Rice Industry Supply Chain Development Programme

A Rice Industry Development Programme of the MSME Project

PROGRAMME SUMMARY

A pilot project of the Federal Government of Nigeria and the World Bank

Introduction

The Kaduna State Rie Industry Supply Chain Development Programme is a sub-component of the Business Development Services (BDS) component of the Micro, Small and Medium Enterprise (MSME) Project. The Programme aimed to be a catalyst and facilitator of policy and enterprise development initiatives that address the existing constraints and bottlenecks in the rice value chain structure. Specifically, it aimed to positively impact the supply of operational inputs, training and advisory services by facilitating the expansion of Nigerian private sector suppliers. The Programme was implemented by Bayou Farms and Industries Limited (BFIL) in association with its technical partners – Schaffer and Associates International Ltd, Louisiana State University Agricultural Center and Agro-Biotech – over a period of 20 months.

The programme assessed the current processes and obstacles within the current rice supply chain structure in Kaduna state to improve rice production in Nigeria by enhancing the values of the various components in the supply chain: land preparation and planting systems, growth and development systems, harvesting systems, postharvest handling systems, processing (parboiling and milling) systems and marketing systems. It aimed to identify appropriate solutions and sustainable measures required to accelerate investment, growth, output, value input and employment opportunities in the rice industry.

Rice industry in Nigeria and Kaduna State

Rice is a staple in Nigeria, and is therefore one of the most important food crops in the country, serving as a major source of calories in Nigeria's urban and rural areas. It is also a cash crop for those farmers who produce it, as they sell around 80 percent of their total production, and therefore generates more income for farmers in Nigeria than any other cash crop. It is cultivated on approximately 3.7 million hectares of land from the northern to southern parts of the country and the main areas of cultivation include the eastern states of Enugu, Cross River and Ebonyi and the middle belt states of Benue, Kaduna, Niger and Taraba. Total domestic production is estimated at 2 million MT of milled rice and around 90 percent of it is estimated to come from smallholder farmers. But despite being one of the largest producers of rice in West Africa, Nigeria is also one of the largest rice importers in the region. Despite a highly protectionist rice trade policy, it imported around 3 million MT in 2008 to cover for increased per capita consumption (34kg per person per annum in 2007) and a preference for white polished imported rice.

Within Nigeria, Kaduna State is one of the largest producers of rice in the country with an annual production of about 354,550 MT in 2009. Kaduna state alone accounts for about 18% of the total national production and includes over 300,000 small-holder farmers involved in rice production across almost all the 23 local governments of the state. Rice is grown, processed and/or marketed in almost every district and village in Kaduna State. There are approximately 50 large scale mechanised farms involved in rice production, and it is estimated that between 20% - 25% of the State's output is produced under irrigation although the bulk of the farmers are involved in an upland rain fed system. The processing industry consists of several thousand parboilers and millers operating independently for each other. Most are micro businesses offering pay per use services. The state has also a number of somewhat larger rice processing MSMEs that operate on their own account. However, it is yet to attract a large rice processing mill. Moreover, there is a huge gap between current levels of production and potential yields as a result of highly distorted agricultural input markets, poor on-farm production practices and insufficient high-quality processing capacity. Rice production in Kaduna State is under-developed and many stakeholders still use traditional technologies which are inefficient and costly.

Given the importance of rice as a dietary staple and source of income, a large number of initiatives have been launched to address the problems of the Nigerian rice industry. These represent quite different analyses of the rice value chain but none of the approaches has yet been able to demonstrate dramatic impact yet. USAID's MARKETS Project focused on supporting a very large, highly sophisticated rice processing mill (controlled by one of the leading rice importers) and a supporting network of farmers.

DFID's Propcom Project focused on somewhat smaller intermediate clients, both small farmers and somewhat smaller processors trying to link them more effectively to markets. Other initiatives have worked on extending irrigation, promoting large scale more heavily capitalized farms (World Bank CADP Project), developing new seeds (WIARDA), and promoting the use of tractors and mechanization. There have also been attempts to promote and brand the indigenous Ofada rice variety.

