PrOpCom

Making Nigerian Agricultural Markets Work for the Poor

Monograph Series # 19

Mapping of Production and Processing Clusters in Kano, Jigawa, Katsina and Kaduna States

Prepared by

Community Empowerment Initiative

(COMEIN)

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40 Mississippi Street, Maitama, Abuja, Nigeria • Tel: +(234) 9 413 8291/2 • Fax: +(234) 9 413 829

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Promoting Pro-Poor Opportunities through Commodity and Service Markets

Mapping of Production and Processing Clusters in Kano, Jigawa, Katsina and Kaduna States

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Executive Summary

Promoting Pro-Poor Opportunities in Commodity and Service Markets (PrOpCom) is an innovative project funded by the Department for International Development of the United Kingdom (DFID) to facilitate functionality and efficiency of Nigerian commodity and service markets in such a way as to assure these markets benefit the poor. It is implemented by SAII Associates Ltd/Gte, an associate company of Chemonics International Inc., a Washington, DC-based consulting firm.

PrOpCom's goal is to improve livelihoods by facilitating growth and pro-poor outcomes in commodity and service markets and to contribute to the overarching (DFID/Nigeria) goal of poverty alleviation in support of NEEDS and the attainment of the Millennium Development Goals. The programme will address poor market functioning along selected commodity chains, with the objective of improving access and returns to the livelihood assets of the poor. Mapping of rice production and processing clusters in Kano, Kaduna, Jigawa and Katsina states is one of the projects. The main objectives of the mapping of production and processing clusters include:

1. To provide stakeholders with an understanding of the production, processing and marketing of paddy or processed rice in the different clusters that feed the Kano market;
2. To provide stakeholders with detailed information on flow of paddy and processed rice from production centre areas to areas of consumption in Kano State;
3. To identify the different cost elements involved in the movement of paddy or rice from production to consumption areas with a view to improving efficiency of transactions between the various stakeholders; and,
4. To identify the similarities and differences between the clusters and what makes each cluster unique, and identify the workings of the different organizations and institutions operating in the different clusters as well as produce a list of existing associations and other important stakeholders in each cluster.

Primary data were collected from individual and group of farmers, par boilers, millers, and marketers. A total of 840 individuals and 400 groups were interviewed in Kano, Jigawa, Kaduna and Katsina States. Four levels of stakeholders were used. The first three levels, States, Cluster and village levels were purposively selected. The groups and individuals were randomly selected. Each cluster was purposively selected, based on its contribution of rice to the Kano market. In the three neighboring States, Jigawa, Kaduna and Katsina one cluster was selected from each. The clusters selected are; Hadejia – Auyo, in Jigawa State, Kinkiba, Soba Local Government in Kaduna State and Dandume in Katsina State. Three production and processing clusters, Tudun Wada, Kura Garko and one marketing cluster, Dawanau were selected in Kano State.

Three villages were selected in each cluster and groups and individuals were interviewed in each cluster. Dawanau cluster is composed of Dawanau, Sabon-gari, and Rimi markets all within Kano metropolis.

Results of the mapping exercise indicated that rice is produced mainly by smallholder farmers, with farm size of less than 5 ha, in all the clusters, except Tudun Wada and Kinkiba. In Tudun Wada and Kinkiba, majority of the farmers devote about 5 to10 ha to rice production. Majority (47%) of the farmers in all the clusters are between the ages of 30 and 49. Garko farmers are relatively younger then the others. Hadejia farmers are older, as more then seventy percent of them are over 50 years old. Majority of the farmers in all the Sectors, except Kinkiba are educated.

Farmers in all clusters use fertilizers. But it is only farmers in Kura and Hadejia that used improved seeds and herbicide in addition to fertilizer. Kura and Hadejia recorded the highest cost of production (₦113,170 and ₦143,055) and yield per hectare, of 76 and 63 bags respectively. Garko recorded the lowest yield and cost of production of 7 bags and about ₦20,000 per hectare respectively. Farmers store paddy mostly, in their houses, for a period of 2 to 6 months before selling. Most farmers take their produce to their village markets. The major forms of transportation to markets are wheelbarrows, motorcycles and

pick-ups. The transaction cost incurred by farmers varies from ₦75 per bag in Dandume to ₦280 in Garko. There are middlemen in all the markets.

Parboiling is essentially done by women in all the clusters. But there were evidences of male par boilers in Kura, Hadejia and Tundunwada.. Most of the par boilers are young women of less than 40 years old. A large number of them, except in Garko, were not formally educated. Among all the people interviewed, it is only the parboilers that do not have any form of association. Parboilling is also the least developed trade in rice processing. They still use big pots, or half drums and firewood for parboiling. They also have the highest variance of fees charged which ranges from N50.00 in Tudun Wada to N300.00 in Hadejia.

Millers are the most educated and organized of all the four groups. They are all male, apart from 37 percent in Garko who are women. Majority of them are young, below the age of 40 years, except in Garko, where about 50 percent had no formal education.

Marketers, like farmers are more elderly than the others. Majority of them are between the ages of 30 and 50 years. They are relatively educated apart from Dandume and Garko who have more than 30 percent of their members with no formal education. But majority of them belong to association.

The flow of rice from the clusters to Kano markets is mainly in the form of milled rice. Small quantity of paddy is moved to Kano. The most important rice markets in Kano are: Dawanau Sabon-gari, Rimi, Kura, Bridgade and Yankaba. The estimated quantity of milled rice moved to Kano varies from 1,000 to 15,000 bags per week. Garko supplies 1,200, Kinkiba 1000, Kura 2,000, Dandume and Hadejia 5,000 each and Tudun Wada 15,000 bags. The transaction costs vary from ₦75 in Dandume to ₦ 280 in Garko. Tudunwada had ₦110, Kura ₦150, Hadejia and Kinkiba had ₦170 each. The items of cost include: Union and LGA fees, loading/off loading, storage and middlemen charges.

The units of measure used in all the clusters are bags and mudus. The number of mudu in a bag vary from 20 to 80. The average weight of the mudu varies from 2.48 to 2.52 kg for milled rice. In Kinkiba half mudu called tiya is used. Volume rather than weights are used for rice marketing in all the clusters.

Dandume is unique as a marketing cluster, rather than a producing cluster. Kinkiba is essentially a producing cluster. Kinkiba is the only cluster without a market. Hadejia is an irrigated producer cluster, with large volume of both paddy and milled rice supply to Kano market. Hadejia is the highest supplier of paddy to Kano.

Garko is unique in polishing techniques. Tudun Wada is unique in the quantity of upland rice and their parboiling techniques. Tudun Wada is the only cluster that uses cornstalk instead of firewood in parboiling. It has large volume of rice which is made available through its market which operates three times a week.

In conclusion, there is clear evidence of high level of awareness of working in groups and association in the four groups except par boilers. But there is a clear lack of understanding on how to manage the associations effectively. Millers appeared to be more organized than the other groups but are constrained by insufficient supply of electricity and lack of drying stubs.

Volume rather weight. Rice is traded by volume (mudu, bags) rather than by weight in all the markets. There is a clear absence standardization and quality control in most of the markets.

It is recommended that capacities of the groups should be strengthened to manage and operate the group effectively. Standards and quality control mechanisms should be established and enforced through interactive methods.

1. INTRODUCTION

1.1 Background

Promoting Pro-Poor Opportunities in Commodity and Service Markets (PrOpCom) is an innovative project funded by the Department for International Development of the United Kingdom (DFID) to facilitate functionality and efficiency of Nigerian commodity and service markets in such a way as to assure these markets benefit the poor. It is implemented by SAII Associates Ltd/Gte, an associate company of Chemonics International Inc., a Washington, DC-based consulting firm.

PrOpCom's goal is to improve livelihoods by facilitating growth and pro-poor outcomes in commodity and service markets and to contribute to the overarching (DFID/Nigeria) goal of poverty alleviation in support of NEEDS and the attainment of the Millennium Development Goals. PrOpCom will use a "Making Markets Work for the Poor" (M4P) approach to address the systemic reasons that prevent commodity and service markets from functioning effectively for the poor in Nigeria. In doing so, it will contribute to delivery of the vision for growth in the non-oil economy outlined in NEEDS. The project purpose is to support systemic change in markets on which the poor rely to produce pro-poor outcomes and opportunities such as:

- Enhanced incomes;
- Increased jobs;
- Improved access to markets;
- More options and choices; and
- Reduced risks.

During the first two-year pilot implementation phase, PrOpCom will focus on rice as the primary commodity and soya bean or cashew as secondary commodity.

PrOpCom is mandated by DFID to facilitate, not implement, change. The programme facilitates change with and through local structures, firms, and individuals. Effort will be made not to displace existing organizations. PrOpCom

is therefore just a catalytic agent. Like all catalysts, it merely speeds up the process while leaving the intended beneficiaries (local market actors) to run the show. It is about Nigerians taking charge of their own development. For this Nigerian ownership to occur, the programme aims to create a vision that can motivate and direct the programme's Nigerian partners to reach goals that are mutually agreed upon.

PrOpCom would contribute to removing constraints to efficient market operations and linking market actors to work together and serve each other on a sustainable basis. PrOpCom would rather not dole out inputs and grants that could lead to perpetual dependence on hand-outs. PrOpCom therefore emphasizes market development over and above granting of subsidies.

The programme will address poor market functioning along selected commodity chains, with the objective of improving access and returns to the livelihood assets of the poor. PrOpCom will not however directly support the poor; rather programme activities will work with business associations, service providers and other intermediaries who already serve functions along market chains in which the rural poor have a stake. By facilitating fundamental changes in the functioning of markets and the rules of the game governing access by the poor, systemic change will be encouraged.

