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## MARKETING ARRANGEMENTS WITHIN THE RICE INDUSTRY IN GUYANA

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### *A Short History of the Rice Industry*

The production of rice in Guyana started on a rather modest scale sometime during the middle of the Eighteenth century. The industry owes its origin to our slave and indentured forefathers who operated under primitive and sometimes dehumanising conditions in order to feed themselves. Over time, however, the rice industry developed to become the second most important agricultural enterprise in the country, the first being sugar.

Like in other parts of the Caribbean, plantation agriculture involving sugar, dominated the agricultural sector of Guyana. The demands of the plantation system imposed severe constraints on the development of other agricultural enterprise and indeed the plantation owners demonstrated open hostility towards any activity which sought to compete with sugar and banana. However, the intense desire of, and continuous struggle by the slaves and indentured labourers for freedom, inspired the growth and development of the rice industry in Guyana.

During the early stages, rice production was mainly one of subsistence farming with the participants utilising what little knowledge and experience they gained from the plantation environment in the production of food for their families. Under such a production system, one would normally expect to find small and scattered farms.

Some of the main varieties of paddy planted during this early period include Demerara Creole,

Suthra Dhan, D110 and BG79. Today, the rice industry utilises such varieties as Starbonnet, Rustic, Champion and Variety 'N' which are not only more resistant to pests and diseases, but are also higher yielding. Data on acreage under production - as well as yield per acre over the period 1950-82 are shown in Table 1. Although Berbice is the leading rice producing area in Guyana, both Essequibo and Demerara account for a fairly substantial portion of production.

Very sharp differences characterise plantation agriculture and domestic food crop production. The plantation system, for example, occupied the best lands, in terms of fertility, location and infrastructure; faced a labour supply situation in which it could be prejudicially selective; had access to unlimited capital and sold its outputs to guaranteed overseas markets. On the other hand, traditional food crop production was forced to occupy relatively inferior lands, on the periphery of the estates, utilised family labour and encountered a serious problem of capital rationing. Traditional agriculture also supplied an unstable local market through a highly inefficient marketing system.

The rice industry in Guyana can truly be described as indigenous. From its inception, right up to today, Guyanese own and control all aspects of rice production. Regrettably, however, in addition to the number of physical problems such as poor drainage and irrigation, inadequate facilities, and pests and diseases, which affected the industry during its

TABLE 1: Paddy Production and Yield per acre in Guyana, 1950-82

Year	Acreage Harvested	Paddy Production (t/tons)	Yield/acre (bags)
1950	103,016	102,902	16
1951	116,872	112,929	15.5
1952	137,515	123,522	14.5
1953	132,100	137,144	16
1954	149,308	147,594	16
1955	137,025	129,409	15.1
1956	135,559	130,783	15.4
1957	135,985	106,723	12.4
1958	160,500	161,900	16
1959	197,480	173,118	15.4
1960	220,207	199,552	14.7
1961	261,249	222,374	13.6
1962	245,973	223,338	14.5
1963	201,145	169,481	13.4
1964	272,933	275,807	16
1965	331,231	328,444	11.3
1966	305,395	250,410	13
1967	253,499	184,614	11.6
1968	312,955	218,309	11.2
1969	279,303	170,549	9.8
1970	294,382	218,901	11.9
1971	233,542	184,527	12.6
1972	196,272	144,776	11.8
1973	229,268	149,916	10.5
1974	261,180	251,782	15.4
1975	287,861	292,334	16.2
1976	297,546	170,151	12.1
1977	337,322	382,544	17.5
1978	283,672	393,264	17.1
1979	222,853	236,692	17.6
1980	239,100	277,326	18.7
1981	219,962	271,517	19.7
1982	235,344	297,800	20.2

Source: Guyana Rice Board, Jan. 1984.

early stages, these have been compounded by problems of management. The serious nature of many of the problems today has resulted partly from the phenomenal growth which has taken place in the industry during the last two decades. While current efforts are being made to address the management problem, many of the others still exist and may continue to persist a while longer in the light of the serious economic situation imposing constraints on importation of fertilisers, chemicals, spares and other inputs for the industry.

Among the major problems facing rice production in Guyana are:

1. drainage and irrigation
2. inadequacy of land preparation and harvesting equipment

3. inadequate storage and milling facilities
4. unfavourable weather
5. pests and disease
6. management.

#### Drainage and Irrigation

Water resource management is a crucial element in all agricultural activities including rice production. Poor drainage and irrigation in the rice industry is the result of both inadequate and inappropriate physical facilities as it is a problem of poor water management. Farmers, as well as the Drainage and Irrigation Board have failed to keep clean the existing canals, thereby impeding the free movement of water. In addition, farmers have not only neglected their feeder drains, but have also failed to make maximum use of scheduled time runs of water.

#### Inadequacy of Land Preparation and Harvesting Equipment

About one decade ago, it was a popular view that the rice industry in Guyana was over-mechanised, reference being made directly to the number of tractors and combine harvesters available to the industry. In addition to the private ownership of much of this equipment, the government itself operated agricultural machinery hire pools from which farmers rented equipment as they needed. Today, mainly because of the lack of spare parts, the situation is the complete reverse. This problem does not only cause delays in land preparation thus resulting in late plantings for many farmers but also the shortage of combine harvesters often resulting in large acreage of cultivation remaining unrecaped.

#### Inadequate Storage and Milling Facilities

Inadequate storage has become a serious problem on the farm as well as at the factors. In the past, many farmers had watchhouses in which

they stored their paddy - at least temporarily - before taking it to the factories. Today, for a number of reasons, no such watchhouses exist and in the event of delays in transportation - which now frequently occur - the paddy is exposed to the elements thus causing deterioration in quality and sometimes complete spoilage. Additionally, the upright silos, most of which were constructed about 1965, as the main storage facilities at the factories, have proven to be technically inefficient, and therefore, add to the problem of inadequate facilities. As in the case of land preparation and harvesting equipment, many rice mills have become inoperative because of the lack of spares and adequate maintenance.

