

**IMPROVING THE COMPETITIVENESS AND  
MARKETABILITY OF LOCALLY-PRODUCED  
RICE IN GHANA**

**DEPARTMENT FOR INTERNATIONAL DEVELOPMENT  
(DFID)**

**CROP POST HARVEST PROGRAMME**

**PROJECT R6688**

**1. Marketing of Rice in Ghana**

**1.3 - Marketing of Rice in the Inland Valleys of Southern  
Ghana - Alex Opoku-Apau, Peter Oldham and George Day,  
October 1997**

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# **MARKETING OF RICE IN THE INLAND VALLEYS OF SOUTHERN GHANA**

## **1.0 INTRODUCTION**

In Ghana, and for that matter most developing countries, much attention is paid to the production rather than the marketing of agricultural produce. The focus has generally been on increased food production, providing farm income, and general improvements in the economic well-being of the citizens in the country. Less attention is, however, directed at identifying the goods preferred by consumers, time and place of delivery of the goods, and the form and appropriate price of the desired goods ( Kohls and Uhl, 1990). These factors are, however, important in any technology development and consequent adoption by farmers.

This study was initiated in January 1997, with DFID Crop Post Harvest Programme support, to actually trace the marketing of domestically- produced rice in the inland valleys of southern Ghana, and to highlight some of the constraints to rice marketing.

## **1.1 OBJECTIVES OF STUDY**

The primary aim of the study was to describe the structure, conduct and performance of the domestic rice market in Ghana. The specific objectives were:

1. To identify and describe the market flows or patterns of domestic rice.
2. To describe the marketing chain, as well as the marketing costs at the various levels of the marketing chain.
3. to identify the actors and institutional arrangements in the marketing chain for rice.
4. To identify the major marketing constraints to rice production.

The study should also provide very useful information that could be fed into the policy analysis matrix (PAM) model. The PAM indicates whether a commodity is competitive on the international market, and in this particular study, whether domestically-produced rice has a comparative advantage over imported rice based on PAM.

## **1.2 METHODOLOGY**

The approach used was very participatory in nature (good for the study of market organizations), and it involved talking informally (using Participatory Rural Appraisal-PRA- techniques like farm walks and semi-structured interviews) to a group of rice farmers, traders (both local assemblers and itinerant middlemen), rice millers, retailers and consumers. Information gathered was on post-harvest practices, marketing costs and margins, milling charges, volume of trade (stocks and sales), transport costs, marketing constraints, etc.

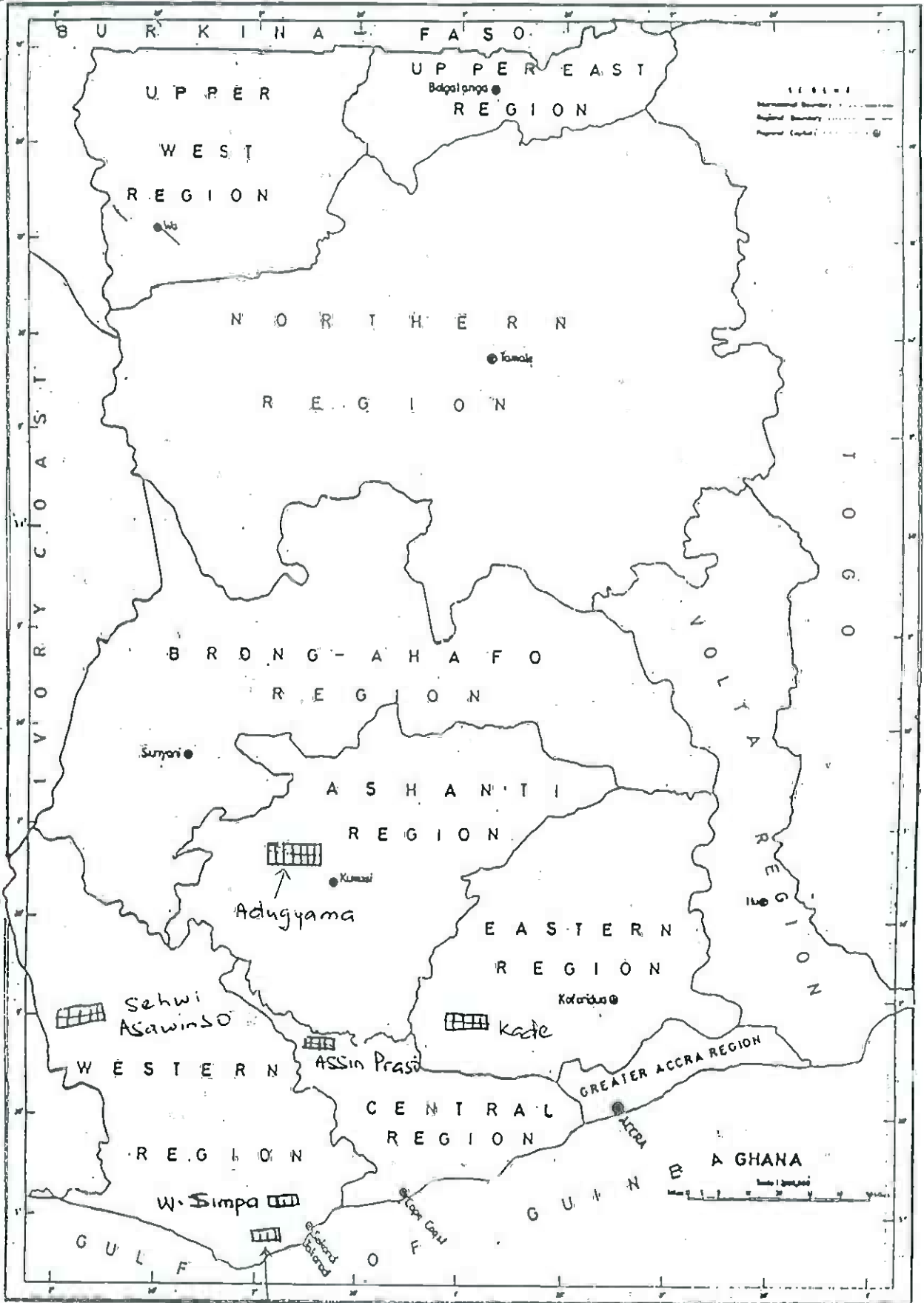
The areas visited were the rice valleys of Kobina Annokrom, Wassa Simpa and Sehwi Asawinso near Bekwai in the Western region, Assin Praso in the Central region, Godenu in the Volta region, Adugyama in the Ashanti region, and Kade-Subi in the Eastern region.