PrOpCom will also address cross-cutting issues that are of major concern to DFID such as: gender, conflict, the environment and HIV/AIDS that are. Therefore all our activities will attempt to ensure that these issues are adequately identified where they exist in the economic or social sector being targeted. To ensure this, all contractors and facilitators will be required to address these issues as and when appropriate and relevant.

1.2 General Scope of Work

Kano State is one of the most important rice producing areas of the country. This is largely due to the more than 22,000 ha of irrigated schemes of the Hadejia Jama'are River Basin Development Authority, the vast Fadama areas that were further developed under the erstwhile National Fadama

Development Project and the upland production areas of Tudun Wada and Rogo. Kano also has large processing clusters which are scattered in production centre areas like Kura, Karfi, Kwanar Dawaki, Tudun Wada, Bunkure, Garun Mallam, Chiromawa etc. These clusters, which have a combined number of about 400 mills, are the major means of rice processing in the State. The main types of mills used are the small Engleberg mills which typically process between 150 to 300kg per hour of paddy and are operated using electric motors or diesel. There are also a number of medium sized mills which have the capacity to process between 700 to 1200 kg of paddy per hour and are scattered in a number of production centres including Kwanar Dawaki, Garun Mallam and Kura.

The main markets for commodity trading where rice is sold in large volumes include: Dawanau, Sabon Gari, Rimi, Yankaba and Kurmi markets. Local rice is also traded as a major commodity in most of the 44 Local Government Areas of the State where both local traders and those from elsewhere go to buy rice. Rice is brought into Kano from other states like Kaduna, Katsina and Jigawa, Bauchi etc. This is processed and sold in the Kano markets which serve a population of about 5,000,000 people.

The main objectives of the mapping of production and processing clusters include:

- To provide stakeholders with an understanding of the production, processing and marketing of paddy or processed rice in the different clusters that feed the Kano market;
- To provide stakeholders with detailed information on flow of paddy and processed rice from production centre areas to areas of consumption in Kano State;
- To identify the different cost elements involved in the movement of paddy or rice from production to consumption areas with a view to improving efficiency of transactions between the various stakeholders; and,
- To identify the similarities and differences between the clusters and what makes each cluster unique, and identify the workings of the different organizations and institutions operating in the different clusters as well as

produce a list of existing associations and other important stakeholders in each cluster.

2. METHODOLOGY

Primary data were collected from a total of 840 individuals and 420 groups of respondents from 21 villages, 7 clusters and 4 states. The respondents included farmers, par boilers, millers and marketers. The data was collected between 1st and 28th February 2007. A stratified sampling frame was used to collect data for the study. Five levels of stratification were used: the state, the cluster, which corresponds to the local government area (LGA), the village and the respondents' levels. It was only at the respondents' level that random sampling was used. The other levels were purposively selected. Kano is center of focus for the study. Four clusters were chosen Kano and one cluster each from the other three states. Three villages were selected from each cluster and 10 individuals and 5 groups were interviewed.

The selection of the state was done on the basis of the states' contribution to national rice production and its relative level of importance of feeding Kano market with rice. On this basis, three-producer cluster in Kano State; Kura, Garko and Tudun wada were selected. One market cluster Dawanau, comprising of Dawanau, Sabon Gari and Rimi markets all within Kano metropolis, were selected. Kaduna, Jigawa and Katsina States were selected based on their level of rice contribution to the Kano market. One cluster each was selected from the States; Soba – Kinkiba from Kaduna, Dandume from Katsina and Hadejia – Auyo from Jigawa State.

Two sets of instruments were used in the mapping exercise, (i) an interview guide, which was used by facilitators in a focus group discussion with association or group of individuals and (ii) four sets of questionnaires, one each for farmers, parboilers, Millers and markets, which were administered by the cluster assistants. The instruments were slightly modified for the Kano market cluster.

	FARMERS		PARBOILERS		MILLERS		MARKETERS		TOTAL	
	Group	Individual	Group	Individual	Group	Individual	Group	Individual	Group	Individual
Kano State										
Garko	15	30	15	30	15	30	15	30	60	120
Kura	15	30	15	30	15	30	15	30	60	120
Tudun Wada	15	30	15	30	15	30	15	30	60	120
Dawanau	0	0	0	0	0	0	15	30	15	30
Sabon Gari	0	0	0	0	0	0	15	30	15	30
Rimi	0	0	0	0	0	0	15	30	15	30
Jigawa State										
Auyo-Hadejia	15	30	15	30	30	30	15	30	60	120
Kaduna State										
Soba - Kinkiba	15	30	15	30	30	30	15	30	60	120
Katsina State										
Dandume	15	30	15	30	30	30	15	30	60	120
TOTAL									405	810

3. PRODUCTION, PROCESSING AND MARKETING OF RICE

3.1 PRODUCTION

Characteristics of Rice Producers

Some of the socio-economic characteristics of rice producers in the survey area are shown in table 1. Ages of the respondents were categorized into three groups: young with less than 30 years, middle age between the ages of 30 and 49 and the elderly, those with 50 years and above.

It is only Garko that have young rice farmers. The other clusters farmers were all middle age apart from Hadejia. Most of the farmers in Hadejia clusters (70%) were between the ages of 50 years and above.

The major occupation of the rice producers, in all the clusters, is farming. More than 90 percent of the respondents in the entire cluster, except Hadejia where 83 percent indicated farming as their major occupation are farmers. Other occupation indicated in the areas include; trading, civil service, rice marketing and processing and animal husbandry. But these other trades occupy a secondary position in the farmers' livelihood.

The level of education of rice farmers in all the clusters is also shown in the table. The farmers appeared to be educated formally, unlike in the past. Apart from Soba – Kinkiba and Hadejia clusters that recorded over 50 percent none formal education, all the other cluster recorded less than 20 percent. Garko has over 50 percent of the respondents with primary education and 35 percent with post secondary education. Kura also has close to 50 percent primary school leavers and about 40 percent with post secondary education. More than 50 percent of the rice farmers in Tudun Wada had primarily education and about 13 percent with post secondary education. Hadejia and Kinkiba – Soba recorded the highest level of non-formal school attendance among the rice farmers.

The ownership of land (table 1) indicated that majority of farmers in Garko, (80%) Kura (100%), Hadejia (70%) and Dandume (83%) are small-scale farmers with less than 5 ha of land. But majority of farmers in Tudun Wada (67%) and Kinkiba- Soba (62%) are large-scale farmers with more than 10 hectares of farmland.

However, the area devoted to rice production in all the clusters, except Tudun Wada, were less than 5 ha. It is only in Tudun Wada and Kinkiba that 53 and 37 percent of the respondents, respectively devoted between 5 to 10 hectares of land to rice. In addition to that, about 26 percent in Tudun Wada and 17 percent in Soba and 3 percent in Garko commit more than 10 hectares to rice production.

The size of family remains typical African. Majority of rice farmers in all the clusters have a family size of between 10 to 20 members. But all the respondents apart from about 40 percent from Dandume indicated that they belong to associations. However, the benefits derived from the association appeared to be limited to procurement of fertilizer.

Table 1: **Characteristics of Rice Producers**

		Garko	Kura	T/Wada	Hadejia	Soba	Dandume
1.	**Age**						
	Less than 30	56	3	0	0	0	0
	30 – 49	31	62	47	30	70	43
	50 and above	13	34	53	70	36	57
2.	**Major Occupation**						
	Farming	97	100	100	83	100	97
3.	**Other Occupation**						
	- Trading	40	3	26	0	3	0
	- Civil Service	37	0	0	9	10	0
	- Laboring	3	0	0	0	0	0
	- Rice Marketing	0	0	33	3	3	16
	- Animal Process	0	0	13	13	3	20
4.	**Education**						
	Primary	55	48	57	37	33	47
	Secondary	7	13	7	19	0	33
	Post Secondary	35	39	13	11	0	20
	None	3	0	23	33	67	0
5.	**Farm size**						
	Less than 5 ha	80	100	17	70	14	83
	5 to 10 ha	10	0	16	10	24	10
	More than 10 ha	10	0	67	20	62	16
6.	**Area to Rice**						
	Less than 5 ha	79	100	10	80	46	100
	5 to 10 ha	21	0	53	20	37	0
	More than 10 ha	3	0	26	0	17	0
7.	**Family Size**						
	Less than 10	43	32	20	27	21	23
	10 to 20	48	61	43	83	69	60
	> 20	16	6	37	0	10	17
8.	Belong to Assoc.?						
	Yes	100	97	97	93	100	57
	No	0	3	3	7		43

Production Characteristics

The costs incurred by farmers in this season's rice production are shown in table 2. The items of cost were categorized into two; labor (operations) and material inputs. The major item of labor cost are, land preparation, weeding and

harvesting. The material inputs include; Seedlings, Fertilizer, Insecticide, Herbicide and empty sacks (bags).

In general, the two irrigated sites, Kura and Hadejia have the highest cost of production per hectare. Hadejia recorded N143,055 and Kura N113,170 per hectare respectively. But they also recorded the highest yield of 76 and 63 bags per hectare in Kura and Hadejia respectively. Garko recorded the lowest cost of production of about N27,000 per hectare and the lowest yield of about 7 bags. This is followed by Kinkiba about N27,000 per hectare and about 12 bags per hectare. In the operations, the farmers appeared to use family labor for planting, water application and supplementary weeding in all the sectors. But Kura and Hadejia farmers have more investment in seedlings, fertilizer and herbicide.

But it was only Kura and Hadejia that used herbicide among the six clusters. Kura spent three times the amount spent by Hadejia farmers on herbicide. Fertilizer was used by all farmers in all the clusters. But the level of investment per hectare ranges from N9,000 to N37,000 per hectare in Garko and Hadejia respectively. Kura farmers spent N24,500 but Dandume farmers expended about N27,500 per hectare on fertilizer.