#### *Unfavourable Weather*

Of all the above problems, weather must be considered unique, as neither the farmer nor the government can directly influence its occurrence. It must be conceded that extensive periods of excessive rain on the one hand and long periods of dry weather on the other can have serious adverse effects on rice production. However, it is possible that the unfavourable effects of the weather can be minimised by the storage of excess rain water and its utilisation during drought periods.

#### *Pests and Disease*

The production of rice is plagued by a wide range of pests and diseases and the control of these pose serious challenges, not only for the farmers, but also for the professional agriculturalists working in this area of the industry. The attacks by pests and diseases do not only reduce yields, but also sometimes result in complete loss of crop. Since this can destabilise the income structure within the industry, they must be of grave concern to all operators within it. Some of the more common diseases in the industry are Blast and Brown Leaf Spot while the more destructive

pests are Leafminers and Paddy bugs. Although control methods are known to both farmers and professional agriculturalists, the unavailability of adequate and appropriate chemicals and equipment perhaps represent the greatest area of difficulty in the fight against pests and diseases. To the extent that Guyana continues to experience problems of foreign exchange, therefore, this area of weakness within the industry is likely to continue.

#### *Management*

Good management does not guarantee success, but without it, success is impossible. There is little doubt that the structure of the rice industry gives rise to a number of serious management problems. In the first place the industry is made up of a very large number of small farms which are widely scattered over the entire coastal plain and so severe management problems relating to the supply of inputs as well as the collection of outputs are encountered. Secondly, because the characteristics of the consumption market keep changing rapidly - one time the demand is for short grain rice, the other time it is for long grain; one time the demand is for white rice, the other time it is for brown rice, etc - management is incapable of keeping up with these changes because of the fixity of assets and the unavailability of funds to respond readily. Finally, for reasons which are not altogether clear, farmers seem not to have confidence in the Guyana Rice Board - the government institution set up to manage the industry - and, as a result, do not cooperate as they should in the management of the industry. These represent some of the areas which the Guyana Rice Board will have to address if the industry is to be better managed.

#### *An Overview of Agricultural Marketing*

Marketing is generally described as the sum total of all those activities involved in moving a commodity from

its point of production to its point of consumption. In the case of agricultural marketing, there is not complete agreement as to where production ends and marketing begins. It is often argued that agricultural marketing must start some time before a crop is reaped if post-harvest losses are to be minimised and marketing itself is to be efficient.

In any analysis of agricultural marketing within the Caribbean, it is useful to separate the arrangements for the plantation sub-sector from that of the indigenous food crop sub-sector. This is considered necessary because of the vast areas of difference in the two systems.

The marketing of output from the plantation system, i.e. sugar and bananas, can be considered relatively efficient although the efficiency level has deteriorated somewhat during the last few years. There are a number of reasons for this relatively higher level of efficiency within the plantation sub-sector. In the first place, the location of farms within the plantation system facilitates easy distribution of inputs and collection of outputs and provides ample opportunity to rationalise transportation systems. Secondly, all the requisite marketing infrastructure, e.g. packaging, transportation, storage, etc. are in place. Thirdly, until relatively recently, the plantation sub-sector sold all its production to guaranteed markets at fairly remunerative prices. Last but not least, the marketing activities are managed by individuals with the experience, competence and capacity to operate the system efficiently.

In the case of the marketing of food crop production, the operation is less efficient and in some areas can be described as absolutely poor and wasteful. Besides the fact that food crop farms are generally small and widely scattered thereby making the supply of inputs and the collection of output difficult, instability in

production and lack of information at both the farm and consumer levels are perhaps among the main causes for inefficiency in domestic food crop marketing. Additionally, basic infrastructure is inadequate/inappropriate thereby compounding the problem. Equally important is the lack of skilled personnel to operate the system.

The path along which a commodity passes in its movement from the producer to the consumer is known as its *marketing channel*. For some commodities this channel may be short and may have few stop points while for others it may be long and contain a large number of stops. Generally, though not necessarily so, a shorter channel with fewer stops is more efficient in terms of lower marketing costs and minimum post-harvest losses. In the case of agricultural marketing, these losses which may take the form of germination, quantitative, qualitative and nutritional, are of special importance as they can significantly reduce the volume and value of production finally getting on the plates of consumers and can account for millions of dollars worth of food waste. This is indeed a major problem in the Caribbean as indeed it is in many other parts of the world. As part of the global concern for food security, continuing efforts are being made to reduce the volume and value of these losses by improving the agriculture marketing system.

The marketing channel for a food commodity may, for convenience, be divided into three sections:

1. activities at the farm level
2. those between the farmer and wholesaler/retailer
3. activities at consumer level.

Each section is connected to the other by a network of transportation systems. Efforts aimed at improving marketing are, therefore, generally concerned with the activities within the three sections and also the transportation network linking them.

### *The Generalised Marketing System for Paddy/Rice*

In the very early days of the industry, farmers sold their production of paddy to private rice millers in the absence of government-owned or controlled facilities. In the main, the farmers themselves were responsible for transportation between the farm and the mills. After processing the paddy, the private millers sold the rice either locally or to overseas markets. It was in the conduct of these sales that the private rice millers are accused of utilising unfair practices particularly to overseas buyers. It was alleged that in their dealings with importers, the quality of rice actually shipped overseas was very poor and differed sharply from the samples used in the trade negotiations. On the home front, it was claimed that farmers were paid very low prices for their paddy but consumers were made to pay very high prices for rice. The adverse effects of such actions on the rice industry are obvious and steps to correct them were seen as necessary.

In 1950, the government established the Guyana Rice Marketing Board<sup>4</sup> and sought to influence the marketing of rice so that it could enhance improvements within the industry. The Act lists the following as the main functions of the Board:

1. to develop the rice industry in Guyana and to promote the expansion of the export trade in the said industry;
2. to exercise general supervision over the disposal of paddy produced in Guyana;
3. to control the manufacture, purchase, sale, distribution and export of all rice and all by-products of paddy manufactured in Guyana;
4. to carry on the business of rice and paddy merchants;
5. to engage in such other commercial, industrial and agricultural activities which the

Board deems necessary for the purpose of developing the rice industry.