The valley at Dambai (Volta region) could not be reached because of poor accessibility of roads. Some major rice markets at Takoradi, Sekondi, Kumasi and Accra were also visited.

## **1.3 SUMMARY OF MARKETING STRUCTURE, CONDUCT AND PERFORMANCE FOR RICE IN THE INLAND VALLEYS OF S. GHANA**

In almost all the valleys visited, the general observation was that about 80% of the farmers continue to use low input technologies - planting of mostly local varieties, little fertilizer application, less water management- to produce rice. Production practices are therefore very similar, and so also are the structure, conduct, and performance of the marketing system.

# ADMINISTRATIVE REGIONS AND CAPITALS



Kabing Anokrom



Study Areas

### 1.3.1 Post-Harvest Practices

In all the valleys visited, harvesting of rice is done manually either by the farm family or on communal basis. Hiring of labour for harvesting purposes is rare, but where hired labour is employed at all, the labourers take up to about a quarter of the produce after harvest. In harvesting, the panicles are cut with a knife or sickle, and the panicle heads are tied together into bundles. The bundles could then be left on the field for some two or three days for them to dry or alternatively, they could be carted home for drying and storage. While in the house, the bundles of panicle heads are mostly stored on barns (cribs) in the compound of the house with fire set under them as a protection against insects and pests.

Threshing of paddy rice is done either on the farms or in the house. On the farms, specially-constructed threshing boxes are mostly used. Each bundle of panicle heads are beaten against the threshing box. The problem with this method is that much of the paddy is lost through scattering outside the threshing box during the beating exercise. The threshed paddy is gathered and bagged in the field mostly by women and children and carted home on their heads for further drying and storage. According to about 80% of the farmers, only improved varieties are threshed this way. When the threshing is to be done at home, the bundles of panicle heads are carted home immediately after harvest where they are then sun-dried on the bare-floor for two or three days. The bundles are then loaded onto tarpaulins and beaten with a stick. Majority of the farmers do the threshing on the bare-floor. The paddy thus gets contaminated with stones and other foreign particles like animal droppings. Most of the paddy also get broken even before milling as a result of the heavy beatings they receive. About 40% of the farmers claim only local varieties are threshed this way, as compared to the improved varieties, since the local ones have hard glumes.

After threshing, the paddy is winnowed to get rid of a lot of the chaff and other foreign matter. Winnowing is done by pouring the paddy from a bowl held overhead and allowing chaff to be removed by the wind. Winnowing is normally a woman's job

and is done by about 80% of the women. After winnowing, the paddy is bagged and stored, ready for milling.

There is no definite storage period for paddy because rice milling is done depending on market demand or when rice is needed for food. Much of the paddy dried and stored is used for seed.