Garko, Tudun Wada and Dandume, indicated payments for ridging, which is an indication of upland rice farming. This showed that there are both fadama and upland rice farming in the clusters. Kinkiba appeared to be solely a fadama rice cluster. But the productivity differential between the irrigated clusters (Hadejia and Kura) with the others, both Fadama and upland is highly significant.

Rice varieties Grown in the Clusters

Garko specializes in producing two varieties; Kilaki and Yarkera. These two varieties have been traditionally associated with Garko for long and despite their low yields, farmers have sticked to them. Perhaps due to their market acceptability and value in the Kano market , or lack of access to information on improved and better varieties .

Yar Dass variety is grown in Dandume, Kinkiba, and Tudunwada. Although most of the varieties grown in Hadejia are improved, they tend not to specialize in any single variety,. Santana, Sippi and Witta 4 are more predominant variety. This perhaps, explains why Kura's productivity is higher than all the other clusters as they specialize in producing few improved varieties.

Thus while other clusters are still struggling with their traditional varieties, the irrigated clusters have long adopted the improved varieties. Therefore, adoption of improved variety and specialization in one variety in a cluster can be said to be the key to improved productivity and income to the farmers in a cluster.

Table 2: Cost of Rice Production by Cluster

	Cost of Items	**Garko**	**Kura**	**Hadejia**	**Kinkiba**	**T/Wada**	**Dandume**
A	Operations	11,924	51,934	71,578	18,801	17,670	16,431
1	Land Preparation						
i	- Cleaving	1,276	1,689	4,792	523	789	2,392
ii	- Burning	243					
iii	- Harrowing	2,190	6,553	7,583	5,870	2,504	4,266
iv	- Levelling		3,125				
v	- Ridging	2,559				1,538	5,546
2	Herbicide Applic.						
3	Planting						
4	Fertilization Application	300					
5	Weeding		4,000	6,589	4,419	3,180	
6	Thinning	1,800	5,245	7,812		961	
7	Water Application						
8	Harvesting	2,416	18,593	23,670	1,673	6772	3,702
	- Threshing		6,500	8,125	5,509	1,400	
	- Winnowing		2,075	8,174			
	- Transportation	1,140	4,514	4,833	807	526	525
B	Material Inputs						
	- Seedling	1,662	8,550	6,933	2,710	2,563	3,439
	- Fertilizer	4,894	24,500	36,827	4,430	15,304	27,563
	-Water Charges		3,150	2,500			
	- Insecticide	1,572	3,768	14,858	550	2,400	
	- Herbicide		17,000	5,600			
	- Bags		4,268	4,764	782	1,038	2,675
	Sub Total	8,128	61,236	71,477	8,472	21,305	33,677
	Total Cost	20,052	113,170	143,055	27,273	38,975	50,106
C	Yield (bags)	7	76	63	12	14	24

Rice Marketing By Farmers

Rice is essentially produced for the purpose of selling to raise income by household in all the cluster (table 3). It is only 6 and 3 percent of the producers in Garko and Kinkiba that produce rice for home consumption and sales.

Table 3: Purpose of Producing Rice

Purpose Of Production	Garko	Kura	T/Wada	Hadejia	Kinkiba	Dandume
Home Consumption	6	0	0	0	3	0
Sales	94	100	100	100	97	100

Storage

Farmers in clusters store their rice before selling. Paddy is stored for a period of between 1 to 10 months before disposal. Hadejia and Kinkiba farmers store rice for only one month. The practice is more peculiar to Hadejia farmers where about 40 percent of the farmers dispose of their rice in less than two months. Dandume store for about 3 to 4 months. Garko store for 2 to 8 months, Kura farmers store for only six to seven months, but majority (65%) dispose rice after six months storage. Generally the most frequent number of months for storage are three, four, and seventh (table 4).

Majority of the farmers in all clusters accept Garko, stored their rice at home. In Dandume fifty percent of the farmers store paddy at home and fifty at the stores. But more than 80 percent of the rice in Garko are kept in stores (table 5). But more than 70 percent of the stores in Garko are owned by the farmers (table 6). Majority of the stores in Kura, Dandume and Kinkiba are owned by businessmen other than the farmers. There was however no clear indication as to how much farmers pay for renting the stores.

Table 4: Length of storage time (months) by cluster

How Long	Garko	Dandume	Hadejia	Kura	Kinkiba	T/Wada	Average
1 Month	-	-	40		11	-	8.5
2 Months	7	7	17		33	-	10.6
3 Months	16	46	6		6	-	24.7
4 Months	3	47	-		22	4	12.7
5 Months	16		7		17	19	9.8
6 Months	10		10	65.5	11	67	27.2
7 Months	19		3	35.5	-	7	10.7
8 Months	3		7		-	-	1.7
9 Months			-		-	4	0.7
10 Months			3		-	-	0.5

Table 5: where produce (Rice) is stored by cluster

Where	Garko	Dandume	Hadejia	Kura	Kinkiba	T/Wada	Average
At Home	6	50	100	74	77	100	68
In Store	87	50	-	26	23	-	31

Table 6: Ownership of stores by cluster

Ownership	Garko	Dandume	Hadejia	Kura	Kinkiba	T/Wada	Average
Businessmen	6	53	-	84	63	-	69
Personal	74	47	-	13	37	-	29

Movement of Rice from Farm to Store

Paddy is moved from the farm to the storage place, either at home or in stores, through various means in different clusters. The major means of movement of rice from head load, wheel barrows, bicycle, motorbikes, animal drawn carts, human drawn carts, pickups, buses, motor cars and tractors (table 7).

Table 7: Mode of Transport to store and to market.

Mode Of Transportation	Kinkiba	Dandume	Hadejia	Garko	Kura	T/Wada
Head Load						
Bicycle	93			3		
Motorbike	7			43		17
Truck Pushers		6		9		
Tractor		60				
Motor Car			27		65	
Donkey				12		
Ox-Cart			50			
Pick-Up			20			10
Bus					19	33
Wheal Barrow						7

from store to village market:

Bike	50			45	70	
Motor car			50		30	
Wheal Barrow	17	6		15		50
Bus						23
Pick-up	10	33	45	10		10
Truck Pusher		29				

But the means of transportation slightly changed to motorcycles, motor cars, buses, pick-up vans and human pushed carts when transporting for markets. The choice of means of transportation to the market is influenced by the distance of the market from the villages. The markets patronized by the farmers in the different clusters are those close to the cluster. In Garko cluster, farmers patronize Garko and Darki markets. Darki is about 20 kilometers from Garko, but majority of farmers (84%) prefer Garko to Darki market. They pay 50 to 150 Naira per bag to transport produce to the market.

Hadejia farmers patronize Hadejia and Gujungu markets. Although both markets are within 10 to 20 kilometer reach of the farmers, yet 60 percent of the farmers preferred Hadejia to Gujungu market. The sum of N50 to N100 per bag is paid for transportation.

Dandume farmers patronize only Dandume market, which is within 5 kilometer range. As such the transportation are lower, ranging between 40 - 50 Naira per bag, depending on mode of transportation.

In the same way Kura and Tudun Wada farmers also patronize Kura and Tudun Wada Markets. Kura farmers pay between 30 - 50 Naira while Tudun Wada pay between 20 to 70 Naira per bag as transportation fees.

Major Sellers and Buyers

The major suppliers to the markets are farmers and marketers. The major buyers are; marketers millers, par boiler, consumers and middlemen who purchase on behalf of their clients (table 8).

Table 8: Major Sellers and Buyers

SELLERS	KURA	T/WADA	D/DUME	GARKO	HADEJIA	KINKIBA
Farmers	√	√	√	√	√	√
Marketers	√	√	√	√	√	
Buyers						
Marketers	√	√	√	√	√	√
Millers	√	√	√	√	√	√
Consumers	√	√	√	√	√	√
Middlemen		√		√		

Middlemen

There are middlemen in all the markets in the clusters. But the perception of their roles differs between clusters. Positive attributes such as getting highest bidder, facilitating buying and selling and setting prices were some of the roles associated with middlemen in Dandume, Garko, Hadejia and Kura. But in Tudun Wada and Kinkiba the roles attributed to the middlemen include, inflation of prices and intersecting sellers and buyers (table 9). On the average, 76 percent of the respondents think that middlemen are necessary in the market.

Table 9: Roles of Middlemen

Role Of Middlemen	Dandume	Garko	Hadejia	Kura	T/Wada	Kinkiba
Get highest bidder	77					
Negotiate price	7					
Buying and selling		100				
Facilitate marketing price			100			
Setting prices				100		
Inflation of prices					55	
Interesting producers					45	
Regulating prices						76
Selling on behalf of farmers						20
Are Middlemen necessary?						
Yes	85	70	93	70	100	40
No	15	30	7	30	0	60

The processing costs (Parboiling and Milling) incurred by farmers in the clusters are shown in table 10a. The lowest cost of ₦ 220 was incurred in Dandume, Kura and Tudunwada, while the highest of N300 was recorded in Hadejia. Garko has the second highest cost of ₦ 270. Kinkiba has ₦270.

Table 10 a: Average Processing cost (N/bag)

Processing	Dandume	Garko	Hadejia	Kinkiba	Kura	T/Wada
Parboiling	100	120	100	100	100	100
Milling	120	150	200	150	120	120
Total	220	270	300	250	220	220

The transaction cost which include; transportation, loading and off-loading, payment to commission agents and middlemen and fees paid to local government authorities are shown in table 10b. Garko has the highest transaction cost of ₦280. Dandume has the lowest cost of ₦ 75. Hadejia and Kinkiba had ₦170 each, Kura ₦ 150 and Tudunwada ₦ 110. Garko has the highest transaction cost because of the ₦100 paid to middlemen.