The Guyana Rice Board shares with private millers the responsibility for purchasing farmers' paddy but retains monopoly power on the sale of all rice produced both by itself and the private miller. A simplified representation of the marketing arrangements for paddy/rice in Guyana is presented in Diagram 1.

From this diagram it can be seen that farmers sell their paddy to either a government or private mill for processing. Private millers, however, must sell all their rice to a government mill.

All the processed rice which is available goes through one of three channels. On the basis of estimated demand for rice within the respective production areas, quantities of the commodity are sold, on terms and conditions established by the Guyana Rice Board, through authorised wholesale and retail dealers to consumers within the respective local communities. Export sales are generally negotiated directly by the Guyana Rice Board and executed from its Georgetown head office. However, since the respective counties have the physical facilities for handling export sales, some quantities of rice for overseas markets are loaded at these facilities. Excess volumes of rice from the producing areas are forwarded to the Guyana Rice Marketing Board in Georgetown. The rice is sold on the local or overseas markets. Head office sales to the local market are directed mainly to the non-rice producing areas in Guyana and also to top up short falls which may occur from time to time within the producing areas.

Since the marketing arrangements in the three counties are similar and vary only in operational details, the analysis of the system focuses on the arrangements within one county - Demerara.

In terms of dividing the system into the three levels to which reference was made earlier, activities

of the farmers may be considered as Level 1, the operation of both the public and private milling facilities as Level 2 and the rest of the marketing channel as Level 3. Those three levels are analyzed separately.

*Production, Reaping and On-farm Storage - Level 1*

Agricultural marketing, if it is to be efficient, must have a backward linkage into agriculture production. Indeed, the integration of production and marketing is considered an absolute necessity. This is so because of the level of influence production activities - particularly those like selection of varieties and times of harvesting - can have on the quality of the final commodity. It is, useful, therefore, for the marketer to function as the medium through which information can flow backward and forward between the farmer and the consumer.

Regrettably, the type of casual relationship existing among the farmer, the marketer, and the consumer does not allow for the identification, collection and dissemination of the type of data which will inform production and marketing systems and so make their activities more efficient. Although the need has been identified as crucial it is unfortunate that positive steps have not yet been taken to initiate its development. It is strongly believed that improvements in agricultural marketing in the Region will not be achieved unless or until an appropriate, adequate, and timely production/marketing information system is developed and made operational.

The production of good rice must begin with the planting of good seed paddy, although the latter does not guarantee the former. For the marketing system to deliver a commodity which fits the basic specifications of the consumer, the farmer must plant the required variety, e.g. long or short grain. Similarly, marketers must be able to

inform millers whether the market demands white or brown rice. These two examples provide guidelines as to the type of information which must be provided to the farmer or miller if they are to respond adequately to consumer demand.

The Guyana Rice Board, as the institution responsible for overall coordination within the rice industry in Guyana, should accept the inescapable challenge to develop and implement the needed information system within the industry. Details on the types of data to be collected and the forms in which they may be presented can be examined at a later stage. However, such a system must gather and disseminate information on all aspects of the industry. Additionally, it should not only give but also seek to obtain information at the regional and international levels of developments within the industry and particularly on areas which are of importance to Guyana, for example, varietal developments and market opportunities.

The land tenure systems have an important influence on rice production in Guyana. The systems vary from ordinary rental agreements to complicated share cropping arrangements. The intention is not to analyse these systems but to highlight their effects on the marketing of paddy.

The ownership of the land on which paddy is produced is an important variable determining some of the obligations of the rice farmer in selling his paddy. In order to understand and appreciate some of these obligations, it is useful to recognise that rice production is being done on both privately owned or rented land and on land leased from a government land settlement scheme. The farmers who operate on private lands are free to sell their paddy to any miller but those who utilise government land are compelled under the terms of their agreement to sell their paddy to a government mill. This condition was instituted, not

merely to ensure that the government mills obtain an adequate volume of paddy for processing but perhaps equally important, to ensure that land rentals and other cost of inputs supplied on credit, for example, fertiliser and chemicals, are efficiently collected. Farmers on government lands are not required to provide guarantees for inputs advanced to them. In the case of farmers who operate on private land obtaining inputs from the government, they are obligated to provide guarantees; and since they owe no rental to the government there is no need to compel them to sell their paddy to a government mill. It is in the interest of these private farmers to repay their loans if their guarantees are not to be forfeited.

The arrangements regarding the sale of paddy by farmers appear on the surface to be reasonable but in actual practice operate to the disadvantage of the farmer. For a number of reasons, payments to farmers for the sale of paddy to government mills are usually delayed for long periods and because of this, there is the constant temptation for them to sell all or part of their production to private millers whose payments are usually prompt. The main disadvantage in selling to private millers is that they pay significantly lower prices and make larger price deductions for higher moisture contents. While the government would pay \$33 for a 140 lb. bag of Grade 'A' paddy, a private rice miller would offer about \$25. Appendix I shows prices paid by the Guyana Rice Board to farmers for the various grades of paddy.

An examination of the prices at the farm level will reveal that there is very little differential for quality. In 1982, for example, the prices for the three top grades were \$33, \$31.50 and \$30. This price structure certainly does not have the stimulus to encourage farmers to upgrade their management and do produce Grade 'A' paddy. Indeed, if they are to be

encouraged to expand or even remain in the industry they must be given a fair price as well as one which will make them strive for excellence. Since pricing policies are of such crucial importance in agricultural production, it is absolutely necessary that these be very carefully determined and implemented.

Beside the very spatial nature of the rice industry, a large portion of production is done by small farmers. Expansion within the industry has tended to intensify the problems of reaping and on-farm storage. It is these aspects that this paper now seeks to explore. Except for relatively small and sporadic areas, recent industry expansion no longer permit the reaping of paddy by hand but rather dictate the use of combine harvesters. The activity of reaping is done by both private and government-owned combines. The shortage of harvesters coupled with the state of disrepair of a large portion of what should be available, cause long delays in completing this task with consequential problems for the industry. Delay in harvesting is directly correlated with losses due to shattering. This delay also affects the quality of both the paddy and rice. Additionally, late harvesting causes delays in planting in the succeeding season and the chain reaction finally results in a series of bottlenecks. To overcome this difficulty, additional equipment will have to be made available to the industry as hand reaping will not only be impractical but more costly.