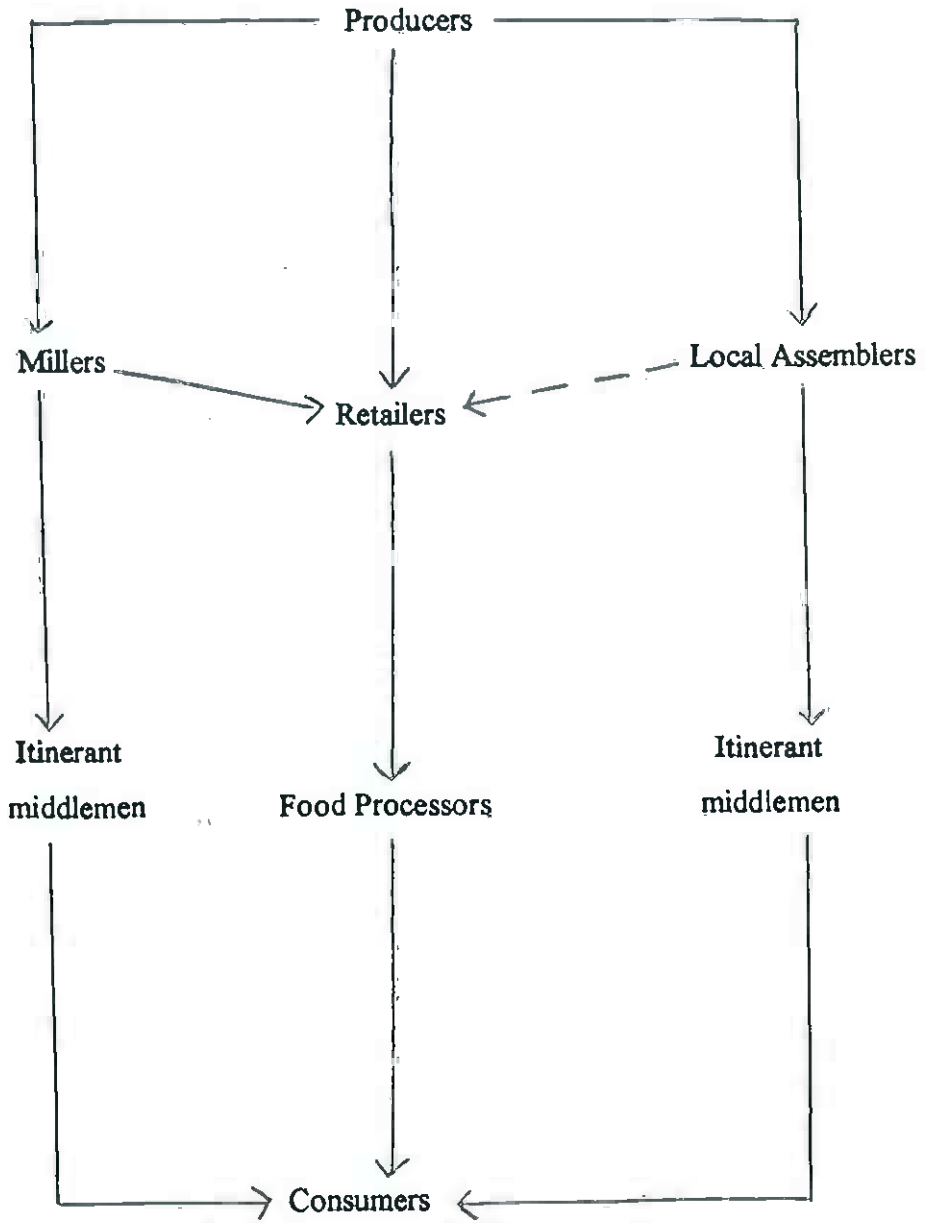
### 1.3.2 Marketing Of Rice At The Farm Gate Level

For most of the valleys visited (about 90%), rice is grown as a cash crop with only a small proportion (10%) kept for home consumption. The only exception is at Wassa Simpa (Western region) which is a rice deficit area- they consume virtually all the rice they produce. Rice sales could be in the form of paddy or milled rice. If paddy, selling is normally done at home but if milled rice, selling is always at the mill sites. Prices differ from place to place (as in table 1 ).

In times of scarcity (April-July), paddy rice could be sold direct to the numerous traders (mostly women) who travel to the production centers from the big consumption centers like Kumasi, Obuasi and Takoradi in search of rice to buy. Milling is then undertaken at the consumption centers by the traders themselves. There is no price difference between the paddy of the local and improved varieties grown domestically. The difference in price comes about when they are milled. The improved ones, when milled, attract slightly lower prices (about ₵2,000.00/bag) because traders claim they have larger grain sizes which take a longer time to cook. Some consumers also claim the taste is also inferior to that of the local ones, even though that is highly subjective.

Within the inland valleys, the marketing channels for milled rice are similar: rice farmers sell primarily to local assemblers or itinerant middlemen. The middlemen (who are wholesalers themselves) in turn sell to retailers, public institutions, or direct to consumers in the major cities (see figure 2). Retailers also sell in smaller bits to other consumers or food processors. There is however, free movement of people into

Figure 2: Marketing channel for domestically-produced rice.



and out of the rice business at any point in time. The only limitation is the amount of capital at hand. This in a way promotes competition.

In the case of imported rice, it could sell for a higher or lower price than the domestically produced ones depending on the taste and the quantity of broken rice. For example, at the time of the survey, a 50 kg bag of local rice was selling for ₦50,000.00 on the Takoradi market but a bag of 35% broken Thai rice was selling for ₦35,000.00, and that of Grade B Thai rice (no broken), ₦60,000.00 per bag. But generally, the imported rice attracts higher price than the locally produced ones because of their superior quality mostly preferred by city dwellers.

### 1.3.3     Milling

There are two broad categories of mills:- (a) the steel hullers powered by electric motor or diesel engines. The typical capacity is about 200 kg/hr. such machines have no ancillary equipment for cleaning and grading, and milled rice normally comes with high percentage broken since the machines have no device for grain-size reduction (recovery rate is about 40% depending on how the paddy was threshed, winnowed and dried). The final output can also have a lot of stones and chaff in them.