Table 10 b: Average Transaction cost (N/bag)

Transaction	Dandume	Garko	Hadejia	Kinkiba	Kura	T/Wada
Transportation	50	100	100	100	50	50
Loading/Off Loading	20	30	20	20	30	20
Middlemen Commission	0	100	40	50	20	30
LGA	5	50	10	0	50	10
TOTAL	75	280	170	170	150	110

3.2 **PROCESSING**

3.2.1 PARBOILING

Parboiling is the beginning of rice processing and it appears to be the main job of women. Perhaps, because it involves cooking -which is a domain for women in this part of the country. The general characteristic of the par boilers shows most of them are female (table 11). There are male par boilers in T/Wada, Hadejia and Kura. But they were not interviewed.

There is wide variation in their ages and educational qualification. Majority of the par boilers in Garko are within the age bracket of 30 – 49 years (63%); and more than 60 percent of them have had primary education. About 20 percent of them have had some secondary education. In Kura, majority (50%) of are young with less than 30 years of age. But more than 60 percent of them did not have the opportunity of acquiring formal education. Dandume par boilers (67%) are below the ages 40 years. But more than 90 percent of them had no formal education. Hadejia par boilers were more elderly. More than 50 percent of them are over 40 years old. But none of the par boilers had any formal education. Kinkiba par boilers are younger than all the others. Majority of them (63%) are below the age of 30 years. But only 4 percent of them attended primary school. One third of the par boilers in Tudun Wada are elderly and about one quarter are below the age of 30 years. But like Kinkiba par boilers about 90 percent of them lack formal education.

Parboiling Characteristics

Rice parboiling is still a traditional industry. Women use drums, fire wood or cornstalk in case of Tudunwada and water to parboil rice. Major items of variable costs are water, fire wood or cornstalk. The parboiling charges are determined by the par boilers, even though they do not have any association. There is a general agreement among par boilers that rice quality and quantity are the most important variables influencing parboiling charges. But they don not pay any union, middlemen or LGA charges. The owners pay for loading and off loading of paddy to the par boilers' houses. Most of the par boilers are contracted to perform the services.

Table 11: Par boilers Background Information

	Garko	Kura	Dandume	Hadejia	Kinkiba	T/Wada
Gender						
Female	100	100	100	100	100	100
Male	0	0	0	0	0	0
Age (yrs)						
< 30	27	50	37	17	63	37
30 – 39	33	3	33	26	30	10
40 – 49	30	27	23	27	7	23
> 50	10	20	7	30	-	30
Major occupation						
Parboiling	100	97	100	93	100	100
Other Occupations						
Oil extraction		90				
Food selling	-	-	80			
Education						
Primary	62	25	-	-	4	5
Secondary	14	7	3	-	-	5
Post Secondary	5	6		-	-	-
None	19	62	97	100	96	90

Table 12: Variable costs of parboiling and charges

	T/Wada	Kura	Dandume	Hadejia	Kinkiba	Garko
Water	100	30	20	20	0	50
Firewood	300*	100	200	200	10	300
Parboiling Charges (₦/bag)	50	150	120	300	120	120

* Cornstalk is used instead of firewood.

The par boilers bear the cost of parboiling. The costs of parboiling a bag of paddy in Kura include; Wood, ₦20, sack ₦ 5, water ₦ 5. The fixed cost items include; half drum, ₦ 1,500 and Polythene sheet ₦ 800. Each of the fixed cost items will last for one year and up to two bags of paddy can be parboiled in one day. The fixed cost per bag is calculated below:

Table 12a : Cost of Par boiling in Kura

Fixed cost item	Cost (₦)	Lifespan (days)	Depreciation per day (₦)	Cost per bag
Half drum	1,500	365	4.11	2.05
Polythene sheet	800	365	2.19	1.10
Variable Cost				
Wood				20
Water				5
Old bag				5
Total Cost per Bag				33.15

Result of focus group discussion with par boilers indicated that, the women are very knowledgeable about their trade and rice economy around them.

For example the par boilers in Tudun Wada gave a succinct description of the rice varieties found in Tudunwada as follows:

	Variety	**Description**
i.	Aisha	good but not strong
ii.	Yar Zabuwa	very slim and short
iii.	Yar Das	long and thick
iv.	Mai Adda	sharp ends and slim
v.	Dukusa	white and slim
vi.	Kwandala	thick and wide
vii.	Kurkura	short and fat

The market in Tudun wada, according to the women is very large. It operates three days a week (i.e every other day). And it is estimated that 80,000 to 100,000 bags are traded in the market every market day. Paddy is stored for about 6 to 12 months before disposal. Paddy is transported from farms to the house on barrow, motorcycle, pick-up and trucks. The same means of transportation is used by farmers to move paddy to the market. But marketers use lorries and trailers to move rice (paddy and milled) from Tudun Wada to Kano market (Dawanau).

The major suppliers to the market are farmers followed by marketers. The major buyers are marketers and few consumers. There are middlemen in the market. Their functions included negotiating prices and buying rice on behalf of some merchants and selling rice on behalf of farmers. The relationship is said to be cordial between all market actors. As to fees charged, the women dwell more on the cost of parboiling. Cornstalk is used more in Tudun Wada instead of firewood. Major problems facing par boilers include: Lack of capital to expand operation, Lack of improved parboiling technology, Lack of payment or delay in payment, Problem of low quality rice or what they called “Fake rice” that tends to get over cooked, Problem of smoke from firewood which is causing eye problems to women.

3.2.2 MILLING

Characteristics of Millers

All the millers in all clusters, except in Garko, are male. In Garko about one quarter of the millers are women. They own the machines. There are no women machine operators. Majority (50%) of the millers in Dandume are young, below the age of 30 years. In fact about 90 percent of all the millers in Dandume are below the age of 40 years. The major occupation of majority (97%) of the millers in Dandume is milling. Other occupations include; farming and marketing. Despite their seemingly young age, about half of them had no formal education. But they all belong to association.

Tudun Wada millers are middle aged. Most of them (47%) are between the ages of 30 to 40 years. Half of them have milling as their major occupation. The other half is engaged in marketing of rice. But all of them, except about 3 percent, had formal education. Garko millers are also of middle age. About 35 percent are in their thirties. But more than half of them had no formal education. And only about 10 percent of them belong to associations.

Hadejia millers like those of Dandume are young, as more than half of them are below age of 30. But, unlike Dandume millers, more than 95 percent of them are formally educated. More than 60 percent of them had primary education and about one third had secondary education. Kura millers are in their thirties. They are also educated. It is only about 14 percent that had no formal education. Kinkiba millers are the youngest of millers in all the dusters. About 60 percent of them are below the age of 30. They are also educated, with only less than 15 percent that did not attend any formal school.

Table 13: Millers Background Information

Particulars	Dandume	T/Wada	Garko	Hadejia	Kura	Kinkiba
Gender						
Male	100	100	63	100	100	100
Female	0	0	37	0	0	0
Age						
< 30	50	33	17	50	37	60
31 – 39	40	47	35	35	6	-
40 – 49	7	13	25	25	-	-
> 50	3	7	20	-	-	-
Major occupation						
Milling	97	55	75	100	93	-
Farming	3	-	-	-	-	83
Marketing	-	40	25	-	-	-
Other Occupations						
Faring	37	-	-	26	-	-
Marketing	10	-	-	23	-	-
Education						
Primary	33	38	16	60	43	77
Secondary	17	42	26	28	29	10
Post Secondary	3	17	8	8	14	-
None	47	3	56	4	14	13
Affiliation to Association						
Yes	100	67	10	-	70	
No	-	-	90			

3.3 MARKETING

Characteristics of Marketers

Most of the marketers interviewed in all the clusters are male. Majority of the marketers in Kinkiba (57%) are between the ages of 30 to 49. Their major occupation is marketing. But up to 40 percent of them had no formal education. Kura marketers are relatively younger than those in Garko. About 45 percent of them are in their thirties. They are also educated with about 75 percent having passed through primary education. But about 14 percent of them do not belong to any association (Table 14)

Majority of Dandume marketers (78%) are in their thirties. About 70 percent of them are educated and marketing is the major occupation of most of them (97%). And all of them belong to association. Hadejia marketers are

younger then all the other marketers except those in Kinkiba. Thirty six percent of them are below the age of thirty. Almost half (45%) are in their thirties. About 70 percent of them are educated. But one fifth of them do not belong to association. The second highest percentage of members that did not belong to association are from Hadejia.

Kinkiba are youngest marketers with about 80 percent of them below the age of 40 years. But they have the second highest number of uneducated marketers (33%). They also have the highest number of members (21%) that do not belong to association. Majority of marketers in Tudun Wada (70%) are in their thirties. They are the most formally educated among all the marketers. More than half attended primary school, one quarter have passed through secondary school, and the other quarter have had some post-secondary education. But 10 percent of them do not belong to association. Kano marketers are slightly older than the others. About 14 percent of them are over fifty years. More than 65 percent are between the ages of 30 and 50 years. Although about 27 percent of the marketers have no formal education, a similar proportion had post secondary education. Kano has the highest proportion of marketers with post-secondary education. But all the marketers (100%) belong to association.