A more recent but equally serious problem relating to harvesting is the shortage of bags. Recycling of bags has always been a feature of the rice industry and this method has proven to be adequate in the past. Normal wastage, however, coupled with limited foreign exchange to acquire new stocks for an expanding industry, impose severe strain on the system, resulting in long delays in harvesting with consequential adverse chain reactions throughout the



industry.

In the past, farmers had their own storage sheds on their farms and even provided some additional space at their homes. Modest though these facilities were, they served a very useful purpose in providing temporary storage while the facilities at the mills were fully utilised. Prædial larceny was perhaps the greatest discouragement to this practice. Additionally, with the expansion in the industry, many farmers were unable to provide the level of on-farm storage required and so they became totally dependent on the mills. When the industry possessed adequate reaping and transportation facilities, the quick movement of the paddy from the farm to the factory was almost guaranteed. Today the situation is the complete reverse with high levels of post-harvest losses resulting from the delays.

With regard to solving this problem, the industry has some options:

1. encourage the building of adequate on-farm storage by farmers;
2. provide maximum storage at the milling sites - both government and private rice mills;
3. provide adequate reaping, transportation and milling facilities so that storage requirements are reduced to a minimum.

A combination of Options 2 and 3 which are not mutually exclusive, seems to be the more feasible choice for the industry. Because of the relationship between the options, improved reaping, transportation and milling facilities will necessitate less storage; and vice versa; and an optimal level for these facilities can be established. Option 1 seems unworkable for a number of reasons. In the first place, reintroduction of on-farm storage may reintroduce the problem of prædial larceny. Secondly, reestablishment of on-farm storage may duplicate the government's programme for storage

facilities at the mills and result in waste of scarce resources. Finally, few farmers would have the means to provide the level of storage facility now required on the farm.

The unfortunate situation at the farm level of the industry is that while farmers are asked and indeed persuaded by the government to increase their production and productivity, inadequacies of many forms, at this crucial level imposes severe constraints and in fact discourage production. Quick and positive action to remove these constraints will have to be taken if sustained growth in the industry is to be maintained.

#### *Intermediate Transport Link - Farmer/Miller*

After reaping is completed, the paddy is transported to a rice mill. As in the case of production and other on-farm activities, transport between the farm and the mill is becoming increasingly problematic mainly because of the inadequacy of transport infrastructure.

In the days when reaping was done by hand and some storage was available on the farm, transportation was undertaken by donkey and mule carts and augmented by the use of small boats. This method was efficient because, not only the quantities to be transported were small but also the distances to be travelled were relatively short. Mainly because of the growth which has taken place in the industry - giving rise to the closing down of a number of small mills and the establishment of multi-stage facilities - these methods had to give place to the ones which were more in keeping with the expansion.

Farm-to-mill transportation within the rice industry is done mainly by lorries and tractor-drawn trailers. Very little use, if any, is made of water transport. Shortage of both fuel and spares restricts the efficiency with which this activity is

undertaken. Inadequacy of storage space at the mill sites coupled with malfunctioning of the milling facilities themselves, cause considerable delays in the discharge and despatch of transport equipment.

Poor maintenance of farm roads has made these impassable for much of the year. Under such circumstances, farmers are known to have developed shuttle systems using oxen-drawn slides to negotiate the very difficult sections of the roads. Neglect of drainage trenches - once used for transportation - by both farmers and local authorities, has added to the problem.

The required transport infrastructure - network of roads and waterways as well as basic transport and other related equipment - for facilitating farm to mill transportation is available. However, if this activity is to be efficiently undertaken then the existing facilities must be upgraded and maintained. Towards this end, a system for procuring spares and other essential inputs must be developed and quickly implemented to avoid a total collapse at this level. Additionally, the condition of both roads and waterways should be improved and maintained.

The question of farm to mill transportation should be thoroughly investigated to ensure that the most efficient method is utilised in the industry. With increase in the price of fuel as well as that for spares, the industry should examine the economics of water transport as against road transportation recognising that an excellent network of waterways is available and water transport once featured prominently in the rice industry. It may be useful to point out that water transport is generally cheaper than land transport and it is being extensively used in the local sugar industry.

#### *Storage and Milling - Level 2*

The seasonal nature of paddy production dictates the need for adequate and appropriate storage for

both paddy and rice at the milling sites. The storage of on-farm storage for paddy and the need to hold stocks of rice for even release and distribution on the market, represents another important reason for the establishment of these facilities.

To meet the needs of the industry, the government, over the period 1960-65, erected a number of upright silos throughout the country for the storage of paddy. Additional dry storage was provided for rice. Private entrepreneurs also provided additional storage for both paddy and rice.

Even when all the storage silos for paddy were functioning well, they were found to be inadequate in terms of the volume of paddy. Today the problem is aggravated not only because of the growth within the industry, but also because of the malfunctioning of many of the silos. While the problem regarding the storage of rice is somewhat less critical, it nonetheless needs to be addressed if it is not to deteriorate.

The general problem of storage at this level is the result of a number of inter-relationships. With particular reference to paddy, adequate storage is both a function of volume and rate of milling into rice. All things being equal the more paddy there is then the more storage would be required. However, the more adequate and efficient are the mills the less need there would be for storage. This inter-relationship is often further complicated because of the need to undertake additional drying of farmers' paddy before storage. Since the moisture content of paddy can influence the choice of a particular bin for storage, it is very possible to have unutilised capacity of some bins and shortage of others.

With reference to the storage of rice, the problem is somewhat similar. Adequacy of storage in this instance is a function of volume and rate of sale. Although more rice means more storage, quicker sales reduce the need for this storage than slower

sales. As in the case of paddy, grade differentiation can aggravate the storage problems for rice because of the necessity to store different grades separately.

From the above presentation, it would be observed that the three critical variables influencing storage at this level are:

- (a) volume
- (b) rate of milling of paddy; and
- (c) rate of sales of rice.

Attention is now paid to the first and second variables while rate of sale of rice is examined in Level 3.