(b) Apart from the steel hullers, there are also milling machines with larger capacity using more modern technology but very few in the system. Examples are the SATAKI types imported from Japan by the Agricultural Development Bank. With these machines, the processes are multi-stage: incorporating separate cleaners, dehuskers, graders, and at times, colour separators even though they have high operating costs. Such machines have a conversion rate of about 2:1, i.e. two bags paddy to one bag milled rice. Depending on the age of the machine, the recovery rate could increase to 60%.



#### 1.3.4 Marketing Weights And Measures

Local paddy and milled rice are traded on volume basis, both at the wholesale and retail levels. The measures however, vary between production centers. At the wholesale level, rice is marketed in jute sacks and the weight of the sacks is always standardized between 90-95 kg. At the retail level, however, most traders buy at the farm-gate level in sacks which are not standardized. Some farmers claim women traders preferentially use sacks which are very old and over-stretched in the buying of rice. Such sacks could contain anything up to about 120 kg of rice. When the women get to the wholesale level, they pour out into standardized sacks thereby making “illegal” profits of about 20 kg on each bag bought.

Apart from sacks, traders use all sorts of bowls and cups for measuring rice. These bowls and cups differ in shape, size and volume from one production center to the other. However, the standard unit in most of the production centres is either the margarine cup (which when full weighs about 0.48-0.5 kg) or the “olonka” (an American tin) which takes up to about 10 margarine tins when full. Ten of the American tins also fill a normal sack (50 kg) but this also depends on the grain size of the milled rice.

The use of local measures make objective assessments difficult and as such trading by volume and weights require further investigation.

#### 1.3.5 Farmer-Trader relationship

A number of farmers have credit links with market traders. The traders provide production credit in the form of cash which is basically used by the farmer in the purchase of seed and for land preparation. The money is paid back either with paddy immediately after harvest or with milled rice. For every one bag of seed money provided, the farmer pays back with two bags paddy. If repayment is with milled rice, the trader buys it at a discount of about 10%. Where there is high demand for paddy, some traders over buy each other by providing facilities like tarpaulins and sacks to farmers free of charge. The idea is for the traders to get a constant source of paddy or

milled rice. Some millers also provide production credit to farmers and normally charge a 50% interest on money advanced. The money is deducted after milling. Farmers, apart from assuring their traders of regular source of produce, also provide paddy or milled rice on credit.

Table 1 presents a summary of some of the activities and marketing costs in the various valleys.

VALLEY	LOCATION	VARIETIES PLANTED	MILLING MACHINE	MILLING CHARGE ₵	FARM-GATE PRICE/BAG ₵
Kade	250 km N/W of Accra	local	Sataki type	2,000.00	50,000.00
Sehwi Asawinso	200 N/E of Kumasi	local	Lyster	2,000.00	45,000.00
Kobina Annokrom	30 km South of Takoradi	improved	Locally-made	2,000.00	50,000.00
Wassa Simpa	100 km N/E of Takoradi	local + improved	Locally-made	2,500.00	45,000.00
Assin Praso	50 km S/E of Cape coast	local	Sataki	4,200.00	45,000.00
Godenu	280 km N/E of Accra	local + improved	Lyster	2,400.00	40,000.00
Adugyama	15 km West of Kumasi	local	Locally-made	4,000.00	40,000.00
Kumasi	230 km N/E of Accra	—	Lyster	4,000.00	55,000.00

## 1.4 Rice Marketing In The Inland Valleys

### 1.4.1 KADE-SUBI VALLEY (EASTERN REGION)

This inland valley which serves rice farmers in Subi, Nkwantanang, Asuom, Abodom, Prankese and Abaam lies about 10km to the North-West of Kade- the district capital.

Kade is also roughly 250 kilometers from Accra, the nearest major rice consumption centre. Almost all the rice farmers in these villages plant the local type<sup>1</sup>. A few of them however, plant the improved types like Grug 7. Harvesting of rice is mostly done manually, using either a knife or sickle to remove the panicle one after the other. The panicle heads are then put together and tied. They are then transported by head pottage to the house where they are stashed on barns. Some farmers have the barns constructed in their kitchens where fire is lit always. The smoke from the fire helps to keep away insects from the stored produce and allows for systematic drying.

As and when needed, some of the stored rice could be removed, sun-dried for some few days and threshed. Threshing is normally done on bare floors or on tarpaulins, and it involves beating the panicle heads with a club or stick. The paddy is then loaded into sacks for milling. The nearest milling site is at Kade, an average of about 10 kilometers away from any of the production centers. Kade has four mills of the Japanese type (Sataki) and each can mill up to about 30 mini bags a day (when production is high). Because of the high competition for paddy rice, most millers provide free services like tarpaulins and drying floors, threshers and sacks for storing milled rice. Most farmers would therefore send their produce straight from their farms to the milling sites for drying, threshing and milling i.e. if milling is to be done within days of harvesting.

For milling, the conversion rate is 2:1 i.e., two maxi-bags of paddy to one bag of milled rice (50 kg), or a conversion rate of 50%. Millers charge an average price of ₵2000 for each bag of milled rice and transport owners also charge ₵1,000.00 to transport each maxi-bag paddy from the production centres to the mill sites at Kade.