Table 14: Characteristics of Marketers

	Garko	Kura	Dandume	Hadejia	Kinkiba	T/Wada	Kano
Gender							
Male	100	100	100	100	100	100	100
Female	0	0	0	0	0	0	0
Age (Yrs)							
< 30	10	17	4	36	38	23	19
30 – 39	40	45	78	45	48	70	41
40 – 49	27	31	18	19	7	7	26
> 50	23	7	0	0	7	0	14

Major Occupation							
	95	93	97	98	93	97	100
Education							
Primary	24	37	46	53	31	52	35
Secondary	20	37	21	11	31	25	36
Post Secondary	12	7	0	21	0	23	26
None	40	18	33	16	37	0	27
Belong To Association?							
Yes	97	86	100	80	79	90	100
No	3	14	0	20	21	10	0

4. FLOW OF PADDY AND MILLED RICE FROM CLUSTER TO KANO

4.1 DANDUME

All farmers around the areas indicated that they take their produce to Dawanau market. The market operates for three days, Saturdays, Sundays and Wednesdays. Paddy is not moved to Kano markets and milled rice does not moved into the cluster. It is only paddy that is moved into the cluster and milled rice is moved out of the cluster. Marketers reported that between 1,000 to 9,000 bags of milled rice is moved from Dandume to Kano markets. The quantity of paddy that is moved into the cluster varies from 6,000 to 9,000 bags. This amount of rice is actually purchased from other markets by Dandume merchants and brought to Dandume market. But the marketers indicated that they don't take rice from Dandume to other places. Rather merchants from other places come to Dandume to purchase milled rice (figure 1).

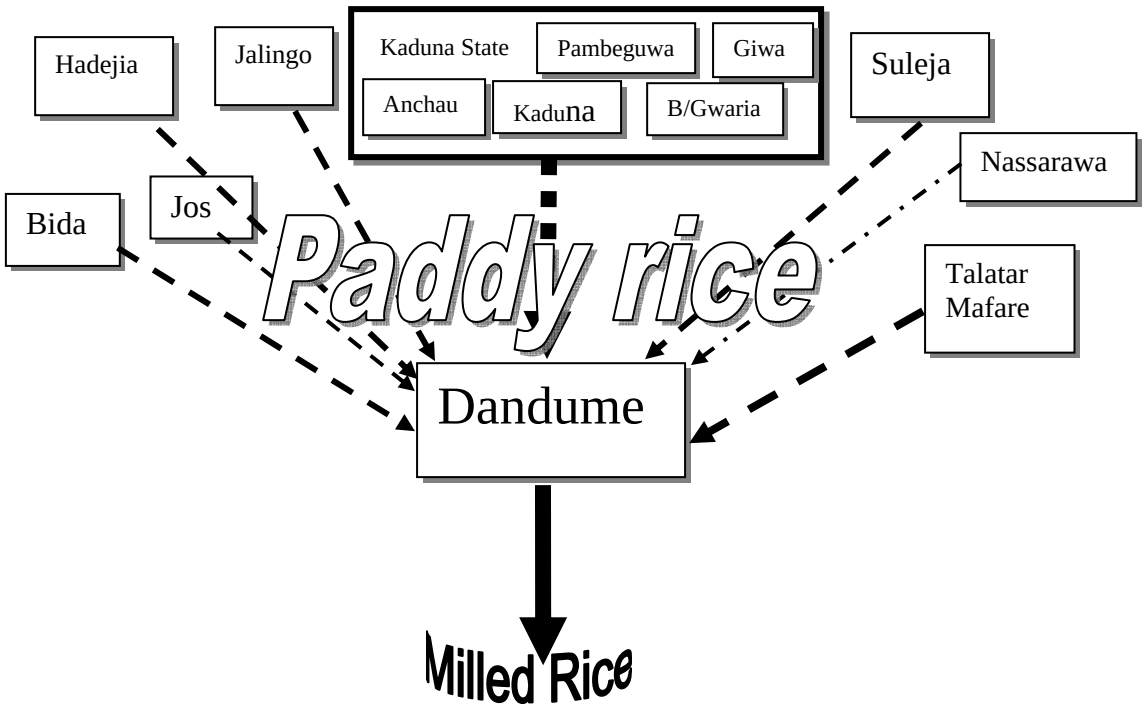
The marketers indicated that they travel far and wide throughout Nigeria to buy paddy which is brought to Dandume for processing. Some of the places mentioned include: Anchau, Fambeguwa, Giwa, Kaduna and Birnin Gwari in Kaduna State; Bidda and Suleja in Niger State, Jalingo in Taraba State, Mubi in Adamawa; Jos in Plateau, Lafia in Nassarawa State, Hadejia in Jigawa State.

Traders from Kano come to Dandume to buy milled rice. The most important markets in Kano for Dandume rice are shown in table. Some believe that Dawanau only is most important (13%). Others think Dawanau and Kurmi (66%) combined are the most important outlets to Dandume rice. Thus Dandume can be considered as a marketing cluster instead of a production cluster.

Table 15: Important Rice Markets in Kano

	Market	**Frequencies (%)**
1.	Dawanau	13
2.	Dawanau and Kurmi	66
3.	Kurmi	3
4.	Kurmi, Sabon Gari and Dawanau	3

Figure 1: Flow of Rice in Dandume Cluster



4.2 GARKO

Some paddy, about 150 – 250 bags are moved to Kano market (Dawanau) (which market or markets in Kano). But like Dandume bulk of rice movement to Kano is in form of processed rice. An estimated 1,000 to 1,500 bags of processed rice is moved to Kano every market day. The market operates once in a week, Sundays. The estimated quantity milled rice moved into the cluster is between 100 to 300 bags. But an estimated quantity of 1,000 to 1,200 bags of paddy is brought into Garko cluster. This means very small percentage (10 %) of paddy is moved to Kano in relation to the quantity of paddy brought in to Garko market.

It can therefore be concluded that Garko is a producing, as well as, a processing cluster. The marketers indicated that the most important rice market in Kano is Dawanau. In addition to Kano, marketers take rice to Kura, Darki, Wudil and Tudun wada markets. This is an indication that Garko is a producing and processing cluster.

4.3 KURA

The estimated volume of paddy that is moved from Kura to Kano varies from 300 to 500 per day rather than per market day. Between 200 to 300 bags of milled rice is moved per day from Kura to Kano. Everyday an estimated 500 to 1,000 bags of paddy is moved into Kura. This shows that Kura is both a producing and processing cluster. The most important markets in Kano, according to Kura marketers, are; Dawanau, Brigade, Yankaba, Mariri, Sabon Gari, Kurmi and Yankura market. But Yankura is another name for the rice market in Sabon Gari market.

4.4 KINKIBA

The estimated volume of paddy moved to Kano is between 200 to 400 bags per week (which market in Kano (Dawanau, Yankaba, Singer (Sabon Gari) and Tarauni markets)). But the estimated quantity of milled rice is between 500 to 1,000 bags. About 500 to 1,000 bags of paddy are moved into the cluster.

But only 400 to 500 bags of milled rice are brought into the cluster. This means more paddy then milled rice is brought into Kinkiba cluster. The marketers and millers process paddy into milled rice before selling outside the cluster. This shows that Kinkiba is also a processing and production centre. The most important markets for Kinkiba rice in Kano are Dawanau, Yankaba, Singer (Sabon Gari) and Tarauni markets. But in addition to Kano the marketers also take milled rice to Zaria, Jos, Kaduna and Gujungu (Jigawa State) markets.

4.5 TUDUN WADA

The estimated volume of milled rice moved to Kano on every market day (3 times a week) is between 5,000 and 8,000 bags. But between 10,000 and 20,000 bags of paddy are moved into the cluster and about 7,000 to 8,000 bags of milled are brought into the cluster. Paddy is not usually moved from Tudun Wada to Kano. This shows Tudun Wada is both a producing and processing cluster. The important markets in Kano are; Dawanau, Yankaba, Kurmi, Rimi and Kofar Wambai markets.

4.6 HADEJIA

The estimated volume of paddy that is moved from Hadejia to Kano is between 3,000 to 5,000 bags. The volume of milled rice is between 2,000 to 3,000 bags. The quantity of paddy that is brought into the cluster is between 5,000 to 10,000 bags and that of milled rice is between 2,000 to 3,000 bags. Hadejia is therefore essentially a production cluster. The most important rice market for Hadejia rice in Kano is Dawanau.

Hadejia followed by Kura are the major suppliers of paddy to Kano. Tudunwada, Dandume, Hadejia and Kura are the major suppliers of milled rice to Kano. Dawanau, Sabongari and Rimi markets are the most important rice markets in Kano metropolitan area (table 15c).

Table 15b: Rice Movement into clusters and to Kano (bags)

Cluster	Rice into the Cluster		Cluster to Kano		Rice into Kano Per week		
	Paddy	Milled	Paddy	Milled	Market days per week	Paddy	Milled
T/wada	15,000	7,500	0	7,500	3	0	22,500
Hadejia	7,500	2,500	4,000	2,500	1	4,000	2,500
D/dume	7,500	0	0	5,000	2	0	10,000
Garko	1,100	200	200	1,250	1	200	1,250
Kura	750	0	400	250	7	2,800	1,750
Kinkiba	750	450	300	750	No Market	300	750
						7,300	38,750

Table 15c: Rice Markets in Kano metropolis

	Kura	Kinkiba	T/Wada	Dandume	Garko	Hadejia	Total
Dawanau	√	√	√	√	√	√	6
Brigade	√	×	×	×	×	×	1
Yankaba	√	√	√	×	×	×	3
Mariri	√	×	×	×	×	×	1
Sabongari	√	√	×	√	×	√	4
Tarauni	×	√	×	×	×	×	1
Kurmi	×	×	√	√	×	×	2
Rimi	√	×	√	×	√	√	4
Kofarwambai	×	×	√	×	×	×	1

Dandume is more of a marketing cluster then the others. Dandume marketers travel to other places to purchase paddy. The paddy is processed and sold in Dandume market. According to the marketers, they do not carry rice to other places for sale. Merchants from other places come to Dandume to purchase processed rice. This qualifies Dandume as a national market.

