provide an analysis of current supply and demand trends in the market for aromatic rices in Europe, the United States, the Middle and Far East, including an overview of market structure and costs in each region.

The researcher will collect, analyse and evaluate the following information on the four markets listed above and present it in a final report by 30th November 1996:

Supply side

- Major suppliers (i.e. exporting countries) and volumes supplied by each
- Monthly FOB prices from 1991-1996 for Pakistani basmati rice (5% brokens) and Thai fragrant rice (5% brokens)
- Monthly CIF prices for the same commodities and the same time period in one key port in each region.

Demand side

- Current and potential market demand for different aromatic/fragrant rices
- New market segments, product developments, scope for added value
- Customer profile - age and income, lifestage and lifestyle information, purchasing habits, eating/dietary patterns
- Impact of social, lifestyle, cultural, ethnic and economic factors upon demand
- Customer preferences - long grain versus short grain varieties; brown versus polished product; cooking qualities and uses
- Establishing benchmarks, levels of satisfaction, opportunities, threats and likely take up of new products/concepts

Market structure and costs

- Import duties, quality standards, packaging and labelling requirements
- Key importing agents, millers, packers and retailers
- Key purchasing organisations - volumes handled, logistics, trading terms, product portfolio, strategy
- Distribution channels
- Promotions, incentives, advertising and general market support
- Prices paid at different stages of the importing, processing, packaging and distribution chain

Findings will be presented in a final report which shall have the following general structure: title page, content, executive summary, main text, conclusions and appendices (including a full list of references and interviews undertaken during the course of the research). The report should be approximately 40 pages in length. Three copies of the report will be submitted to NRI.

APPENDIX 6

Terms of Reference for BRRI collaborative research on the marketing and processing of traditional rice varieties in Bangladesh

1. To undertake rapid market appraisal in three aromatic rice producing districts of Bangladesh in order to gather information on the marketing of aromatic paddy by farmers, the activity of primary and secondary and market traders, milling operations, transport, storage and financial relationships between different agents in the marketing chain. Also information on the costs and prices paid at different levels in the system to be collected.

2. To collect wholesale price information on aromatic rice and interview traders in key urban markets (Dhaka and Chittagong).

3. To undertake a survey of automatic and Engelberg type mills in order to collect information on equipment, type and capacity of operations, charges for milling and quantity and quality of outturn (samples required of paddy and milled rice for each mill, and in addition, for brown rice at the automatic mills).

4. To collect samples of paddy and rice for quality analysis (kalijira, kataribogh, chinigura, binni rice, ordinary parboiled) in a number of markets in speciality and glutinous rice producing areas of Bangladesh.

5. To analyse all paddy and rice samples collected (from markets and the mills) according to standard specifications (length of grain, degree of milling, percentage of brokens, proportion of damaged grain, coloured grain, moisture level, impurities).

6. To test run a minimum size batch of kalijira paddy through an automatic rice mill and measure quality and quantity of outturn.

7. To grade at BRRI milled kalijira rice to export specifications (max. 5% brokens, no foreign matter etc.) and send 100 kg to the UK. In addition, to procure 100 kg each of chinigura and kataribogh and to grade to the same specifications. All three to be air freighted to the UK.

8. To produce a report on all the market surveying and quality analysis work by the end of the contract period.

Activities to complete TOR:

Activity 1. Informal survey undertaken by a BRRI research team (one marketing economist, one technologist/engineer) in 3 districts (Mymensingh, Naogaon, Dinajpur). For the duration of the first period of fieldwork in Mymensingh, the BRRI researchers to be accompanied by an NRI team comprising one marketing economist and one food technologist.

On arrival in each district the researchers will develop an overview of the location of mills and markets (seeking advice from administrative and commercial sources) and from these select the following:

1.1 Two automatic mills and 2 major mills (2 stage milling) specialising in speciality rice milling and 2 ordinary Engleberg mills to collect data on the mills' equipment, operations and charges. Samples (0.5 kg) of paddy, brown rice and milled parboiled rice from each automatic mill will be collected and paddy and speciality paddy and rice from the specialist mills. Information on the origin and destination of speciality rice will be collected from millers. Number of visits per district = 6; number of samples per district = 14. Total number of mills visited = 18; number of samples collected = 42.

1.2 Three primary assembly markets. In each market 6 farmers and 3 traders interviewed in order to obtain information about incentives for the production of speciality rice, options for marketing it, relative prices received for MV paddy and speciality paddy, on farm and trader storage of speciality paddy, transport and the structure of the marketing system, including any financial relationships between agents. Number of interviews per district = 18 farmers, 9 traders. Total number of interviews = 54 farmers, 27 traders.

1.3 Two secondary markets. In each market, interview 5 traders selling the speciality rices to determine price of speciality rices relative to aman rice, relationship between quality and price, relative frequency of sales, market structure. Number of interviews per district = 10. Total number of interviews = 40

1.4 In one secondary market in each district, collect 5 samples (0.5 kg) each of aman and speciality rices. All samples collected to be labelled and prices paid written clearly on the sample bags. If imported basmati rice is for sale, collect price information only. Number of samples per district = approx. 25 (depending on availability of speciality rices). Total number of samples = approx. 75.

Activity 2. Visits to wholesale markets in Dhaka and Chittagong to interview traders and collect price information and samples of aman, kalijira, chinigura, kataribogh, binni rice. Also price information only for imported basmati rice. Five traders interviewed in both markets and one sample of each type of rice collected from each trader. All samples collected to be labelled and prices paid written clearly on the sample bags. Number of samples = 50. Collect price information only of imported basmati rice from 5 different traders.

Activity 3. At the BRRI laboratories all samples collected divided into 2 equal parts. One set of samples to be sent to the UK and the other set analysed according to standard specifications at the BRRI laboratory. Total number of samples = 50 (Dhaka and Chittagong) + 75 (secondary markets) + 42 (mills)

Activity 4. Procure 1 tonne of kalijira paddy and test run through an automatic mill and measure quantity of outturn and its quality. Take samples of paddy, brown rice and fully milled rice. From this volume, clean and grade 150 kg of milled kalijira to a quality on par with FAO premium grade. In addition, procure 150 kg each of chinigura and kataribogh and grade to the same specifications. Batches of 100 kg of each rice to be air freighted to the UK.

Activity 5. Preparation of report on results of all research activities. This to be sent to NRI (Attn. Ms Stringfellow) by 31/3/97.