Selling of milled rice is done at the mill sites by the farmers direct to itinerant middlemen. These middlemen, who are mostly women, come to the mill sites mostly from Accra, on special days (Mondays, Wednesdays, and Fridays) within the week. Transport fare per trader for each round-trip (Accra-Kade-Accra) is ₵5,000.00. A

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<sup>1</sup> The names of the varieties in the various localities have not been systematically analysed. There are places where what farmers actually refer to as local variety is a mixture of both improved and local.

50kg bag of milled rice is bought for ₵50,000.00-70,000.00 and retailed in Accra for between ₵80,000.00 and ₵100,000.00 per bag.

Once in Accra, the rice is either supplied to institutions like hospitals, prisons, schools, etc. or sold to food processors and retailers who also sell in smaller bits to consumers. Each mini-bag (50 kg) contains up to about 100 margarine cups. Retailers sell a margarine cup of rice for ₵600-800 in Accra. For each trip, each trader can purchase up to about 50 bags. Two or three traders can come together to hire a cargo truck to transport their wares to Accra. The idea is for them to take advantage of economies of scale in transport. By this arrangement, traders can save up to about a ₵1,000 on each bag of rice transported, which otherwise would cost ₵2000.

#### **1.4.2 SEHWI ASAWINSO (WESTERN REGION)**

Important rice producing villages along the valley are Subri, Asawinso, Buabenso, and Nkronua. Sehwi Bekwai, which is about 15 kilometers North of the valley, is the district capital as well as the commercial centre. Even though there is at least one locally-made milling machine in each village along the valley, most farmers would prefer sending their paddy rice to Bekwai where they can be assured of quality milling and ready market.

All the five mills at Bekwai are of the modern Lister type. Most of the traders come all the way from Sekondi-Takoradi (350 kms. away), Kumasi (200 kms away), and Obuasi (250 kms. away) mostly in hired trucks to purchase rice at Sewhi Bekwai.

After harvest, farmers put all the panicle heads together and store them in rooms or on specially constructed barns in the house (similar to that of Kade). Fire could be set under the barns for the smoke to drive away insects. When farmers are ready to sell, they only bring out the panicle heads, dry them for some few days in the sun, and beat them on tarpaulins or on the bare floor. The paddy are then winnowed to get rid of chaff and other foreign materials before being loaded into maxi sacks for milling. Drivers charge ₵1,000.00 for carting a maxi-bag of paddy rice from the production centers to the milling sites at Bekwai.

Selling of milled rice is done at the mill sites, either through local assemblers or direct to itinerant middlemen who flock to the milling sites on market days (Tuesdays, Thursdays and Saturdays). Millers charge ₵2,000.00 for a 50 kg bag of milled rice, which in turn is sold to traders for between ₵40,000.00-50,000.00. Millers do also provide free facilities like drying floors, tarpaulins, and sacks. Itinerant middlemen also provide facilities like sacks and production capital to farmers as well as working capital to local assemblers who buy on their behalf. This goes a long way to boost rice production in the area.

On the average, each trader buys up to about 50 bags (50 kg each) before transporting them in bulk to consumption centres such as Takoradi, Obuasi or Kumasi. Depending on the supply situation, a trader can spend up to about two weeks at Bekwai before getting enough produce to buy. Drivers charge an average price of ₵1,500.00 for a bag of milled rice from Bekwai to Kumasi; ₵2,000.00 to Obuasi, and ₵3,000.00 to Takoradi.

Once at the consumption centers, each bag of rice is re-sold for between ₵50,000.00-60,000.00. Retailers then sell them in smaller bits at ₵500.00-700.00 per margarine cup to mostly small food processors (wayside rice sellers) or consumers.

### **1.4.3 KOBINA ANNOKROM (WESTERN REGION)**

Farmers in this valley are mostly migrants from the Volta region who have settled in this valley since 1956. Most of them were earlier rice farmers at the Afife irrigation project site in the Volta region and are used to some improved methods of rice cultivation. For example, almost all of them plant improved varieties (popularly called 'Russia'), apply fertiliser and construct bunds to retain water on their rice fields. Kobina Annokrom lies just by the Takoradi-Accra express road, and is about 30 kms South of Takoradi and 40 kms North of Cape Coast. Traders who throng to this village to purchase rice are mostly from consumption centres such as Sekondi, Takoradi and Cape Coast.

Harvesting of rice is done manually and in almost all cases, either by the farm family or on communal basis, in which case members of the village come together to help a particular farmer with harvesting for free. It is in rare cases that labour is hired for harvesting purposes. Where labour is hired at all, the labourers take up to about a quarter of the produce after harvest as their fee.

When harvesting, the panicle heads are put together and tied with a rope. The bundles could then be left on the field for some 2-3 days for them to dry or they could be carted home straight for drying and storage. Storage could also be done in barns on the field.

Threshing of the panicle heads is done either on the farms or in the house. Where it is done on the fields, specially-constructed threshing boxes are normally used. The bundle of panicle heads are beaten against the threshing box. The problem associated with this method is that much of the grain is lost through scattering outside the threshing box. It is estimated that up to about 15% of the threshed paddy is lost this way (personal communication with farmers). Farmers however, claim this is the best threshing method for domestically-produced improved rice because of their soft glumes. The threshed paddy is gathered, bagged in the field and carted home mostly by women and children for milling.