Garko cluster on the other hand, receives rice from villages around it. The marketers take rice to Kano, Tudunwada, Kura, Wudil and Darki. The influence of the market appeared to be localized within Kano State.

Kura marketers also indicated that they take rice to Kano and Tudunwada. But most of the rice is sold in Kura. Marketers from all parts of Nigeria come to Kura to purchase rice.

Tudunwada marketers indicated that marketers from all parts of the country come purchase rice and other grains from their market. Hadejia is essentially a producing cluster. Marketers indicated that merchants from all parts of the country come to purchase rice from them. Their majot customers, apart from Kano include; Borno, Yobe, Niger republic, Cameroun and Tchad .This shows that Hadejia is a regional market.

In addition to Hadejia, Dawanau is also a regional market. Marketers from Niger, Tchad, Cameroun, Benin Republic come to the market to purchase rice and other grains. There is movement of rice between markets. Marketers take rice from one market to the other depending on the price differential.

5. COST OF MOVING RICE FROM CLUSTERS TO KANO

5.1 COST ESTIMATES

The cost estimates are mainly for processed rice. Respondents from the clusters indicated that – most of the rice moved to Kano is in the processed form (table 16). The costs involved are divided into five parts. The first four are cost incurred at the cluster level. The fifth sets are cost incurred in Kano markets. The first set of cost are related to processing they include: transportation to parboilers, transportation to millers, milling charges, winnowing and bagging.

After processing related changes are transportation, loading and off-loading at the village market. Then the market transaction cost, which include fees paid to union, LGA market authority and storage. The transaction costs at the three Kano markets (Rimi, Sabongari and Dawanau) are slightly different as shown in the table.

Transportation to parboilers are mainly by motorcycles, bicycles and wheelbarrows as such it attracts a lower charge of N10.00 to N20.00 per bag. It is the same with transportation from parboiler to milling. Parboiling charges range between N50.00 in Tundun wada to N300.00 per bag in Hadejia. In Kinkiba Dandume and Kura, the charges are the same N120.00. In Garko parboiling is N150.00. Milling ranges between N70.00 to N200.00 per bag. In all the clusters there are two different charges. If the millers are using electricity (NEPA) the charges are lower ranging from N50.00 to N150.00 per bag. But if there is no electricity, which implies that diesel is being used the charges are higher. Charges under diesel range from N120.00 to N200.00. In Tudun Wada, Hadejia, Kinkiba and Dandume the charge for milling under diesel is same N120.00 In Kura and Garko it is N150.00 and N200.00 respectively. Winnowing and bagging appeared to be the same (N20.00/bag) in all the clusters. Loading and off-loading also appeared to be small, which indicates that the distance is short and mainly wheelbarrows and motorcycle are used. The price ranged from N10.00 to N50.00. The charge is similar to that of loading and off-loading which indicates that wheelbarrows and carts (manually pushed) are used. The transaction costs at the local markets are not the same in all the markets. Union fees are only paid in Kura and Dandume markets, fifteen naira per bag is paid in Kura and N10.00 is paid Dandume.

LGA fees are paid in all the markets except in Kinkiba. Twenty naira per bag is paid in Garko, N10.00 each in Kura and Tudun Wada. But in Tudun Wada, N10.00 is paid per bag coming in and N10.00 per each bag coming out of the market is paid. Thus twenty naira is paid per bag. Fifty naira per bag is paid in Hadejia. But in Dandume N10.00 is paid per stall per market day. It is not related to the number of bags sold.

Apart from Tudun Wada and Hadejia, all the other markets charge for middlemen commission which is popularly known as ‘LAADA’. Ten naira is paid in Garko, fifteen in Kura twenty in Dandume and thirty naira in Kinkiba for each bag sold. Those marketers that have market stalls pay rentage to market authorities on annual basis. The market stalls belong to local government

authorities. The charge range between N5,000.00 to N20,000.00 Kura, Hadejia and Kinkiba market authorities charge N5,000.00 per store per annum. Garko charges N6,000, Tudun Wada N10,000 and Dandume N20,000.00 per stall per annum.

Transportation charges from the cluster markets to Kano depend on the distance and type of vehicle used. Kura which is closer to Kano then all the others has the lowest transportation charge of N70 to N100 per bag. Where buses or car used the charge is N100.00 per bag. But where Lorries are used, the cost is lowered to N70 per bag. Kinkiba has the highest transportation cost of between N300-350 per bag from Kinkiba to Kano, which could be due to its bad road, especially the portion from Kinkiba to Zaria.

A temporary storage of N10 per bag per day is charged in all the markets except in Hadejia. A fee of N50.00 per day is charged in Hadejia for storage. Transaction costs in Kano markets include: union market authority, loading and off-loading, winnowing, re-bagging and storage charges. Middlemen fees are not paid in all but three markets (Garko, Kura and Kinkiba).

Union fees vary from N5.00 per bag in Rimi to N15.00 per bag in Sabon Gari and N50.00 per trailer in Dawanau. Dawanau charges are by far lower than those of Sabon-Gari or Rimi. A trailer takes 300 bags of rice. Thus the charge per bag is about 20 kobo. Rimi market does not pay LGA fees. But Sabon-Gari pays N40 per bag and N10 per bag in Dawanau market. The rentage paid by marketers to market authorities served also as cost for storage. The charge varies with the size of the store in Rimi and Dawanau. In Rimi the charge varies between N20,000 to N30,000. In Dawanau the charge varies between ₦50,000 – ₦60,000.00 per annum. In Sabon Gari, the charge is fixed at N15,000 per stall per year. A temporary storage facility is available at Dawanau at the rate of N20 per bag per day.

Table 16 Transaction Costs by Cluster

		Garko	Kura	Tudun Wada	Hadejia	Kinkiba	Dandume
1	Processing charges (N/bag)						
i	Transportation to Par boiler	10	10	10	20	0	20
ii	Parboiling	150	120	50	300	120	120
iii	Transportation to Miller	10	10	10	20	20	20
iv	Milling	150-200	70-150	80-120	100-120	50-200	50-120
v	Winnowing and bagging	20	20	20	20	20	20
2	Transportation to market						
i	Loading/off loading	20	20	30	20	20	20
ii	Transportation to Market	10	20	50	20	20	50
3	Transaction cost						
i	Union fees	0	15	0	0	0	10.00
ii	LGA fees	20	10	10	50	0	10/stand
iv	Middlemen fees	10	15	0	0	30	20
v	Market authority fees (N/year)	6,000	5,000	10,000	5,000	5,000	20,000
vi	Temporary Storage (N/Bag/Day)	10	10	10	50	10	10
4	Transportation to Kano	100-150	70-100	200-300	150-200	300-350	250-300

5	**Transaction cost in Kano Market**	**Rimi**	**Sabon Gari**	**Dawanau**
i	Union fees	5	15	50/trailer
ii	LGA fees	0	40	10
iii	Market authourity charges	20-30,000	15,000	50-60,000
iv	Middlemen fees	0	0	0
v	Off-loading	20	20	20
vi	Winnowing and bagging	20	20	20
v	Storage (N/bag/day)			20

5.2 PRICE DETERMINATION

i. Loading and off loading

Charges for loading and off-loading are determined by the association of laborers, loaders, off-loaders and porters of Nigeria (ALLOPAN). This is why the charges, N20 per bag, is uniform throughout the clusters

ii. Parboiling

Par boilers indicated that owners of rice determine the charges. But marketers, farmers and millers indicated that it is the par boilers that determine price. The price is fixed through agreement between customers and service provider (par boilers). But, as the par boilers do not have association they recorded the widest variance of fees charged from ₦ 50 to ₦ 300/bag. Despite this variance there are not significant differences in the service provided.

The parboiling services in Garko are not different from the others. What is different is their polishing technique. They use fine sand, locally called 'Yashin Kalili' to polish their rice, using pestle and mortar. After that, they also use fresh guinea corn leaves to re-polish the rice. At the end, they use either groundnut or palm oil to color the rice.

iii. Milling

Millers' association in the clusters was responsible for fixing milling charges. The fees are fixed based on the source of energy (electricity or diesel) used for the operators. Charges for using diesel are higher.

iv. Transportation

Commission agents (Yan Kamasho) and drivers fix transportation charges. But the commission agents were said to be more influential.

v. L. G. A

Local Government charges are fixed by Local Government revenue department in collaboration with the market association. The charges for stall rentage are also fixed in similar fashion.

vi. Temporary storage

Temporary storage rates are determined by marketers and landlords that own stores in the market.

6. SIMILARITIES, DIFFERENCES AND UNIQUENESS OF CLUSTERS

6.1 SIMILARITIES AND DIFFERENCES

All the six clusters are similar as they are all rice producers. They all feed Kano markets with rice, but mainly milled rice. Generally, 70, 22 and 8 percent of the farmers are small, medium and large scale farmers respectively. The major producers in Garlko, Kura, Hadejia and Dandume clusters are small-holder farmers, that produce for the purpose of generating income to improve their livelihood. The major producers in Tudunwada and Kinkiba are medium and small scale farmers. Farmers in all the clusters patronize their local markets.

But they differ in many respects. They grow different varieties. The irrigated sites, Kura and Hadejia grow improved varieties. The others produce mainly local varieties. It is only Kura and Garko that specialize in growing few (about 3) varieties. The others grow between 5 to 10 varieties.

There is a wide variation in cost, as well as, the yield obtained by farmers. Kura has the highest yield and second highest cost of production. Garko has the lowest yield and cost of production. All the farmers in clusters use fertilizers. But it is only farmers from Kura and Hadejia that use herbicide.