All of these are attempts to reduce the extremely high costs of rice cultivation which makes domestic rice generally price uncompetitive even with very high duties and transport costs on imported rice – at the same time that its quality is deemed unattractive. Each of the approach involves a different evaluation of where in the rice value chain interventions are likely to have greatest impact. Unfortunately, none has yet been able to stem the rise of rice imports.

What has the project done?

Phase One – Analysis

During phase one, detailed analysis was undertaken to assess the status of the rice industry in Kaduna. The Rice Development Programme implemented a baseline survey of 242 farmers, organised stakeholder meetings, interviewed major stakeholders and visited several farms to: characterise socio-demographic trends; identify the varieties of rice grown, processed and traded; and identify the challenges faced by the various stakeholders in rice production, processing, marketing and business development. Consulted stakeholders included rice farmers, research and outreach agents, equipment suppliers, equipment fabricators, input suppliers, transportation suppliers, financial agents, brokers and traders, millers, parboilers, retailers and consumers.

The key challenges identified by rice stakeholders for the development of the rice value chain were the following:

- Poor processing techniques in parboiling and drying, which contribute to poor rice quality in the form of burned rice tips, dark spots, offensive odour, excess of foreign matter, particularly stone. In fact, parboiling was identified as a major challenge in the rice value chain.
- Absence of large scale millers and low efficiency of existing ones. The absence of large scale millers results in the rice produced in Kaduna being sold loose and unbranded, resulting in a loss of potential value added. Moreover, the low processing capacity in terms of milling means that paddy tends to be taken to other states (Abakaliki, Lafia and Kano) for processing, reducing the value added within the state and resulting in a loss of efficiency nationally, given that transporting paddy is less economic than transporting rice.
- Input distribution systems are not working properly and do not meet the needs of stakeholders. Public sector involvement and the subsidies that accompany it have made the private sector reluctant to invest in developing distribution networks.
- High cost of agricultural inputs and labour force. The price of inputs (seeds, fertilisers, agrochemicals) is high because of the need to transport imported inputs from Lagos to Kaduna. In addition, hired labour is scarce and expensive, and labour saving technologies (e.g. mechanisation) require costly investments that farmers cannot afford due to their limited capital base and lack of access to credit.
- Lack of high-yielding varieties of rice under sole-cropping conditions. The quality of rice produced by local farmers is compromised due to the practice of cultivating mixed rice varieties in addition to traders pooling mixed varieties to send to the millers. Inefficient processing mills and the lack of mechanized sorting and grading of rice through the production chain also leads to a high incidence of broken grains and deters consumers from buying rice locally.
- Limited knowledge and awareness on the potential profitability and competitiveness of local rice production and on how to establish better marketing systems.

- Lack of access to credit for farmers (to access raw materials, inputs and equipment) and for MSME processors (to purchase equipment and expand) reduces their access to raw materials, inputs and equipment for their activities, and has a negative impact on their productivity. For example, MSMEs producing parboiling and milling equipment face constraints in increasing investment in better processing equipment due to the lack of access to finance of their potential customers and the businesses themselves.
- Lack of provision of/access to business development services at any stage of the value chain. Though the state does have a capable agricultural university, the small farmer and MSME oriented industry is yet to use BDS services to any significant level as both the supply and demand of BDS is weak.

Box: Systems in the Rice Value Chain

1. Land preparation and planting systems.
2. Rice growth and development systems.
3. Rice harvesting systems.
4. Postharvest handling systems.
5. Rice processing (parboiling and milling) systems.
6. Rice marketing systems.

The analysis allowed the programme to identify six systems within the value chain where value could be lost or added (see Box). The first four systems focused on the planting and production of rice, representing the farming side of the value chain. The last two systems were defined as value-added systems, during which rice is converted to a value-added marketable product through parboiling, milling and packaging.

Across the six systems, the programme identified interventions which generated cost savings and added further value to each system. Apart from interventions in these six systems, research and outreach systems were also recognised as essential contributors in terms of both informing the rice industry and raising awareness of research and recent development. These interventions were discussed with rice stakeholders in a series of workshops to agree on which were the most relevant ones for the development of the rice value chain in Kaduna. The agreed interventions were implemented in phase two.