Where the harvested rice is stored in the house, threshing is done on bare floors or on tarpaulins using big sticks or clubs. Since majority of the farmers do not own tarpaulins, threshing is done on bare floors and the paddy gets contaminated with foreign matter like stones, livestock droppings, etc. Some of the grains also crack as a result of the heavy beating they receive during threshing.

The majority of the farmers sell their rice not from the house but at the mill site (and there is only one mill at the village using a Lister machine), milled rice is sold to traders for ₪ 40,000-50,000 a bag of 50 kg. Most farmers would also prefer selling their rice in paddy form to either the miller or the traders. The standard measure is the

bowl which costs ₵ 4,500.00 (paddy). 10 bowls paddy when milled is equivalent to one mini-bag which sells for ₵50,000.00. Milling charge is ₵2,000.00 per bag.

Traders also send their wares to Takoradi, Sekondi and Cape Coast markets at a transport cost of ₵1,000.00 per bag, and retail it at ₵50,000.00-60,000.00 a bag. Other retailers sell in smaller bits at ₵500.00-600.00 per margarine cup (a mini-bag contains up to about 100 margarine cups).

#### **1.4.4 WASSA SIMPA (WESTERN REGION)**

Wassa Simpa is about 100 kilometers North-East of Takoradi, the regional capital, and only 20 kilometers South of Tarkwa, the district capital. Rice farmers in this village number up to about 20 and they cultivate mostly the local type, even though the Ministry of Food and Agriculture (MOFA) through the South-Western Ghana Rice Development Project has started introducing improved rice varieties to the farmers. Wassa Simpa is a rice deficit area because almost all the rice produced in the area is consumed locally. Local assemblers even bring in a lot more from areas like Tarkwa, Prestea and Takoradi for sale to mostly food processors.

Post-harvest handling of the crop is about the same as in other valleys located in the region:- harvesting is done manually using either a sickle or a knife to remove the panicle one by one. Once harvested, the paddy rice is threshed in the field using the threshing box. The threshed paddy is brought home and spread on tarpaulins or on the bare floor for drying to take place before being loaded into sacks for storage in their bedrooms or on barns constructed in the kitchen area. There is no specific storage period; threshing and milling are done as and when rice is needed in the house for food.

Even though selling of milled rice produced locally is rare, the little that is sold is done at the mill sites and not at home, and selling is mostly to food processors who sell cooked rice to school children or by the wayside. Milling charge is normally ₵2,500.00 per bag of 50 kg or 100 margarine cups. A bag of milled rice is retailed for

¢45,000.00 or ¢ 450.00 per margarine cup. But this price can go as far down as ¢25,000.00 per bag during the harvesting season (August-October).

In most cases (about 70%), retailers purchase rice on credit and there are no specific terms or period for repayment. Paddy rice could also be sold to farmers as seed.

Repayment is always in kind. After harvest, the farmer gives back twice the amount of seed received as payment.

The village has two locally-manufactured milling machines which give out milled rice with a very high percentage broken (about 50 %). Such rice attracts lower price (¢450.00 per cup) as compared to rice brought in from Tarkwa and its environs which sells for ¢500.00 per cup (¢50,000.00 a bag). Traders from Tarkwa however, incur extra transport cost of ¢1,000.00 on every bag brought in and another ¢1,200.00 per each trader.

#### **1.4.5 ASSIN PRASO (CENTRAL REGION)**

Assin Praso lies in between Cape Coast and Kumasi (a distance of about 190 km.) on the Anwhia Nkwanta-Yamoransa motorway. It lies very close to the river Pra which serves as the boundary between the Ashanti and Central regions. It is a very important rice producing centre with well over 200 rice farmers scattered along the Pra valley which serves about six villages such as Nduaso, Kushea and Ahasowodze.

Farmers along the valley plant mostly the local type with a few improved types such as Grug 7 popularly called Mr. More. Harvesting of rice is by the use of a sickle or knife and the produce is stored, mostly on the panicle head, in cribs at home. Fire is then lit under the cribs to ward off insects and rodents. Threshing is done either on tarpaulins or on bare floors using clubs or big sticks. Some farmers also thresh using the threshing box, especially when the paddy is of the improved type.

Assin Praso has seven modern Sataki milling machines (about 4 years old) which serve the whole rice farmers along the valley. These machines were imported from



Japan by the Agricultural Development Bank for distribution to rice millers on credit. Each machine costs ₵7.5 million and on average, can mill up to about 12,000 kg paddy rice (equivalent to about 100 bags milled rice) a day during the bumper season (Sept-Dec). These machines have high conversion rate of about 60% as compared to the local ones which are about 40-50% depending on how dry the paddy is. Milling charge per maxi-bag paddy is ₵4,200.00. Some farmers who are in need of cash do sell the paddy direct to the millers at a price of ₵18,000.00- ₵20,000 per maxi-bag. Because of the high competition for paddy, most millers provide (to farmers) free facilities like tarpaulins and drying floors for drying of paddy, jute sacks for storage, and even vehicles for the carting of the paddy rice from the production centres to the mill sites at Assin Praso.