While it is known that the larger the volume of paddy or rice, the greater is the need for storage, perhaps no one would be prepared to recommend as a solution to the storage problem the contraction of the rice industry so that smaller volumes of output can be produced. On the contrary, the recommendation from all quarters is to increase both production and productivity, not only of paddy/rice, but of all other food crops so as to increase the level of food security in the Region.

Under normal circumstances, some quantity of storage would be required at this level and the volume can be determined and put in place. Perhaps the repairs to existing silos will provide the needed space or there may be need for an expansion programme to provide some additional space. The possibility of government and the private sector going into joint ventures may be examined. It would appear, however, that the key to the solution of the storage problem rests with milling, and it is to that option that attention is now focussed.

Before the introduction of multi-stage milling facilities into the industry, the bulk of processing was done by a large number of small single stage mills located throughout the rice producing areas of the country. This change in technology has had an important impact on the industry.

In a number of ways, the single

stage mill was mechanically less efficient than its multi-stage counterpart. Its rate of processing was relatively slow. Husk from the milling process contaminated the rice. It did not have the capacity to separate broken grains from whole grains. Finally, because of plant design, the process of making parboiled rice was lengthy and cumbersome. Government policy - particularly those relating to quality - along with competition soon made the use of the single stage mill obsolete.

Although the multi-stage mills were able to overcome these mechanical failures and introduce other mechanical benefits they created a new set of problems. Since their establishment required significant levels of capital outlay very few could have been set up thus lengthening the distance between the farmer and the milling facility. Their complicated nature coupled with improperly trained staff gave rise to frequent breakdowns. Their demand for both spares and fuel is comparatively excessive and, therefore, imposes severe strain on the country's scarce foreign resources.

Very useful arguments can be developed to support the use of either multi-stage or single stage mills in the rice industry. However, in the light of the expansion programme, it would appear that economics would favour the choice of the multi-stage mill. To overcome the current difficulties, therefore, immediate action needs to be taken to correct the apparent disadvantages associated with the choice of this level of technology. Since the major portion of the production of this industry is sold on the overseas market, then the process of obtaining foreign exchange to acquire inputs should be less problematic.

The role of the rice miller - whether it be government or private sector - is extremely critical in at least two areas within the industry. Because of this influence on pricing

policies at both the farm and consumer levels, the supply and demand situation is mainly the reflection of his actions. Additionally, he is an important determinant of the quality of the rice being offered for sale and can, therefore, influence consumer reaction.

A futile and perhaps unending argument can develop if one attempts to determine whether the farmer or the consumer is more important for the success of any agriculture enterprise. Suffice it to say that they are both important and the industry as well as both parties would suffer if there is not a close coordination between producers and consumers. Be this as it may, it would appear that production activities would grow and develop only if they respond adequately to consumer needs. Under the circumstances, therefore, the miller is somewhat obligated to monitor and interpret the needs of consumers, not only so that he himself can strive to meet these demands, but also relate in such a way to farmers so that they too can seek to meet the needs of the consumer.

Since paddy itself is hardly consumed as a final product, the farmer must depend ultimately on the miller to purchase his paddy for conversion into rice. Similarly, since a rice mill cannot efficiently process other grains, the rice miller must depend almost exclusively on the rice farmer for providing him with his basic inputs. The interrelationship which develops could depend on how these two operators see their bargaining positions in the marketing system. This relationship is not as strongly influenced by supply and demand as one may be tempted to believe.

Because industrial producers can generally regulate their outputs and so avoid over and under production, they can have a controlling influence on the market. Farmers - with perhaps few exceptional circumstances - are not in such a situation and as a

consequence, farm output is usually in excess of or below what the market demands, giving rise to volatile price fluctuations.

The nature of agricultural business puts the farmer - almost at all times - in a less favourable position than other participants within the system, including millers. At times of under supply, the farmer would expect to receive a higher-than-normal price. This does not happen. Because of the perishable nature of his production, he is often manipulated by the middle-man and instead of being able to maximise his profits he must sadly seek to minimise his losses. At times of over-production, his bargaining position is worse.

The experience of the rice farmer is somewhat similar to that of the general farming community. Since farmers possess little on-farm storage, they must seek to sell their paddy with the utmost urgency. Because of the shortage of milling facilities within the rice industry, farmers seek to 'under sell' one another to dispose of their production. This allows the private miller to manipulate prices to their disadvantage. Because the government's presence is so limited at this level, the ultimate fate of the small farmer in particular, is decided by the private miller.

Where the government develops and tries to implement a farm price regime, this is circumvented by the private rice millers in a number of ways, for example:

1. demanding a higher weight for a standard bag of paddy;
2. making unrealistically high price deductions for moisture content and discoloration.

Although the official farm gate prices for paddy are shown at Appendix I, it should be noted that these prices - for a number of reasons - are more often honoured in the breach. In terms of the relationship between the farmer and

the miller, the question of rice quality is less important and is, therefore, examined at the consumer level of the marketing system.

The activities at the farm level of the rice industry, are indeed crucial to its survival and it is therefore urged that positive steps be taken to improve the efficiency with which they are undertaken. In particular, the following recommendations are made:

1. that milling facilities - both public and private - be expanded and upgraded so that rice milling could be improved thereby alleviating the storage problem;
2. that adequate storage facilities at the milling sites be provided in keeping with the needs of the industry and that small farmers should not be asked to build their individual storage sheds as this will not only be more costly to the nation and duplicate the efforts of the government but also revive and encourage praedial larceny; and
3. that the government seeks to develop, implement and monitor a farm price policy which guarantees adequate returns to both farmers and marketers and provide satisfaction for consumers.

#### *The Marketing Channel for Rice - Level 3*

At Levels 1 and 2, we were essentially concerned with on-farm production of paddy and the milling of it into rice. At Level 3, we will focus on the movement of this rice from the milling site to the terminal market and finally to consumers. This arrangement is in Diagram 2.

After leaving the Guyana Rice Board branch office, rice travels essentially through three channels shown as A, B and C in Diagram 2. Channel A shows the rice going to overseas importers than to other (overseas) wholesaler/retailer, and finally to consumers (overseas).