Storage of rice by farmers before selling also varies between the clusters. In Tudun Wada, farmers store paddy for a period of 4 to 9 months, Garko 2 to 8 months, Kura 6 to 7 months, Hadejia 1 to 6 months, Kinkiba 1 to 6 months and Dandume 1 to 4 months. The major suppliers of rice to the local markets are farmers and marketers, in that order of importance, in Tudun Wada, Garko, Kura and Hadejia. In Kinkiba it is farmers who are the major suppliers. But in Dandume marketers then farmers are the major suppliers. In Dandume, marketers go out to other places to buy paddy and bring to their market.

The market transaction cost per bag also varies between clusters from N75 to N280. Dandume had the lowest transaction cost of N75. Tudunwada 110, Kura 150, Kinkiba and Hadejia 170 each. Garko had the highest transaction cost of N280. The units of measure are same in all the clusters, except in Kinkiba. They all use bags and kwano (Mudu). Kinkiba use half kwano called tiya. But the number of kwano in a bag vary in all the clusters, except Dandume and

Hadejia, where 40 kwanos make a bag. In Tudun Wada about 30, 40, 50 mudus make a bag. But the marketers explained that where there are variations in number of mudus in a bag, it is usually at the discretion of the buyer. In such cases, payments are made based on the number of kwanos. But where large quantities are involved, purchases are made in bags of 40 kwano. The weight of rice in a kwano exhibit slight variation. Milled rice weighed between 2.45 to 2.52 per mudu. But all sales are based on volume not weight.

Table 17: Similarities And Difference Between Clusters

		Tudun Wada	Garko	Kura	Hadejia	Kinkiba	Dandume
	Varieites	Aisha, Yarzabuwa, Maiadda, Yardass, Dukusa, Kwandala, Kurkura, Jollof	Kilaki, Yarkura, Santana	Cp, Wita 4, Santana	Santana, Sippi, Wita 4, Faro, Iita 121, Iita 212, Yar Zaria, Yarjana (Local)	Yar China, Yar Dass, Yar Kaibi, Yar Zabuwa	Jannera, Yar Dass, Yarlla, Zabuwa Ana Jannera, Zaria
1	Yield (Bags)	14	7	76	63	12	24
2	Cost of Prod. (N/bag)	2,786	2,857	934	2,222	2,250	2,083
3	Storage (months)						
	Minimum	4	2	6	1	1	1
	Maximum	9	8	7	6	6	4
4	Major Suppliers	Farmers, Marketers	Farmers, Marketers	Farmers, Marketers	Farmers, Marketers	Farmers	Marketers,Markerters
5	Major Buyers	Markers, Millers	Marketers, Millers, Consumers	Marketers, Millers, Consumers	Marketers, Consumers	Marketers, Consumers	Marketers
6	Processing Cost	220	270	220	300	250	220
7	Transaction Cost	110	280	150	170	170	75
8	Market Days	3 Times a Week Every Other Day	Sundays	Fridays	Sundays	None No	Sundays, Wednesdays
9	Unit of Measure	Kwano, Bag	Kwano, Bag	Kwano, Bag	Kwano, Bag	Kwano, Bag	Kwano, Bag
	Kwno/Bag	50, 40, 30	50, 40, 33	50, 40, 20	40	80, 70	40
10	Weight Of Kwano Milled (Kg)	2.52	2.45	2.48	2.52	1.28*	2.52

* Kinkiba uses half Kwano called (tiya)

6.2 UNIQUENESS OF CLUSTER

The uniqueness of the clusters was explored in the focus group discussions. Farmers, parboilers, millers and marketers were all asked in their opinion what make their cluster unique. The perception of uniqueness is summarized in table 18.

Dandume:

1. Dandume is not strictly a producer cluster. But they made name at a time when other places were not producing rice.
2. The quantity of rice produced is not much, but the marketers travel far and wide to purchase paddy which they process and sell.
3. They do not take rice outside Dandume. But merchants from other place come to buy from them.

KINKIBA

1. Kinkiba is essentially a producer cluster.
2. Kinkiba is the only cluster without a market. Their marketers take rice from Kinkiba to other markets.

HADEJIA

1. Is essentially a producer cluster.
2. They produce rice in large quantity.
3. They are unique in that one can get rice from Hadejia at any time.

KURA

1. The uniqueness of Kura is their specialization. They produce fewer types of rice varieties in large quantities.
2. They also specialize in selling rice only. The rice markets sell only rice unlike other markets.
3. They are good traders and respect every customer.
4. They develop very good customer relation with merchants due to quality and quantity control.

GARKO

1. Garko is unique in rice processing and polishing.
2. They polish their rice very well which gives it the name ‘KILAKI’. (Kilaki in hausa, means something that is kept good and clean, looking very attractive).

TUDUN WADA

1. The uniqueness of Tudun Wada has to do with quality of their parboiling and quantity rice of rice supply in the market.
2. They are large producers and the fact their market alternates every other day means that customers have assured supply of rice almost everyday.
3. The quality control which they call ‘Justice and Peace” in the market makes customer confident they are buying their money worth. Marketers ensure that every bag contains the specified 40 kwano.

TABLE 18 PERCEPTION OF CLUSTER UNIQUENESS

FARMERS	PARBOILERS	MILLERS	MARKETERS
HADEJIA			
- Free from stones - Dried very well -	- Large quality of rice produced - Rice is delicious and tasty	- Large quality produce - Different brands varieties available - Hadejia rice is longer than Kura rice - Parboiling is different from others - Good processing procedure - Better soil for farming.	- Larger quality of rice/large market - Cheap product - Traders bring rice from other place - Customers from different part of the country. - Variety of rice to satisfy customer - Good relation with customers - Customers from Niger, Chad
KURA			
-Rice is delicious and good -Kura rice is cheap -Rice is well parboiled - Fertile land and delicious rice	-Rice is delicious & cheap. - the land is fertile - Good varieties are grown. - Rice is well parboiled - Slim and long varieties	-Rice is milled very well -Market is very close to the market. - Good varieties are grown - Quality of rice is unique. Quality and beauty of the rice	- Security of property and life - Respect all traders - Low price - Good Quality rice - Standard mudu - Large quality of rice - We only sell rice
GARKO			
- Long grain rice - Good processing - Extra processing - Polishing with sand and oil.	- Cheaper rice - large quality of rice - High Quality - Rice is tasty and sweet - Rice is properly parboiled	- Well processed rice - Special processing - Qualitative processing rice. - Superior processing of rice.	- Quality and quantity of rice. - Quality of rice

TUDUN WADA			
- Looks better and more delicious -Good filling with less chaff -Plant only upland varieties - Rainfed upland varieties - Cleanness - Parboiling and drying	-Tasty and good rice in large quantity - Delicious rice - Very good parboiling Every household is in rice business	- Processing exercise is more qualitative than any - Large quality of rice - Nature of market a day interval - Quality of rice makes it more acceptable and expensive	- Nature of market a day shift plus other grains. - Large quality of rice - Quality and quantity of rice - Cheap commodity - Dryness of rice - Justice and peak in market
DANDUME			
- Tasty rice -Polishing and processing done very well	- Rice has to be fully dried before milling - Dandume rice -Tasty and produced in large quantity.	- People in Dandume handle rice with seriousness. - Good processing activity - Doesn't have any unique feature	- Quality and quantity of rice - Reputation of rice trading - Customers from different parts of the country. - Cheap rice. - Variety of farm produce - Standard bag (40 tiyas) - Peace with one another
KINKIBA			
- Our rice has thicker grain than other - Better milling quality - Good filling no chaff	- Rice delicious produced in large quality - Rice is parboiled very well.	- Processing activity is average - More qualitative processing - Only rice produced in Kano State is better than our own. - Our parboilers are good - Good processing activity.	- There is no market marketers take rice to places.

7.0 CONCLUSION AND RECOMMENDATION

7.1 CONCLUSION

1. Farmers have indicated clear appreciation for working in association. All clusters have primary association. Kura, Hadejia and Tudun Wada indicated the emergence of secondary association (Union). But in all the cases, none has engaged in any serious advocacy in the clusters. The major benefits derived by members, is simply the purchase of fertilizer.
2. Parboilers are the only group without any association. There is every indication that they are being cheated, as they complained about lack of or delay in payment. The method of parboiling used by the women is still the traditional method.
3. Millers are more organized than parboilers. But they faced the problem of electricity and drying slabs.
4. Marketers in the cluster are faced with problem of storage, especially during the rainy season.
5. There is a serious problem of quality control and standardization. Volume instead of weight is used for rice trading.

RECOMMENDATION

1. There are indications that farmers, millers and marketers are aware of functioning and benefits of associations. But they are not deriving the best benefit from being members of the association. It is therefore recommended that Management and organization of groups should be promoted.

2. Standards need to be set to ensure quality control. A grading system based on quality and physical characteristics of rice grains need to be established in collaboration with all stakeholders. In addition to that use of weigh rather then volume should also be encouraged. Standard bags with known weight such as; 25kg, 50kg, or 100kg, should be promoted. The use of branded packages should also be encouraged.