Traders who buy the milled rice from Assin Praso come from urban centers like Obuasi, Accra, Takoradi, Kumasi and Cape Coast. A 50 kg bag of milled rice was selling between ₵45,000-50,000.00 depending on availability or season. Traders were incurring an extra cost of ₵2,000.00 to transport a bag of rice to Accra, Kumasi or Obuasi (₵1,000.00/bag to Takoradi or Cape Coast); ₵100.00/bag local council tax; ₵1,600.00/bag on waybill to the district council at point of discharge; ₵1,000.00 to load and off-load a bag of rice on a vehicle; and each trader pays ₵4,000.00 as transport fare from Accra, Obuasi or Kumasi (₵1,000.00 from Cape Coast or Takoradi) to Assin Praso.

At the consumption centres of Obuasi, Kumasi, Takoradi, Cape Coast and Accra, traders were re-selling a bag of rice for between ₵55,000.00-60,000.00 to public institutions like hospitals, schools and prisons. Majority of the rice went to retailers who at times buy on credit, and retail in smaller bits to consumers and food processors at ₵600.00-700.00 per margarine cup. Some traders also provide facilities like tarpaulins, tractor services, sacks and production loans to farmers. Even though the traders do not charge interest on loans, they have the exclusive right to buy the rice from their customers first before any other trader can come in.

#### 1.4.6 · GODENU (VOLTA REGION)

Godenu is just 12 kilometers South of Hohoe, the district capital, but 280 km North-East of Accra. Rice is actually a woman's crop in this area and is widely grown by women migrant farmers who migrate to the rice valley around the farming season in April-June from nearby areas like Lolobi, Nkonya and Jasikan. Their husbands would also be attending to their cocoa and other food crop farms in their respective villages around the same time.

These women farmers, who normally organise themselves into grower associations, receive loans and tractor services from government through the Agricultural Development Bank. The farmers are supervised by the Irrigation Development Authority (GIDA). GIDA tractor-ploughs the whole land and distributes it among the farmers.

Each farmer harvests her own field, dry the paddy and thresh into sacks for storage. The association has a storage depot (at Hohoe) where all the threshed paddy are kept until such a time that the market price is good enough. The association has its own mill (Lyster type) where all the stored paddy are taken to for bulk milling. Sale of the milled rice is also done in bulk and each farmer is then paid according to the amount of paddy rice supplied. The association then takes a commission for services provided. While waiting for the peak price before sale of the stored rice, the association advances inventory credit to farmers in need. This is also deducted after sales before the balance is given to the farmer. Milling charge is pegged at ₵2,400.00 per bag and each maxi-bag paddy transported to the milling site at Hohoe attracts a charge of ₵600.00.

Even though a large amount of the rice produced is bought and consumed locally within the Hohoe district, a lot of traders still come from Tema-Ashiaman and Accra to purchase rice from the Hohoe and Godenu Rice Farmers Associations. By the end of the 1996 farming season, the two associations sold 610 bags of rice to traders from outside Hohoe alone. A 50 kg bag of milled rice was sold for between ₵40,000.00-50,000.00 depending on availability. Traders also incurred transaction costs of

¢5,000.00 (return) on transport fare from Tema/Accra to Hohoe; ¢1,500.00 on transporting a bag of rice; and ¢500.00 per bag on local council tax;

Whilst in Accra or Tema, a bag of rice is retailed for ¢60,000.00 or more depending on quantity of rice on the market. Rice is normally retailed in smaller bits of ¢600.00 per margarine cup to food processors or consumers, or in large quantities to public institutions like hospitals and schools.

#### 1.4.7 ADUGYAMA (ASHANTI REGION)

Adugyama is only 15 kilometers west of Kumasi, the capital of Ashanti region. Apart from growing traditional crops like cocoa, plantain, cassava and maize, about 40% of the farmers cultivate rice in the Dugyan valley which stretches from Adugyama to Potrikrom (about 15 km long). Rice farmers in this valley are mostly tenant farmers from northern Ghana.

Rice varieties grown are mostly local (red in colour) which is much preferred by the tenant farmers in the preparation of their traditional food *waakye*. Harvesting is by hand- the panicles are removed one after the other using a knife. After harvest, the panicle heads are tied together and stored on barns erected in the house very close to the kitchen. As and when necessary, some of the paddy (on the panicle heads) are removed from the barns and threshed on tarpaulins or on the bare floor. The paddy is sun-dried for some few days before being sent to the mill sites.

There is only one mill (an old Lister machine) at Adugyama which is about 20 years old. The recovery rate of this machine is so low (40%) that most farmers prefer sending their paddy to Kumasi for milling. The miller at Adugyama charges ¢4,000 for a maxi-bag of paddy. Those who send theirs to Kumasi for milling incur an additional cost of ¢500.00 on transport for every maxi-bag paddy.