Channel B goes through the GRB head office then to other (local) wholesaler/retailer and then to domestic consumers. This channel has two side shoots to overseas importers and to local wholesaler/retailer as shown in the diagram. Channel C goes through local wholesaler/retailer to domestic consumer. These three channels are examined separately. Since Channels A and C are less complicated, they are examined first. Additionally, some of the main issues in them also occur in Channel B and are, therefore, examined in greater detail in the latter.

#### *Channel A*

Guyana has always been a major exporter of rice to the Caribbean and also to extraregional markets from which transactions it is able to earn valuable foreign exchange. These export sales are usually made from the GRB's headquarters in Georgetown, but, on occasions, are done directly from the sub-regional port facilities in Essequibo and Berbice. This movement is represented in Channel A and there are two stop points along it.

Because of the special implications of export sales, it is important that at all times it be done as efficiently as possible. Since we are dealing with export sales through the branch offices then the need for thorough and careful supervision cannot be over-emphasised. At the GRB branch mill the quality of rice exported should be examined to ensure that it meets with importers' demand. This was a major problem when rice was privately exported. Storage and shipping services should be so organised at this point that deterioration in quality is minimised and delays in transportation are avoided. Correct documentation and precise labelling will minimise difficulties with customs authorities.

In terms of the export/import activity itself, the first physical contact with the overseas importers

would be at the wharf. The importer should ensure that all the needed preparations are made so as to avoid delays in clearing the goods.

The second stop point along this channel is the overseas wholesalers/retailers and can indeed be represented by the importer himself. At this point it is important that the required transportation is laid on the that adequate and appropriate storage is available. This stop is crucial because of its potential for generating information to both farmers and consumers. This is developed later in this section.

#### *Channel C*

Channel C show the movement of rice from the GRB branch office to local wholesaler/retailer and finally to consumers. This channel has one stop point.

As in the case of overseas sales, the GRB branch office should ensure that good quality rice is supplied to the market. A crucial aspect of the activities at this point related to the precise estimating of consumer needs of the local community. Over supply to this section may result in shorage on other market while under supply will give rise to the need to retransfer rice from Georgetown to the local communities.

The stop point at the level of the local wholesaler/retailer is important because it can serve as a useful medium through which information can flow between the farmer and the consumer. At this point too, the wholesaler/retailer can play an important role in influencing consumer taste patterns particularly in the light of current efforts to promote greater consumption of local produce.

#### *Channel B*

The major portion of the rice produced in Guyana is marketed through Channel B. This is typically one main channel with two off-shoots to overseas importers on the one hand

and local wholesaler/retailer on the other. Since problems along this channel can result in major losses, it is important to ensure that all the activities along this channel are efficiently done.

After meeting the needs of the immediate community and making direct shipment to importers, the remaining stock of rice at the sub-regional offices is sent to the GRB head office. Although the GRB head office sells bulk rice in 180 pound bags, a major protion of the rice entering the head office facilities is repackaged into a range of smaller containers (30 x 2 lb.; 12 x 5 lb.; and 1 x 30 lb.) for both the local and overseas markets.

As mentioned previously, the GRB has overall responsibility for the rice industry. The head office of the Board is located in Georgetown. This Board has a staff of about 500 and a copy of the management structure is shown in Appendix IV. From the organisational structure, it would be observed that there are six senior managers with responsibility for specific areas and they report to the General Manager. There are three regional managers located in Essequibo, Demerara and Berbice. The branch managers located at Wakenaam and West Demerara previously reported to the regional manager in Essequibo but now operate as regional managers in their own right. The regional managers report to the respective senior manager depending on the nature of the business and ultimately to the General Manager. The regional offices have the necessary supporting staff.

For a number of reasons, both the technical and economic performance of the Board has not measured up to expectations. On the technical side, it has failed to deal adequately with such problems as pests and diseases; drainage and irrigation, and other infrastructural needs such as rice milling and storage. On the economic side, its

pricing policy has not only failed to stimulate production, but also to provide equitable returns to all those involved in the industry including consumers. The lack of an aggressive marketing strategy has caused the drying up of important markets. Additionally, poor data collection and analysis has hindered the decision-making process of management. The Board has been going through a reorganisation, and one hopes that at the end of this exercise it would be able to overcome most of its current difficulties.

The Georgetown head office of the GRB is the point from which most of Guyana's rice is exported. This side shoot represents an important segment of the activities along Channel B before it dovetails into Channel A through which export trading is done. In the programme to secure and maintain overseas market, therefore, this segment must be meticulously monitored.

As the focal point of export, one would expect strict quality control measures to be implemented. Activities such as packaging, documentation, labelling, storage and transport will require very careful attention to detail. Pricing policies, because they have implications for both the farmer and the consumer also become important at this level.

Quality is important, but particularly so when dealing with food. The motto of giving consumers what they want can contribute to no small way to securing and maintaining markets and quality can be a critical factor in this regard. Grading provides the opportunity to develop target markets and so exploit the market possibilities to the fullest. The rich who would be prepared to pay for what they want will get exactly what they desire and so will the poor; both maximising their utilities in their own way.

Packaging is taking on an increasingly important role. At the farm level, packaging is recommended

so that the volume and value of post-harvest loss can be minimised. At the consumer level it is recommended not only to make purchasing less time consuming and more convenient but also to boost sales. While the rice industry needs to ensure the use of adequate and appropriate packaging at all levels, it must be conscious of the direct and opportunity costs associated with this facility. It is, therefore, useful and necessary to subject this area to constant and rigorous reviews.

Documentation, particularly in export trade is critical. The process of obtaining export licences is sometimes lengthy and complicated. Since we are dealing with a perishable commodity then the process of obtaining such a licence should begin in good time so as to avoid costly delays. Not only is it necessary to know the requirements of the exporting country but also that of the importing one. The requirements of the Customs Departments are usually further complicated by those of the Ministries of Trade and Agriculture.

Precise labelling can help to speed up both dispatch and clearing at the ports of exit and entry. Systematic storage can be facilitated by good labelling. It can also help both the marketers and the consumers to know exactly what they are buying and so avoid disappointments.

Storage is an inescapable activity in any type of trading transaction, and, therefore, one needs to provide adequate and appropriate facilities. This activity is even more crucial when one is dealing with a perishable item as the length of the storage period can have implications not only for cost but also quality.