Phase Two - Implementation Activities

During phase two, the agreed interventions were implemented either directly by the project's technical team or by the BDS grantees that supported the implementation of the programme. The agreed interventions that were directly implemented by the project were the following:

1. Provision of Training of Trainers (ToT) to BDS providers and Local Kaduna State Agricultural Development Programme (KADP) agents on best management practices. The project team provided training through a workshop on best management practices for each of the six systems identified in the value chain. The goal was to enable BDS providers and KADP agents to further transfer knowledge to farmers, parboilers, and millers, and raise awareness of which are the key issues within each system. More specifically, training was provided in: the use and manufacturing of small harvesting equipment; production and marketing of the parboiling drums/vats; the use and manufacture of alternative parboiling equipment; pest management; business development; and marketing and branding of locally produced and processed rice. To support these interventions, a "Training Manual for Best Management Practices in Rice Production and Processing" was prepared and shared with all BDS providers and KADP agents.
2. Provision of direct technical support for farmers. The programme provided direct technical support to farmers from the Nigeria's Rice Farmers Association (RIFAN) on a demand basis during the duration of the project by organising workshops and one-to-one support.
3. Demonstration activities for farmers on rice parboiling and harvesting. Farmer demonstrations on the use

of improved parboiling units and small harvesting equipment were conducted to illustrate the options available for reducing regular losses in yield and increase the use of such tools. To implement the rice parboiling demonstration, the project designed four improved parboiling units; fabricated one 75kg parboiling unit; and prepared a technical brochure on how to design concrete floors and rakes for drying the rice after parboiling it, which was translated into Hausa.

4. Implementation of rice production trials. Rice production trials were conducted in growing a variety of hybrid rice grains suitable for Kaduna agricultural zones. Trials were successfully performed on five varieties imported from India, although testing is ongoing at Bayou Farms.

5. Fostering public-private dialogue. The project brought together the Kaduna Chamber of Commerce, its associated Agriculture Trade Group, KADP, RIFAN and other relevant stakeholders to foster public-private dialogue and partnerships. These stakeholders met several times throughout the project, engaging in collective brainstorming sessions and increasing their knowledge on the PPP processes.

Five BDS grants were awarded to expand the activities of the project and ensure its sustainability after the end. The five BDS grantees and the interventions that they promoted were:

- *Premier Park and Garden Enterprises* provided technical training and practical demonstrations in modern irrigation systems, handling of irrigation equipment and application of irrigation methods. It also organized x associations/clusters to encourage cost sharing for equipment purchases. (Mr. Haruna Adamu Kazzah/ Managing Director)

- *Ogbuka Green Merchandise,* a producer of mechanical, industrial and agricultural implements and equipment, trained 18 metal fabricators on the design and construction of rice parboiling drums as well as on recordkeeping, business management and marketing. It also provided small equipment demonstrations to rice farmers. (Mr. Afam Orji/Managing Director)

- *Fantsuam Foundation,* a microfinance institution, provided training to micro-sized enterprises in the rice value chain on: agriculture enterprise development, business and management services; and preloan and credit management, including proper bookkeeping and financial accountability. (Mr. Kazanka Comfort/ General Secretary)

- *London Business Development Agency* provided training to rice farmers on how to brand and market industry products developed, recommended packaging for retail sale of rice products and provided information and contacts on packaging equipment and techniques. (Dr. Effiong Akpan/Chief Executive)

- *Gefez Technical Services* designed a training programme on strategic marketing, effective customer service and selling techniques, and warehousing and logistics management for the rice industry. The grantee also organised a one day Forum on the Challenges of Rice Marketing and Investment in Kaduna State to create awareness and sensitise all stakeholders in the rice marketing chain. (Dr I. G. Eziakor, Managing Director/ CEO)

What is the expected impact of the project?

Although it is still too early to assess the impact of the project, the Rice Industry Supply Chain Development Programme in Kaduna State has deepened the understanding of the constraints for the development of the rice industry, raised awareness among stakeholders on the need to view the industry as a whole, and laid the foundations for closer collaboration among the different stakeholders in the rice value chain.