Sale of milled rice is done at the mill site, and traders mostly come from Obuasi or Kumasi to purchase either the paddy or milled rice. A bag of milled rice (50 kg) sells

for between ₵40,000.00-45,000.00 at Adugyama and traders incur additional expenses of ₵1,000.00 per bag on transport; ₵500.00 per bag on local council tax; and another ₵2000.00 on transport fare for each trader. A maxi-bag of paddy however sells for ₵15,000.00 at harvest.

Once in Kumasi or Obuasi, each bag of rice is retailed for between ₵50,000.00-60,000.00 (just like any rice consignment brought in from elsewhere). The rice is sold to other retailers or to public institutions such as schools and hospitals. Small scale retailers who buy the rice also retail in smaller bits to consumers and food processors at ₵600.00-700 per margarine cup. At Obuasi, which is a mining town, the price of a bag of rice can go as far up as ₵80,000.00.

#### 1.4.8 KUMASI (ASHANTI REGION)

The Asawase milling site (in Kumasi) has up to 14 milling machines (of the Lyster type) Each can mill up to about 50 bags a day during the bumper season (September-December). The machines are very modern (aged between 3-7 years), turn out very high quality milled rice, and have recovery rates of about 55%. Most consumers in the metropolis therefore prefer rice milled in Kumasi to the ones they bring from elsewhere because, according to them, the quality is very close to that of imported rice.

During the rice harvesting season (October-February), traders go to various rice producing areas like Sewhi Asawinso and Bekwai in the Western region; Konongo and Ejura in the Ashanti region; Hweddiem, Dormaa Ahenkro and Goaso in the Brong Ahafo region to buy paddy rice to Kumasi for milling. The price of paddy rice in these areas differ from place to place but the average price is ₵20,000.00/maxi-bag. Traders incur other expenses such as transport ( ₵1000.00/maxi-bag up to 300 km, ₵1,500.00/bag beyond 300 km), loading and off-loading (₵800.00/bag), bagging (₵200.00/bag), waybill ₵200.00/bag, transport fare (₵2,000.00/trader), to bring the paddy rice to Kumasi.

Whiles in Kumasi, a maxi-bag of paddy attracts a milling charge of ₵4,000.00. Each miller also pays about ₵40,000.00 on electricity consumption every month as well as an income tax and council tax of ₵100,000.00 and ₵36,000.00 a year respectively.

Sale of milled rice is done at the mill sites and a bag of rice attracts an average price of about ₵55,000.00. Retailers then re-sell in smaller bits to consumers and food processors at ₵600.00 per margarine cup. During the bumper season (Sept-Dec), the milling sites serve as storage depots or silos for rice but only for a short period for most of the rice traders also deal in other agricultural products like maize, yam, vegetables, etc.

Traders do at times give production credit to farmers in villages they visit. Money given out is mostly for seed. For every bag of seed money provided, the farmer pays back with two maxi-bags paddy. Millers too advance credit to traders usually at 50% interest and the money is deducted after milling.

#### 1.4.9 RICE IMPORTS

It is estimated that Ghana produces just about 40% of her annual rice requirement of about 200,000 metric tonnes. The remaining 60% is imported (E.Otoo 1994; MOA,PPMED 1991). Because of the trade liberalization policy being implemented by the government, there are all sorts of rice brands on the Ghanaian market, with their prices being dictated by the prevailing currency exchange rate. The rice come from different countries such as the U.S.A, Thailand, Malaysia and Singapore. The selling price for some of the imported rice brands on the Takoradi and Kumasi markets are:

- ₵35,000.00 for 50 kg 35% broken Thai rice.
- ₵52,000.00 for 50 kg 10% broken Thai rice.
- ₵60,000.00 for “grade B” Thai rice (no broken)
- ₵68,000.00 for 50 kg American long grain

## 1.5 CONSTRAINTS TO RICE PRODUCTION

1. Farmers need to improve on the quality of locally produced rice. They would need tarpaulins and concrete drying floors to dry and thresh their paddy in order to eliminate or minimize the presence of stones and other foreign matter.
2. Millers would require modern milling machines (like the Sataki type) at affordable prices and on good credit terms. Such machines should be accompanied by spare parts like screens and rubber rollers which break down or wear out more frequently. The machines should also have de-stoners and colour separators, and millers would have to be re-trained in the handling of such machines.
3. Traders would also need credit facilities from the banks at reasonable interest rates. They would also need transport for bulk haulage of produce to take advantage of economies of scale in transport.
4. Farmers find it difficult selling their produce whenever there is bumper harvest. They are therefore compelled to take any price given, which in most cases, is far below the cost of production. Government would have to intervene by providing marketing outlets in times of excess production.
5. Since farmers do not have any means of testing the moisture content of seeds before planting, the viability of seeds they plant needs to be investigated. Some farmers however, perform germination tests on their seed before planting.

## 1.6 CONCLUSIONS

The inland valleys, because of the presence of larger amount of water, have a great potential for increased rice production in Ghana. What needs to be done is for the government to create the enabling environment for more farmers to go into rice production to feed the ever increasing population of Ghana. Government must provide guaranteed markets as well as farm inputs at much affordable prices. The quality of locally produced rice too would have to be improved to match that of the imported ones.

One way of ensuring that is for the banks to continue to import more modern milling machines for the rice farming communities or organised cooperatives.

## 1.7 LITERATURE CITED

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