Transportation is a key element in intraregional trade. West Indies Shipping Company (WISCO) and other small vessel shippers provide the bulk of the shipping facilities utilised in the region. Appropriately designed boats and lack of proper scheduling, however, represent some of the major

transportation problems particularly for fresh agricultural commodities. Since poor storage and delays in shipping can result in costly losses, then this is an area which needs to be quickly and effectively addressed.

Much has been written on the role of Prices and one needs to emphasise here that adequate and appropriate pricing policies are critical for the survival and growth of the rice industry in Guyana. At the farm level these prices can either increase or decrease production and at the consumer level they can either encourage or discourage consumption. It is therefore, absolutely essential that these prices be carefully determined and efficiently administered.

Another aspect of prices which may be examined, relates to the merits and demerits of having controlled prices in the rice industry. At the moment, both farm gate and consumer prices are fixed by the government. Current farm gate and consumer prices are shown at Appendix I while consumer prices are shown at Appendix III. Consumer protection is usually given as the main cause for price fixing. In agriculture, this particularly difficult to administer because of the inability to control farm supply. There can nonetheless be many arguments for and against this practice even in agriculture. With the government being the sole exporter of rice, however, the dismantling of price fixing in the industry will be somewhat more difficult and the whole issue should be very carefully studied before a decision is taken.

The other side shoot of Channel A links into local wholesaler/retailer within Channel C. As in the case with overseas importers, it is important to ensure that all the necessary marketing functions are efficiently undertaken. One crucial aspect of this off-shoot related to duplication and waste. Should the GRB branch office

correctly estimate the demand of the local community then there will be no need for the head office to redirect rice through this channel. In the interest of efficiency, therefore, one would hope that only minimum use is made of this side shoot.

The selection of local wholesaler/retailer is an important element of this off-shoot as the selection of other wholesaler/retailer is to the main channel. In view of the peculiar difficulties of black marketing and hoarding within the food marketing system, the selection process for wholesaler/retailer of rice, has become very rigid. The selectees have to agree to sell the rice at the recommended prices as well as to ensure an equitable distribution.

Where any wholesaler/retailer has been found to breach any of the conditions relating to his selection, he is immediately struck off the list of distributors and may even be taken to court depending on the seriousness of the breach. Despite this, however, there are regular allegations of malpractices at this level. Some of the popular complaints against the wholesaler / retailer include the following:

- (a) the deliberate hoarding of supplies so as to create artificial shortages which will lead to price increases at the consumer level;
- (b) the blending of sub-quality rice with better grades and selling the mixture at extraordinary high prices; and
- (c) the imposing of conditions of sale i.e. rice is sold only on condition that the purchaser buys other specified items.

The above practices can lead to a number of difficulties both for the industry and the consuming public. The creation of artificial shortages of rice may cause general panic buying and so disrupt the entire national marketing system. The eating of substandard rice may lead to ill health for the nation. Finally,



conditions of sale, is likely to impose hardships particularly on the poorer classes of consumers.

The final segment of Channel B, like the other two channels, links wholesaler/retailer with consumers. Since this latter group is of such critical importance in any marketing system, it is necessary to address some of the issues surrounding it.

Consumers play a useful role in generating information which can influence and direct the production of both paddy and rice. It is therefore necessary to establish the type of systems which can collect, analyse and transmit this information so that it becomes useful for consumers, farmers and millers.

While the normal marketing functions e.g. packaging, storage, etc. are important at this level, the focus must be on consumer education both to influence taste and to minimise the level of post-harvest losses which occur in the home. Education must also provide consumers with the desire to experiment and so widen the range of ways in which rice may be presented and consumed and so provide added opportunities for greater industrialisation of the industry.

#### *Transportation Links within the Rice Marketing Channel*

Within the rice marketing channel, the transportation network can be categorised into five distinct sections namely:

*Link 1:* Between the private miller and the Guyana Rice Marketing Board Mill/Branch Office;

*Link 2:* Between the GRB Mill/Branch office and:

- (a) Overseas importers
- (b) GRB head office, Georgetown
- (c) local wholesaler/retailer.

*Link 3:* Between the GRB head office, Georgetown and

- (a) overseas importers
- (b) local wholesaler/retailer

*Link 4:* Between:

- (a) overseas importers
- (b) GRB head office, Georgetown and other wholesaler/retailer

*Link 5:* Between:

- (a) local wholesaler/retailer
- (b) other wholesaler/retailer and consumers.

All the above-mentioned links are easily identifiable in Diagram 2 and transportation is done mainly by road and water. Between GRB, Georgetown and some interior areas e.g. Lethem, transportation is of necessity by air. In the case of road transportation, this is done mainly by trucks or vans while water transport is done by boats owned by WISCO and small vessel shippers.

Some of the transportation links are of more critical importance than others particularly those relating to export trade. In every instance, however, one needs to pay particular attention to certain key factors if losses are to be avoided.

Reliability in all arrangements represent a key element in transportation. Timely dispatch and discharge will help to keep cost to a low level. Storage periods should be minimised. Since delays can result in significant losses then these should be avoided at all the points. Inadequate loads and duplication of trips will increase cost. Proper handling and good storage will preserve quality. Accurate labelling and precise documentation can prevent delays in clearance at wharves.

If marketing margins are to be kept to an acceptable limit, then firm action must be taken to minimise transport cost. One way of achieving this objective is to ensure that the necessary infrastructure is in place. Where this is found to be inappropriate and inadequate, then immediate steps should be taken to upgrade and expand these facilities. Studies to determine least-cost

methods of transportation will have to be undertaken from time to time and recommended projects implemented particularly in view of the spatial nature of the rice industry.

Proper management of the system will be an important element of the demands of both consumers and producers are to be met. This programme will have to begin with the selection of competent managers and equally capable supporting staff. Training programmes will have to be instituted. Finally, there will be the need to monitor and coordinate the entire transport network if the set objectives are to be met.