However, some of the results of the interventions can already be assessed:

- The programme created a pool of trained BDS providers who can now provide capacity building and guidance on technical issues to farmers for a variety of services such as build capacities in the use of irrigation techniques and in the design and fabrication of rice parboiling equipment; developed schemes to encourage cost sharing for equipment rental and purchases; developed packaging options for retail sales of various rice products; and provided information and contacts on packaging equipment and techniques
- The technical knowledge and outreach activities under this project carried significant influence and impact on KADP outreach agents. The KADP agents are now more empowered to pursue and promote both cultural and agricultural changes in practices at the production and processing level to increase the quality of rice production overall.
- The programme shared the design of the improved parboiling equipment with local manufacturers and parboiling drums/vats were produced and sold to local processors. These processors reported reductions in time and cost of parboiling rice and an increase in quality, consumer satisfaction and sale price.
- An improved design of drying floors and rakes to improve the quality of parboiled rice was also introduced, meaning that rice was subjected to fewer quality-reducing materials as well as reducing the number of roadside locations often used for drying. Practice trial results showed an increase in quality, a reduction in time and resource allocations, as well as improving marketing potential.
- The programme facilitated public-private partnerships by establishing a forum for key stakeholders to interact, which will further interventions in the rice industry alongside increased open dialogue between farmers, processors and consumers.

Lessons learned and recommendations

Some of the relevant lessons and recommendations identified during the implementation of the Rice Industry Supply Chain Development Programme in Kaduna State are:

- There is a lack of collaboration and cohesiveness in the rice industry and amongst different actors throughout the value chain systems, which does not form a strong foundation for future change in practice or culture. To promote the adoption of technologies and to improve different systems in the rice value chain, stakeholders need to become actively engaged in fostering necessary change, creating partnerships and furthering wider marketing and business strategies. For example, parboilers would save on costs if they came together to use the large improved drums, but this is difficult because everyone has different varieties of rice and rice is harvested at different times.
- KADP needs to be strengthened as an extension agency and be used as a channel for promoting new approaches and methods amongst rice producing communities. For example, it was suggested, on the basis of the analysis, that KADP promoted improved parboiling through the use of parboilers which steam rather than boil rice.
- There is a need to improve the seed distribution system to make sure rice seeds get out to the farmers at the right price. Moreover, it is important to ensure that the right varieties of rice are distributed to the right farmers. In other words, that each farmer should receive the rice seeds that are most appropriate for the agro climatic conditions that they face.
- The link between rice farmers and the market is very weak because in the traditional system there are so many intermediaries that market information is lost and quality becomes compromised. However, if there was an increase in the demand for better quality and higher levels of production by the traders and millers, resulting in increased purchase prices, the industry may see a shift to adopt new technologies more swiftly than if the top of the value chain were to wait for the bottom of the chain to change.

The Micro, Small and Medium Enterprise (MSME) Project (2005-2011) is a pilot programme of the World Bank and the Government of Nigeria. It is being implemented by the Nigerian Investment Promotion Commission (NIPC) through a Project Management Unit (PMU) managed by Nathan Associates London Ltd. and Development Associates Nigeria.

The MSME project was designed to improve performance and employment levels of MSMEs in selected non-oil sub-sectors within three States in Nigeria (Abia, Kaduna and Lagos), although some interventions extended to Cross River and Oyo States. The project aims to achieve increased private sector investment for MSME development by demonstrating how a combination of investment climate reforms, improved access to finance and business development services can transform the rate of growth of MSMEs in Nigeria.

Following international best practices and lessons learned, the project mainly targets those intermediaries that provide services to MSMEs, such as financial and business development support, rather than directly targeting the businesses themselves. In addition, the project aims to improve the business investment environment through policy reform and promoting public private partnerships. This will ensure that MSMEs are able to recap the benefits of the project even after the project is finished.

The MSME Project includes the following components: access to finance, investment climate, business development services and public private partnerships.

Executing Agency

Nigeria Investment Promotion Commission

Project Managed by

Nathan Associates London Limited

Development Associates