3. There should also be improvement in parboiling, polishing and de-stoning of all branded rice.

List and Addresses of Associations

GARKO

S/NO	Name	Address	Reg. No.	Date registered	GSM No.
	FARMERS				
1	Mazadu Farms Cooperative Society	Garffwa Gorko LGA	KN9229	May-04	8027402497
2	Gidan Malam Farmers/Fishermen Tsigi	C/o Mallam Shuaibu, Markaruwa, Tsigi Garko	KN 10799	May-03	8022192606
3	Kademawa Farmer Association	Garko			
4	Dausayi Farmers' Association	Garko			
5	Garko Young Farmer Club	Not yet regsiter			
6	Garko Kadawa Farmers Coop. Society Ltd.	Garko	KN 9270		
7	Rice Farmers Association of Nigeria Garko	Kafar Kudu, Garko	Branch of RIFAN	2005	
8	Maimanda Fadama Farmers	Garko		2002	
9	Kera Rice Farmers Association of Nigeria	Kera, Garko			
10	Garko Rice Farmers Association of Nigeria	Bakin Kasuwa, Garko	Registered	1998	
11	Raba Rice Farmers Association of Nigeria	Raba, Garko	Registered	2006	
12	Kafin-chi-I Rice Farmers Association		Registered	2006	
13	Sauni Rice Farmer Association	Sauni, Garko	Registered	2006	
14	Kafimari Rice Farmers Assocaition	Karimari, Garko	Registered	2006	
	PARBOILERS				
	NO ASSOCIATION				
	MILLERS				
1	Durize rice Processor Association	Unguwar Dukawa Qarts Kano		1997	
	MARKETERS				
1	Garko Marketing Association	Kanlayi, Garko	Registered	2002	
2	Garko Marketing Development Association	Sarkin Kasuwa Shorp	Not registered		
	HADEJIA				
	FARMERS				
1	Federated Water User Association	C/o Hadejia Valley Irrigation Valley, Hadejia	DCD/SHG/22/B/ 1439	Jul-07	08020964563, 08029611117
2	Auyo Water User Association	C/o Abdullahi Hassan Auyo, Auyo LGA	Registered	Aug-02	8024256731
3	Mado Water User Association	C/o Adamu Wanzam Mado, Mado, Auyo LGA	DCD/SHG/22/B/ 1441	2005	8022028402
4	Adaha Water User Association	C/o Mohd Maigari, Adaha, Adaha Auyo	19	Aug-02	8027649592

		LGA			
5	Gamsserka Water User Association	C/o Ibrahim Aminu Gamserka, Auyo LGA		May-02	8026808291
6	Rice Farmers Association of Nigeria	C/o Mohd. Rabiu Hadejia			8026808291
7	All Farmers Association of Nigeria	C/o Mohd. Rabiu Hadejia			
	PARBOILER				
	No of Association				
	MILLERS		Registered		
1	Hadjia Millers Association Agro-allied	C/o Yahaya Umar	(Ja4521)	1995	
2	Hadejia - Agro-allied Millers Coop. Society Ltd.	C/ Alh. Umar Hassan Babuga Dubantu, Hadejia		Jul-06	802535285
	MARKETERS		22/0531		
1	Farm Produce Business Association	C/o Alh. Mus Narimi Sabuwar Tasha, Hdejia	Not registered	2001	8027321736
2	Milled Rice Marketers Association	C/o Yahaya Gatafa			8022193803
	KURA				
	FARMERS				
	Agolas I Irrigation Water Users Cooperative Society Ltd.	C/o Sani Abdullahi, KRIP Kura, Office Kura-Kano	KN 8073	May-02	08036706441,
	Kura Fadama Farmers and Agro-Chemical Sprayers Multipurpose Cooperastive Society Ltd.	C/o Musa Shuaibu Tafasa, Tafasa, Kura, Kura LGA	KN 7350	Oct-03	08039644004, 08036535690
	Tafasa Alheri Farmers Multipurpose Cooperative Society	C/o Lawan Musa Tafas Tafasa, Kura	KN 16768	2006	8036557363
	Tafasa Young Farmers Coopersative Society Ltd		KN 12742	Aug-04	8022113628
	Agolas iv and v Water User Cooperative Society Ltd.		KN 1543	Jul-96	08062113628, 08036214019,
	Faderated Water User Association Cooperative Society Ltd	C/o Gali A. Lawan KRIP Office, Kura, Kura LGA	Registered	Jun-05	8067135206
	Bagau Water User Association	C/o Lawan Nasiru Bugau Bugau, Kura LGA	Registered	Jun-05	08036575460, 08065874383
	Imawa Water Users Cooperastive Society Ltd	C/o Alh. Amadu Imawa, Imawa Kura LGA			
	PARBOILERS				
	Kasaita Women Rice Farmers Association	C/o Hajia Huwa, Auya Kawa, Kura	KN6404		

MILLERS

1	Haddadiyar Kungiya Manika, Kura LGA (Federrated Millers Association Kura LGA)	C/o Shuaibu Idris	Regsitered	1997	
2	Rice Millers Association	C/o Injin Ali Sojo near Dr. Muktari Kura Hospital	Registered	1995	
3	Karfi Rice Millers Development Association, Karfi	C/o Dayyabu Danyaro, Karfi Kura LGA		1997	
4	Kungiyar Masu Saida Shinkafa	C/o Gighau Dan Mallam, Kofar Yamma, Kova	Registered	1999	
5	Kura Rice Millers Association	C/o Injin Alhaji Rabilu, Kofar Yamma, Kura, Kura LGA	Registered		8059165314

MARKETERS

1	Milled Rice Markets Association	C/o Kofar gidan Dan Mallam, Kofar Yamma, Kura, Kura LGA	Registered		8034462987
2	Milled Rice Women Marketers Association	C/o Lami Shata, Kofar yamma, Kura, Kura LGA			
3	Karfi Rice Marketers Association	C/o Abdulaziz Mohd., Karfi, Kura LGA	Not registered		08034272411, 08034802226
4	Kwana Dawaki Rice Millers and Sellers Association	Tamburawa yamma, Zaria road km 15 to Kano. Dawacin Kudu LGA			

KINKIBA, SOBA LGA, KADUNA STATE

FARMERS

1	Bakin Kasuwa Farmers Cooperative Society, Ltd.	C/o Sadanu Ismaila, Bakin Kasuwa, Kinkiba, Soba LGA	KN 2336	Jun-95	
2	Kinkiba Fadama Farmer Cooperative Society	C/o Alh. Wada/ Daddau Sule Kinkiba, Soba LGA			
3	Kinkiba Kudu Farmers Cooperative Society	C/o Saidu Rabiu, Kofar Kudu, Kinkiba, Soba LGA	KDS 2429	Jun-96	8025618344
4	Sabon Layi Fadama Association	C/o Alh. Salisu, Sabon Layi Kinkiba, Soba LGA	KDS 5664	Mar-01	8022692764
5	Makwarwa Fadama Cooperative Society Ltd	C/o Alh.Mohd. Lawal, Makwarwa Kinkiba, Soba LGA			8022067291
6	Damari Fadama Association	C/o Mallam Shehu Damari Kinkiba,	KDS 2184	Jul-92	

		Soba LGA				
7	Baka Damori Farmers Cooperatrive Society Ltd.	C/o Yunusa Salihu Kinkiba, Soba LGA	KDS 2440		May-96	8033278624
8	Unguwar Sako, Kinkiba Farmers Cooperative Society Ltd.	C/o Basiru Ladan Kinkiba, Soba LGA	KDS 1951		May-92	8022533260
9	Masanawa Kinkiba Multipurpose Cooperative Society Ltd.	C/o Alh. Galadima Kinkiba, Soba LGA	KDS 4799		Apr-99	
11	Unguwar Marmara, Kinkiba Multipurpose Cooperative Society Ltd.	C/ Abdulkadri Dauda Kinkiba, Soba LGA	KDS 7425		May-06	
12	Anguwar Malami Kinkiba Fadama Cooperative Society Ltd.	C/o Alh. Sani Yhaya Kinkiba, Soba LGA	KDS 5665		Mar-01	8029040949
13	Unguwar Yhaya Community Development Association	C/o Ahmed Dan Yaya Kinkiba, Soba LGA		299	Jan-01	
	PARBOILERS					
	NO ASSOCIATION					
	MILLERS					
1	Kinkiba Rice Millers Association	C/o Auwal Garba, Kinkiba Bakin Kasuwa, Kinkiba Soba LGA	Not registered			
	MARKETERS					
1	Kofar Ni'ima Rice Sellers Association	C/o Tasiu Muazu, Kofar Kudu, Kinkiba Soba LGA	Not regsitered			
	SABON-GARI MARKETERS, KANO					
1	Rice Sellers and Millers Development Association	Yankura, Sabongari Market, Kano		5701	Renewed	08077212476, 08036954971
2	Dawanau Rice Millers and Sellers Association	Dawanau Market Dawakin Tofa LGA, Kano			1995	08033578963, 08053138884
3	Rice Sellers Association	Rimi Market, Yakasai, Kano	Not registered			
	DANDUME MARKETERS					
	FARMERS					
1	Dandume Farmers Cooperative Society Ltd.	Tashar Garbuwa, Dandume C/o Alh. Mohd. Gardi	KTS 8364		Apr-01	8022717542
2	Dantankari Farmers Cooperative Society Ltd.	Dantankari, Dandume LGA, Katsina	KTS 15351		Feb-05	
3	Dage-Zagi Farmers Cooperative Society Ltd.	Dantankari, Dandume LGA, Katsina State			2004	
4	Gangare Dantankari Farmers Cooperative Society Ltd.	Dantankari, Dandume LGA	KTS 1896		Apr-97	

		Katina State		
5	Unguwar Soro Dantankari Multipurpose Cooperative Society	Dantankari, Dandume LGA, Katsina Stte	KTS 10247	Jan-03
6	**PARBOILERS** NO ASSOCAITION			
	MILLERS			
1	Rice millers Association Dandume	C/o Isyaku Garba Behind New Market, Dandume	Registered	1992
2	Himma Bata ga rogo Millers Association Dantankari	C/o Alh. Sule Inusa, Dantankari Dandume.	Not registered	2002
	MARKETERS			
1	Dantankari Rice Sellers Association, Dandume	Filin Makaranta, Dantankari, Dandume LGA	KTS/YC 2033	2002
2	Rice Sellers Association, Dandume		KTSG/YC 1603	1999