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DIAGRAM 1

### MARKETING CHANNEL FOR PADDY/RICE IN GUYANA

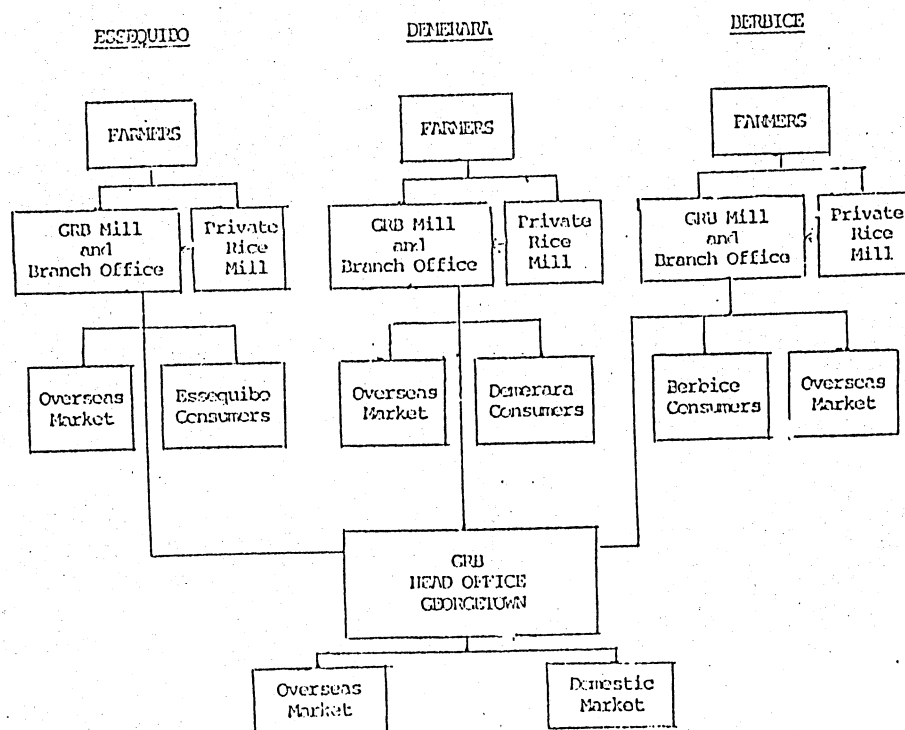
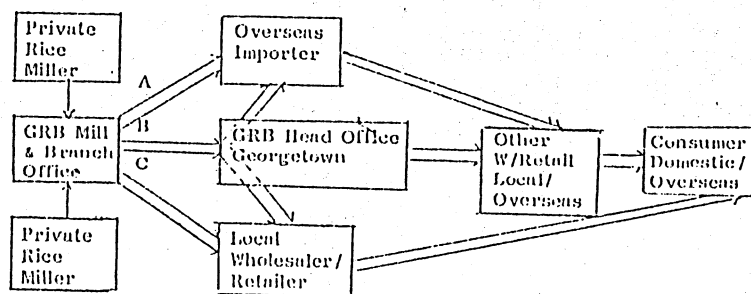


DIAGRAM: 2: Rice Marketing Channel



APPENDIX I: Paddy Prices, 1975-1982  
(G\$ - 140 lb. bag)

Grades	1975	1979	1980	1981	1982
Traditional Varieties & Hybrids:					
Extra A	18.00	21.00	22.00	25.50	33.00
A	17.30	20.00	21.00	24.50	31.50
B	16.60	17.00	20.00	23.50	30.00
C	14.50	16.50	17.50	21.00	27.75
Extra D	13.00	15.00	16.00	19.50	25.25
D	12.45	14.45	n.a.	n.a.	n.a.
Star Bonnet & Blue Bell:					
Extra A	20.00	22.00	23.00	26.50	33.00
A	18.50	20.50	21.50	25.00	31.50
B	17.30	19.30	20.30	23.50	30.00
C	15.50	17.50	18.50	22.00	27.75
Extra D	n.a.	n.a.	n.a.	n.a.	n.a.
D	n.a.	n.a.	n.a.	n.a.	n.a.

Source: Guyana Rice Board, 1983

Note: n.a. - Not available.

APPENDIX II: Purchase Price  
(1982) for Farmers/Millers Rice

	180 lb. (G\$)	115 lb. (G\$)
Parboiled Rice:		
Extra super	80.10	49.00
super	77.10	47.25
Extra #1	73.50	45.00
#1	69.60	42.50
Extra #2	65.60	40.10
#2	62.60	38.25
#3	53.60	32.75
Super broken	53.60	32.75
broken	47.60	29.10
nego	35.60	21.75
White Rice:		
Extra white 'A'	77.20	47.25
white 'A'	74.20	45.50
white 'B'	70.60	43.25
white 'C'	64.70	39.50
white 'A' Bk	52.70	32.25
white 'B' Bk	47.70	29.25

Source: Guyana Rice Board, 1983.

APPENDIX III: Local Sale Prices for Rice, 1973-82

Type	Unit (lb.)	1973	1974	1978	1979	1981	1982
Extra super	180	25.50	25.50	-	-	-	-
- super	"	23.95	23.95	41.03	51.20	61.20	86.40
Extra #1	"	21.00	21.00	40.03	47.20	56.20	79.90
#1	"	19.70	-	-	-	-	-
Pearl brand	60	11.80	14.33	-	26.00	30.20	44.00
Indian Maid	30	-	-	-	-	-	42.50
Indian Maid	60	11.80	13.75	19.00	22.00	26.20	38.50
Guyana white (ordinary)	"	11.80	-	-	-	-	-
Guyana white (spec.)	"	14.80	-	-	-	-	-
Guyana white	"	-	17.30	19.00	22.00	26.20	37.00
Guyana parboiled	"	-	13.75	19.00	22.00	26.20	38.50
Guyana super #1 Parboiled	"	-	13.75	19.00	22.00	26.20	38.50
(2 x 30)	"	-	-	15.75	-	-	-
#1 Parboiled (5 x 12)	"	-	-	15.60	-	-	-
Demerara white	"	-	-	-	-	26.20	37.00
Demerara parboiled	"	-	-	-	-	26.20	38.50
Dellite white	30	-	-	-	-	13.10	-

Source: Guyana Rice Board, 1983.

APPENDIX IV:

