

**SECTION SIX:**  
**Cross-cutting issues**

# Explaining rice prices shocks in Nigeria: implications for policy intervention

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## Abstract

*At the microeconomic level in the predominantly agrarian society of Nigeria where most farmers are poor and unable to obtain insurance, price and production shocks will have an adverse impact on growth and development. In particular, there is growing concern that current levels of rice production will not meet future demand. The general objective of this paper is to examine the key factors influencing rice price variability, and how to address these effects in policy terms. Time-series data of prices covering the period 1990–2004 from the Nigeria National Bureau of Statistics were used. Coefficient of variation was taken into consideration in the analysis of variability. The time-varying conditional variances were estimated using a Generalized Autoregressive Conditional Heteroscedasticity model. Coefficient of variation (CV) for rice was calculated as 54.23%. This value shows that the price of rice fluctuated at important levels in 1990–2004. The yield fluctuated due to seasonality in production and the effect of some variables, which are not under the control of producers. Gross income is equal to the yield value multiplied by its price. Therefore, a fluctuation in either yield or price affects gross income of farmers. A GARCH-based measure indicates considerable time variability. The study suggests policy measures to support research, and provide storage and processing technologies.*

**Key words:** Rice, price shocks, coefficient of variation, GARCH, policy intervention.

## Introduction

Volatility in agricultural commodities has been one of the most actively and successfully researched areas in the context of policies to improve governance and reduce price fluctuations affecting developing countries like Nigeria. At the microeconomic level, price and production shocks can have adverse impact on growth and development in a predominantly agrarian society such as Nigeria where a majority of the farmers are poor and unable to obtain insurance.

Generally, price variability that cannot be managed with existing risk management tools can destabilize farm income, inhibit producers from making investments or using resources optimally, and eventually drive resources away from agriculture.

Moreover, because demand and supply of farm products, particularly basic grains, are relatively price-inelastic and because weather can produce large fluctuations in farm production, potentially large swings in farm prices and incomes have long been characteristics of the sector and a concern in formulating farm policy. In such circumstances, farmers are inclined either to scale back their investment and innovation owing to their apprehension about using riskier techniques or even, in a period of price drops, of suffering setbacks in their standard of living. They do not possess the requisite know-how for crop diversification, and also lack access to appropriate technology. Commodity price volatility also poses problems for the governments and exporters in the primary commodity-producing, developing countries. For governments, unforeseen variations in export prices can complicate budgetary planning and jeopardize attainment of the debt targets. For exporters, price volatility increases cash flow variability and reduces collateral value of inventories. All these factors result in increasing borrowing costs. Moreover, smallholder farmers, often with poor access to efficient savings instruments, cope with revenue variability through crop diversification with the consequence that they largely forego the potential benefits obtainable through specialization (International Task Force on Commodity Risk Management in Developing Countries 1999).

In spite of the underlying problems there is considerable evidence that nominal prices of agricultural commodities exhibit much more variability than those of non-agricultural commodities. Rauser *et al.* (1986) and Frankel (1986) interpret this evidence as a rejection of the 'new classical paradigm' and suggest modeling macroeconomic impacts in a flex-price versus fix-price framework. In sub-Saharan Africa generally, seasonal price rises of between 25 and 85 percent in the several weeks following the harvest are the norm (Sahn and Delgado 1989).

Traditionally, volatility in agricultural prices has been attributed to (a) low price and income elasticities of agricultural products. (b) inherently unstable agricultural production as a result of unforeseeable and unpreventable exogenous shocks like weather. (c) the very different nature of the agricultural planning process where production decisions for most farm products are made much in advance of the time the product is marketed (Starleaf 1982).

Be that as it may, the importance of rice as a staple crop in Nigeria is getting clearer as it is displacing other traditional staples, such as cassava, yam and

plantains, which are bulkier and more perishable. Because of its convenience, rice has found sizable markets in the cities and in peri-urban Nigeria. Other dietary virtues of rice include a rich supply of vitamins and minerals, low level of fat and salt, and freedom from cholesterol. Clearly, the degree of food grain price variability is important in a country like Nigeria, where grains comprise a large share of national consumption, and where a significant share of the population is vulnerable to adverse food supply shocks and poverty.

Therefore, the government has to balance the twin objectives of expanding output through the provision of remunerative prices to producers and protecting the interests of consumers by making sure that prices remain within certain limits. In this study, we examine the fluctuations in annual and monthly prices of rice. The results of this study will be of use to policymakers and academia having interest in price policy. Against this backdrop the paper sets out to contribute to a better understanding of the key factors influencing rice price variability, and how to address these effects in policy terms. In specifics: (1) identify major causes and consequences of rice price variability. (2) empirically estimate intra-year price variability. (3) identify trends or patterns in price movements and variability over time.

The paper is organized as follows. After a brief introduction in section I, section II outlines the objectives and the methodological framework for the study; section III presents and discusses the results; section IV outlines the conclusions.

## **Methodology and data sources**

### *Data sources*

The annual rice prices were collected from the Nigeria Federal Office of Statistics (now National Bureau of Statistics). The data were collected as part of the National Integrated Survey of Households (NISH). The NISH is an ongoing programme of household surveys enquiring into various aspects of households and agriculture. In order to provide information on the intra-year price variability and because of the difficulty of getting high frequency data on rice at the national level, the monthly domestic data were collected from the office of one of the major producers of rice in the country, Oyo State Agricultural Development Programme (ADP).

### *Analytical framework*

The analytical framework follows Massell (1969) who opines that society benefits by stabilizing prices of storable commodities through stock policy provided the storage costs are not excessively high. In this model there are both gainers and losers, although the society as a whole is a gainer. However, one group of society gains more from stability than what another group loses. Therefore, through some form of compensation, everyone can gain from a stabilization policy. This is analysed further, first with descriptive statistics to illustrate major courses and consequences of rice price variations. Second, the study employs Coefficient of variation (CV) which expresses the dispersion of observed data values as a percent of the mean of a data series as a measure of price variability. Coefficient of variation is calculated using following formula:

$$CV = S/\bar{Y} = 100$$

Where CV is coefficient of variation, S is standard deviation of the series and  $\bar{Y}$  is the mean of the series. Further, in the literature on volatility, the measure most commonly used for price instability is inter-year variability. However, as the prices used in calculating this measure are the annual averages, they tend to conceal short-run fluctuations in prices. For this reason, this study employs both intra-year and inter-year variability measures to analyze domestic markets of rice in Nigeria. Here, variability of the series was calculated by measuring the standard deviation of  $\log (P_t / P_{t-1})$  over a period, where  $P_t$  is price in period t and  $P_{t-1}$  is the price in period t-1. This is, in other words, same as standard deviation of the growth rates (ratio method).

Intra-year variability has been calculated as the standard deviation of the 12 monthly growth rates in the year. For calculating the inter-year variability, the methodology is slightly different. First, the annual average prices are calculated as a simple average of the 12 monthly prices. Then the growth rates of annual prices are calculated as  $\log (P_t / P_{t-1})$ . Apart from these, time varying conditional variances was estimated by using a Generalised Autoregressive Conditional Heteroscedasticity (GARCH) model (Bollerslev 1986). The use of GARCH models in the context of commodity goods analysis has increased considerably over the past ten years. A GARCH(1,1) model is described below for the sake of illustration.

$$Y_{it} = a_0 + b_1 Y_{it-1} + b_2 Y_{it-2} + \varepsilon_{it} : t = 1, 2, \dots, T$$

$$\sigma_{it}^2 = \text{Cons tan } t + \alpha_i \varepsilon_{it}^2 + \beta_i \sigma_{it-1}^2$$

where  $Y_{it}$  is the price index in time  $t$  of commodity  $i$ .  $\sigma_{it}^2$  denotes the variance of  $\varepsilon_{it}$  conditional upon information up to period  $t-1$ . The fitted values of  $\sigma_{it}^2$  give the measure of uncertainty of  $Y_{it}$ . The sum of  $\alpha_i + \beta_i$  gives the degree of persistence of volatility in the series. The closer the sum to 1, the greater is the tendency of volatility to persist for longer time. If the sum exceeds 1, it is indicative of an explosive series with a tendency to meander away from mean value. The GARCH estimates have been used to identify periods of high volatility.

## Results and discussion

### Patterns in monthly agricultural price variability

The examination of price behavior based on monthly data could be very illuminating in analyzing intra-year variations. One way of analyzing variability in monthly prices is by examining the extent of divergences between the highest and the lowest price. Here we are interested in two things (1) to correctly identify the timing of a season's high and low; and (2) to estimate the magnitude of the difference between the high and low price. A result of the analysis of the extent of divergence of the lowest price from the highest price of rice is presented in Table 68, which shows that the average deviation for the 1990s was 31.47 per cent compared to a deviation of 19.59 during the 2000s. This could be explained in part by the growth in research and introduction of stress resistance and high yielding varieties as well as better storage methods of rice in Nigeria. Analysis of the lowest-price month and the highest-price month reveals that the high price has occurred in August and July 40 per cent of the time and high price has occurred in September and October 26.66 per cent of the time. Other months with high prices are November and January. Rice often has the lowest price in February. Other months include May, June and March which shares 20 per cent of the proportion. This is to say that timing is important for speculative purposes, whereas magnitude is often more important for hedging purposes.

**Table 68.** Yearly deviation in lowest to highest price (%); overall coefficient of variation 1990–2000

Year	Deviation of the Lowest Price from the Highest	CV (%)	Month (lowest)	Month (highest)
1990–91	31.04	0.0356	June	August
1991–92	28.54	0.1385	February	July
1992–93	39.84	0.1574	January	October
1993–94	27.39	0.0972	March	June
1994–95	35.20	0.192	February	August
1995–96	33.61	0.1322	February	September
1996–97	28.77	0.0996	February	July
1997–98	15.20	0.037	January	June
1998–99	43.63	0.1413	March	July
1999–00	8.56	0.0267	February	August
2000–01	9.2	0.0227	May	November
2001–02	16.17	0.05	March	September
2002–03	30.82	0.0567	March	January
2003–04	22.16	0.08	February	October
Average 1990s	31.469			
2000s	17.382			
Whole period	26.436			

## Seasonality and its causes

Seasonality is another price volatility factor. This is the phenomenon that may cause crop prices to behave in a rather predictable manner. To a large extent this could result in (1) the harvest lows, followed by (2) the post-harvest rally. Sometimes seasonality plays a strong element in the pattern of crop export and domestic consumption.

Given the fact that the dominant (but not the only) factor driving seasonality is the on–off nature of crop harvests, the sudden increase in supply during harvest provides the most dramatic evidence of seasonality – the harvest lows. A corollary

to the harvest lows is the post-harvest rally. This supply will be subsequently reduced by the inevitable huge domestic consumption. Unexpectedly, unlike many crops for which the frequency can be alarming, the study reveals that rice has not shown marked steep seasonal increase in price, climbing from harvest time and peaking in the lean season. Estimated inter-year coefficient of variation was 0.353. However, on the analysis of the intra-year variability the results of the coefficient of variation show that there was high price variability in the 1990s and this suddenly dropped in the early 2000s.

Estimates for the variability of the series calculated as the standard deviation of the log (P1/Pt-1) show a very low variability as 0.1. This is in consonance with the earlier results on intra-year variability.

A GARCH (1,1) model is fitted and there is no evidence of marked behavior in volatility patterns in prices (ARCH coefficient < 1). This is probably the result of recent massive importation of rice into the country which is responsible for dampening the price volatility.

**Table 69.** Maximum likelihood parameter estimates of the univariate GARCH models

Coefficient	Std error	z-Statistic	Pto
0.0026628	0,000516	5.16	000
Log likelihood	-9.021578		

## Conclusion

Stabilization of prices of essential agricultural commodities continues to remain an area of major concern for policymakers. So, the major role of agricultural policy is to identify policy changes that may induce technological innovation and productivity growth throughout the food system in order to increase the living standards of farmers. This paper shares the notion that high growth in the prices of rice may spill over to other sectors of the economy, leading to an increase in the overall rate of inflation. These concerns about commodity price fluctuations have led to pervasive commodity policy interventions by national governments.

There is thus a need to study the price behavior of essential agricultural commodities and the reasons that underlie the large variation in their prices in order to devise improvements in the system. The current study analyses the behavior of rice prices over some years.

Results indicate that there is a fair degree of stability in the price of rice, but that instability in domestic rice prices can occur due to fluctuations in local rice markets and a large shortfall in domestic production. Perhaps the most likely problem is a shortfall in production. Policy efforts by the Nigerian Government along this line should be mainly to insulate local producers and consumers against the vagaries of price volatility. This could be through establishment of powerful institutional arrangements for price stabilization programs. This may include strengthening of its current physical buffer stock schemes through the current integrated strategic grain reserve programme. Provision of stabilization funds will also be an additional complementary effort. In the case of a supply shortfall, price stability may be ensured by allowing more people and private firms to go into the production of rice. What is more, stabilization for consumers in the face of shocks to domestic production is maximized by the implementation of incentive packages.

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# **Integrated assessment of the impact of trade-related policies on the Nigerian rice sector**

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## **Introduction**

The overall objective of this study was to conduct an integrated assessment of the economic, social and environmental impacts of rice production in Nigeria within the trade liberalization framework. In many developing countries including Nigeria, trade, economic, environmental and other policies are often designed as separate, stand-alone plans for solving perceived development problems. However, since sectoral linkages and interrelationship constitute the main features of economic activities, it is not surprising that most of the policies often fail to achieve their goals. Invariably, substantial damage could have been done to natural resources and the environment while vulnerable groups have their situation worsened rather than alleviated. Integrated assessment offers an approach for holistic consideration of the full range of effects and consequences that policies may have on the economy, environment and society. This is very relevant for Nigeria which has commenced an expansive rice production programme. The interest here is to see the costs and benefits as well as the overall consequences of the environmental, social and economic impacts of such a massive production programme.

The Nigerian rice production programme is to produce sufficient rice to satisfy the domestic market by 2006 and achieve net export status by 2007. Currently Nigeria produces about 3.2 million metric tonnes of rice, whereas she needs about 5 million metric tonnes to be self-sufficient. This means Nigeria must produce in excess of 5 million metric tonnes per annum as from 2006. This portends a real challenge to planning and management of such an ambitious programme.

Trade liberalization had been part of economic adjustment measures implemented in Nigeria between 1986 and 1993. The measures were motivated by the desire to remove all restrictions to free trade and make Nigerian producers, including farmers, competitive in both the domestic and external markets. At various times

Nigeria has employed varying trade policy instruments such as tariffs, import restrictions and outright bans on rice imports. Generally, rice policies have not been consistent. For instance, in the 1970s different tariff rates were imposed on imports. In the early 1980s, import license and quantitative restrictions dominated the rice import policy. From 1986 to the mid-1990s rice imports were banned but lifted in 1995, when a 100 per cent tariff was imposed. In 1996 the tariff was reduced to 50 per cent only to be returned in April 2002 to 100 per cent. Again, by 2003 a 150 per cent tariff was imposed and continues to be the current level of tariff. This erratic policy reflects the dilemma of securing cheap rice for consumers as well as a fair price for producers, while also avoiding spending scarce foreign exchange earnings on avoidable imports.

Nigeria has been a participating member country at the WTO negotiations. Its negotiation position is aligned with those of the great majority of African countries, and particularly ECOWAS, and takes into account not only issues of market access but also food security, self-sufficiency goals, poverty eradication, rural development, the role of agriculture in national development and other non-trade issues which are of importance to developing countries. The reduction in market access barriers as a result of WTO Agreements has potentially positive implications for expanding international trade.

## **Methods**

The research component of the study involved two main groups of activities: (a) technical analysis and (b) economic, social and environmental impact analysis. Technical analysis involved chemical analysis of water, soil and plant samples taken from rice producing centers with the sole purpose of determining the concentration of chemicals and agrochemical residues in the surrounding water, soil or plants and deducing the implications for environmental and production sustainability. The soil and environmental scientists took up this responsibility and carried out field exercises and laboratory analysis. The scientists also assessed soil erosion, soil degradation and the effects of waterlogging as well as other physical features in rice producing areas.

Socioeconomic analyses essentially focused on the economics of rice production, processing, trade and consumption. Examined and analysed were the motivation and involvement of different participants in the rice sector and issues of

poverty, self-sufficiency, nutrition, profitability and enterprise substitution. Both primary and secondary data were used. Secondary data were obtained from statutory institutions: Federal Office of Statistics (FOS), the Central Bank of Nigeria (CBN), the Federal Ministry of Agriculture and Rural Development (MARD), the Federal Ministry of Environment (FME), the Federal Ministry of Commerce (FMC) and regional offices of international organisations (FAO, USAID, UNDP and the World Bank).

Primary data were sourced from producers, processors, traders and consumers. Different sets of questionnaires addressing economic, social and environmental issues were prepared and applied to the different categories of respondents. The survey was conducted in areas of intense rice activities identified in Ekiti, Benue and Niger states of Nigeria. To complement formal surveys, participatory methodologies (focus group discussions, key informant interviews and participant observations) were also applied.

Various analytical tools were applied to elucidate the different aspects of the study. Regression analysis was carried out to examine the trend in rice output. Gross margin analysis was used to examine issues related to profitability, while cost-benefit analysis was conducted to depict justification for use or non-use of agrochemicals from the points of view of farmers and society. Summary statistics (means, frequencies and percentages) were also used to characterise assembled data.

## **Integrated assessment results**

### **Environment and health impacts**

The increases in rice production noticed in recent years have resulted from substantial extensification (expansion) and limited intensification. Both extensification and intensification processes constitute potential pressure on the natural resource base and its quality. Clearing and cropping of new forest lands were noticed in the study areas, particularly in Ekiti State where rice farming is assuming greater importance. Expansion also takes place in wetland areas where mostly swamp rice is cultivated. Extensification tends to expose fragile lands in these areas to soil erosion. The washing away of topsoil and subsequent deposits into rivers and streams could create further ecological

problems, e.g. siltation. Farming of hillsides, as again noticed in Ekiti state, increases vulnerability to soil erosion and flooding in lowlands. When trees are destroyed their carbon sequestration function is lost, thus exacerbating the greenhouse effect and global climate change phenomena. Felling of trees for farmland also results in the loss of biodiversity (both flora and fauna) and watershed protection. Intensive farming, from which comes a very significant proportion of the locally produced rice, has resulted in shorter fallow periods with concomitant loss of soil nutrients and organic matter. This situation, coupled with low external inputs, is responsible for the stagnation in rice yield. Survey results indicate that rice farmers were not using sufficient quantities of nutrients and organic matter to maintain soil fertility.

The country's poor irrigation system predisposes irrigated rice farming to discontinuity and unsustainable production because intensive use of irrigation water under poor drainage conditions usually leads to waterlogged soils followed by a rise in the water table. Under dry and humid conditions, salt build-up occurs (salinization), thus reducing yields. In this study 72.8 per cent of the respondents opined that the quality of farmland had declined, while almost 32 per cent confirmed that soil erosion has been a problem. Thus, in terms of soil resources, there are problems of soil depletion, soil erosion and salinization.

Land preparation and planting is mostly manual in lowland rice cultivation, with women and children carrying out the dibbling with hoes and broadcasting. However, on the upland large-scale farms, tractors are used for plowing and double-harrowing during land preparation. Rice is broadcast and harrowed in during the second harrowing. This implies that not much ecological disturbance occurs except during slash-and-burn land preparation. The land clearing method still involves bush burning. This generates oxides of carbon that deplete the ozone layer and thus contribute to global warming. Much needed nitrogen and sulphur are lost during the bush burning process, although organic materials could be incorporated to aid organic recycling and restoration of soil fertility. Methane and nitrous oxide are two greenhouse gases produced in paddy/wet land farming systems. Similarly, other pollutants such as oxides of carbon, nitrogen and organic gases are produced in the process of burning rice husks. Agricultural wastes are improperly managed on the field after the harvest and at rice mills, and are either dumped or openly incinerated. Incineration generates a lot of smoke and ash, and milling engine exhaust soot has pervaded the air

and formed deposits on adjoining farmlands. The losses from field paddy husk and ashes are estimated to be as much as: K 0.3 per cent, Ca 0.12 per cent, and N 0.7 per cent. Yet, the paddy husk has a high level of K, an element required for grain fixation, and both paddy husk and rice bran are a potential source of organic fertilizer.

A critical issue in Nigeria's rice expansion programme is the effect on biodiversity. Loss of biodiversity associated with rice production is of two types: wild biodiversity and agro-biodiversity. Wild biodiversity is affected by rice cultivation when forests and other vegetation are cleared for land cultivation and its loss is critical in Nigeria because the livelihoods of a significant proportion of the population depend on free and open access to a great variety of biological resources for food, fuel, housing materials and economic security. For example, plants such as *Albizia zya*, *Sosbania grandiglora* and *Parkia biglobosa*, the leaves and pods of which are consumed as vegetables and condiments by Nigerians, may be lost if fields on which these plants grow in the wild are used to cultivate rice. Similarly, hardwoods such as mahogany and softwoods such as chestnut, which are used in construction, may be felled to make way for rice fields. Wildlife such as grasscutter, antelope and squirrel may also be displaced. However, the dependence of Nigeria on biodiversity is barely captured in economic statistics and the national accounting system, a situation that reduces the adequate perception of the significance of biodiversity in national development. The management of habitats that have been modified for human activities and needs, such as farmland, is important.

Application of agrochemicals has an impact on the environment and rice producers' health. Gaseous pollutants from parboiling and milling processes also constitute health hazards. Some of the farmers interviewed reported contracting diseases such as skin rashes and respiratory infections. In addition, there is the psychological disorientation caused by the foul smells from the high piles of rice dust, rice husk and wastewater from processing activities. Waist pains, guinea worm, filariasis and malaria are also associated with swamp rice production.

### *Economic impacts*

The economic impact of rice activities in Nigeria is felt at five main levels, namely production, processing, marketing, food vending and external trade levels. The

main economic impact is in respect of income and employment generation for those operating at each of these levels. At the production level the participants are farmers, wage laborers and suppliers of inputs (seeds, fertilizers, herbicides and pesticides). All derive food, income and/or employment by being involved in rice production. An analysis of costs and returns on one hectare of rice farm shows that the aggregate cost of production increased from NGN 7,452 before liberalization to about NGN 54,125 after liberalization, an increase of about 626 per cent. This was a result of significant increases in the prices of agricultural inputs. For instance, fertilizer prices rose by more than 800 per cent while the farm wage rate rose by more than 233 per cent. Similarly, the returns per hectare for rice rose from NGN 10,840 in pre-liberalization to NGN 73,590 after liberalization, i.e. a rise of about 600 per cent. The gross margin rose from NGN 3,388 pre-liberalization to NGN 19,465 after liberalization, an increase of about 475 per cent. This means that trade liberalization has engendered a substantial increase in the returns to rice producers. However, the farmers could have earned higher incomes if yields were higher and if the quality of local rice had improved.

The income generated from rice processing before and after trade liberalization in the various agro-ecological zones also shows an enormous increase. On average, rice-processing income rose from NGN 32,316 pre-liberalization to NGN 136,200 post-liberalization. Income derived from rice marketing rose from NGN 46,800 pre-liberalization to NGN 104,866 post-liberalization. This indicates a greater commercialisation of the rice economy in the post-liberalization era.

The level of employment in the typical rice-processing mill varied in the study area. In Benue, the typical mill had only seven employees before trade liberalization while Niger and Ekiti had one and 12 employees respectively. However, since trade liberalization, the number of laborers employed by the mills increased in Benue to 21, while that of Ekiti rose to 36. It could be concluded from these observations that trade liberalization has led to the creation of more jobs in the rice-processing sub-sector. This obviously would have shifted labor away from less competitive crops.

Large-scale rice importation over the years has provided employment and trading opportunities for several firms and hoards of wholesalers and

distributors across the country. Participants also include transporters, daily paid workers and various categories of service providers. Local production is aimed at eliminating these imports and conserving foreign exchange for other development purposes.

### *Social impacts*

In terms of social impacts the study aims to determine how the quality of life of participants in the production system has changed as a direct or indirect effect of rice production. The social well-being of rice-farming households and communities was compared with the national situation, focusing on quality-of-life indicators such as employment, literacy, health, social cohesion and the sustainable livelihood impact on the population. The indicators include the literacy rate (as shown by primary and secondary school enrolment), the rural unemployment rate as a measure of employment effects, disease prevalence, and social cohesion measured by migration patterns and formation of the social institutions for promoting the interests of rice entrepreneurs. Focus group discussions (FGD) were also conducted in rice producing areas to reveal the community perspectives on life-pattern changes that might have accompanied increased rice production following trade liberalization.

Analysis results indicate that participants from the rice sector experienced significant improvement in employment as more people were engaged in rice farming, processing and marketing. Rice became a major food item in rural families, rice income was used primarily for the education of children and rice business provided intense social interaction in rural markets and at rice milling centres. However, rice-related activities have also resulted in some health problems and created gender differentiation with women participating mainly as farm hands and wage earners, even though some of them owned their farms. The level of technology adopted also varied by gender. While male rice farmers patronized modern processing centres, female rice producers carried out parboiling at home, making use of their own labor and that of other family members.

The major social problem associated with rice is the consumer preference for imported rice, which is perceived to be of better quality than local rice because of the impurities in the latter, thus making rice importers and marketers clear winners or beneficiaries of trade liberalization, as they have been able to

dominate and control a substantial share of the rice market. While local rice producers are not necessarily losers in view of their higher incomes from rice, they could improve on their market share by improving the quality of the rice they produce. Local rice milling should therefore ensure that no stones or other foreign bodies are present in milled rice.

### *Integrated impacts*

Trade liberalization is a macroeconomic intervention that has more of a ramifying impact on micro-level issues than changes in demography, consumption patterns, food security policies and other factors. It is important to note that poverty-related environmental problems and natural resource degradation are ultimately a result of national development processes such as those intended by trade liberalization measures.

The environmental, economic and social impacts of trade liberalization need not be considered as discrete events or outcomes; rather they should be perceived as being integrated and interacting to produce a generalised outcome. The production decisions and practices of rice farmers generate significant environmental, economic and social linkage effects. In an attempt to reap the benefits of the opportunities accompanying trade liberalization, rice producers may elect to adopt improved production practices that lead to high yield and increased income. However, the desired production efficiency and improved practices involve intense land tillage, reliance on irrigation water, adoption of monoculture practices with specialization in rice cultivation and use of agrochemical inputs. Any of these actions elicits a chain of effects. For instance, the use of fertilizers and other agrochemicals may impair water sources, which in turn may affect human health, leading to reduced productivity and income and aggravating poverty.

Economic and social impacts are quite significant to all participants in the rice sector, particularly the farmers. The poor farmer is embroiled in a struggle for survival on a day-to-day basis, which makes it impossible to undertake anticipatory or forward planning such as investments in natural resource conservation. Extensification necessarily affects the environment negatively. However, on account of their need to produce rice, rice farmers have limited alternatives to having an impact on the environment. A major approach to avoid uncontrolled extensification would be to improve land-use

planning. Reducing the negative impacts of intensification and improved yield by adopting environmentally friendly practices such as organic farming and application of manure may be beneficial, otherwise economic gains in response to market demands may be at the expense of environmental degradation. While environmentally-friendly measures are desirable, it must be noted that they require considerable investment and training.

It is also important to note that trade liberalization may inadvertently expose Nigerian consumers to substandard rice or dumping irrespective of the tariff level imposed on imports. Quality control of imported and local rice could improve the quality of rice for sale on the Nigerian market. Trade liberalization not only offers opportunities for improved production practices but also for improvements in the quality of the produce if local producers are to be competitive. Nigeria does not participate in any regional agreements on rice trade, and the impact of the WTO Agreement on Agriculture is minimal since the country is a net importer of rice. Besides, the tariff regime on rice is within the tolerance level of WTO agreements.

## **Policy recommendations**

Nigeria faces two sets of challenges in respect of its rice sector: (i) meeting the self-sufficiency goal and solving the problems of poverty, poor nutrition and employment at the grassroots level, and (ii) joining the league of rice exporters and earning foreign exchange and broadening the supply base of the economy in the process. Both sets of challenges have implications for the environment and sustainable development within the rice sector. Current production practices have not yielded self-sufficiency nor have they generated surpluses. Nonetheless they are largely damaging the environment and natural resources. The main negative environmental impacts identified include increased land conversion for rice cultivation and expansion into marginal lands; deforestation and land degradation; loss of biodiversity; emission of air pollutants; salinization and soil nutrient degradation; and human health effects. These economic, social and environmental costs can be traced to market, policy and institutional failures, which must be addressed in order to harness the benefits associated with sustainable production practices. The instruments of policy intervention to mitigate the negative impacts and enhance the positive impacts consist of market-based and non-market-based measures directed at the entire life cycle of

rice production, i.e. land use planning, production, processing and consumption. The following policy considerations are, therefore, akin to promoting sustainable development of the rice sector in Nigeria.

1. *Land use planning*: policies to prevent misuse of land and encroachment on marginal lands must be developed. For instance, land-use taxes and soil-conservation levies may be considered to make cultivation of marginal lands unprofitable. The problem here, however, is the mechanism for collecting such taxes or levies in predominantly illiterate farming communities where land is considered a gift of nature and thereby a public good. Regulatory measures, which have already been deployed in the past, should be more effective in setting standards. In order to contain extensification practices among rice farmers, particularly emerging large-scale commercial farmers, specific regulatory measures such as land zoning, mandatory forest conservation, development programmes and soil conservation practices should be imposed.

2. *Production*: the production practices must be improved to increase productivity and achieve high quality rice while avoiding negative environmental effects. Increased land conversion and associated problems of deforestation, land degradation and loss of biodiversity may be curtailed if farmers are able to adopt integrated soil-fertility management techniques. Such techniques include a combination of chemical fertilizers with crop residue recycling, application and adoption of green manure, fodder crops, *mucuna* fallow or intercropping. Crop rotation, involving alternating rice (planted in the wet season) with vegetables (cultivated in the dry season) particularly on the *fadamas*, will not only raise land productivity but also enhance land quality and conservation. Furthermore, integrated pest management techniques will need to accompany intensification of rice production. The overall challenge is the need for fundamental adaptation of agricultural policies likely to encourage farmers to invest in both integrated soil fertility and pest management techniques and for the private sector to also invest in the development and distribution of agricultural inputs. The resultant increases in output and better quality rice should more than offset the increases in production costs associated with these investments.

3. *Processing*: in order for rice production activities to further enhance income generation, employment creation and poverty alleviation, the quality of local rice must be significantly improved. This will require efforts from individual

participants in the rice sector and, indeed, a tripartite collaboration among farmers, processors and traders to set and ensure quality standards. Quality improvement will make local rice competitive with imported rice and better able to attract similar prices. This means that foreign bodies must be absent from milled rice and the percentage of broken grains must be minimized. Higher prices from good quality rice will boost the incomes of rice farmers and all others involved in downstream activities such as parboiling, milling and marketing. The management of effluents and wastes in and around rice processing mills also deserves attention and regulatory measures. Rice millers must meet environmental and sanitary standards or be made to pay levies to be used towards achieving environmental standards. Since rice mills are generally located in designated areas, it should not be too difficult to collect levies and apply the funds to pay for environmental management and pollution control.

4. *Consumption:* Quality control measures including the establishment of standards for imported and locally produced rice should be considered. The purpose is to differentiate rice by variety, grade and quality and encourage consumers to pay for quality and standard. An added incentive to local producers and rice traders is the judicious use of tariff rates on imported rice. Since the Nigerian currency is kept floating and is thus subject to devaluation against major world currencies, the government is justified in imposing a substantial tariff on imported rice to enhance the competitiveness of local producers. The WTO tenets do, indeed, provide some corridors for developing countries to apply tariffs that do not lead to competitive trade disruptions. In any case, the introduction of NERICA® rice varieties acclaimed as having significant nutritional and conservation qualities may readily enhance competitiveness of local rice to the extent that import tariffs become unnecessary. Meanwhile, rice producer associations, traders and the government should jointly organize consumer awareness campaigns that emphasise the nutritional value of local rice varieties with the purpose of strengthening demand for local rice. Competitive pricing could also be employed to tilt demand in favour of local rice.

5. *Institutional arrangements:* Institutional initiatives to enhance environmental integrity in relation to rice production should be established. The idea is to harmonise the various activities and programmes of different institutions and agencies working to enhance the socioeconomic and environmentally sustainable rice production. It is realized that Nigeria has considerable institutional capacity

for environmental management. A regulatory body, the Federal Environmental Protection Agency (FEPA), was created as far back as 1988 and is today the Federal Ministry of Environment (FME). A fully-fledged ministerial institution underscores the importance the government attaches to the issues of Nigeria's physical environment. A National Policy on Environment already exists and this is the main working document for the preservation and protection of the Nigerian environment. However, it is proposed that an inter-ministerial monitoring and policy implementation body should be set up to undertake implementation and execution of the policy initiatives recommended in this study. The FME should be the focal point of the body because it is the statutory institution in charge of environmental matters, including policy formulation, planning, monitoring, enforcement of standards and regulations and general administration. The FME should also take on the responsibility for organizing the body and running its activities. The inter-ministerial nature of the proposed body will enhance cooperation and implementation effectiveness. For instance, the Federal Ministry of Agriculture and Rural Development (FMARD), which is directly in charge of rice production as an agricultural activity, would be expected to play a prominent role in mobilizing resources and encouraging farming communities to participate in the programme.

## **Conclusion**

The study is quite revealing of the depth of penetration of rice in Nigerian household food consumption. It is significant to note that Nigeria is the largest producer of rice in sub-Saharan Africa, with increasing numbers of farmers diversifying into rice cultivation, and away from cocoa, palm produce, rubber and other tree crops that dominated so-called cash-based production practices in the past. Nigeria has also imported staggering volumes of rice in the past 20 years to meet consumer demand. Thus, rice has significant implications for trade, production and diversification issues in the Nigerian economy.

The project has also highlighted the need for further studies on trade effects and domestic production policies on agricultural output in Nigeria. There is a need for more enlightenment on the role of the World Trade Organisation (WTO) in international trade. It is equally important to know how the WTO disciplines affect Nigeria's efforts and drive towards achieving domestic food self-sufficiency and food security.

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# Expanding the improved seed market in Nigeria: an imperative for increased rice production

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## Abstract

*Studies have shown that Nigeria is not self-sufficient in production of certain staple crops, most especially rice, which constitutes about 14% of Nigeria's food requirement. Therefore, there is a need for concerted efforts to ensure growth of local production of rice in the country. This growth is closely linked to an increased use in new technologies such as improved seed varieties. This paper reviews the structure and functioning of the improved seed market, and assesses the prospects and constraints of private sector-led initiatives in the seed sub-sector with particular emphasis on rice. It was observed that in spite of the input market reform of 1992, there has not been significant improvement in the administration of the seed sub-sector which hitherto has affected the distribution of improved varieties of rice seed. Furthermore, it was observed that, though at different levels, both the formal and informal players operate in the rice seed market. Seed distribution networks are concentrated in the urban centres while distribution in the rural areas where the majority of rice farmers reside is not well developed. The paper concluded that the improved rice seed market in Nigeria is far from what can support rapid growth in rice production vis-à-vis food security and improved household welfare. Policies aimed at ensuring adequate manpower development, seed quality control, and an improved rural distribution network are highly desirable.*

**Key words:** *improved rice seed, market, Nigeria.*

## Introduction

It is known that Nigeria is not self-sufficient in production of certain staple crops, most especially rice which constitutes about 14% of Nigeria's food requirement (Awotide 2004). In the light of this, Nigeria declared during the 1996 World Food Summit, that the country "has accepted in principle the issue of food security as being desirable at national, sub-regional, regional and global levels" (Omaliko 1999). Furthermore, the role of rice in reducing food insecurity was realized by the Nigerian government, following which the 'Presidential Initiative on Rice' was established to ensure increased production of rice through high-level policy intervention.

In spite of these present and past efforts by Nigerian governments to improve rice production vis-à-vis improving food security; several factors have been identified as constraints to increased rice production. These factors include deficiencies in supply and delivery of farm inputs (most especially seed) and the inequitable distribution of working capital among farmers such that there is strong seed insecurity due to the farmers' inability to buy quality seed. The major components of seed security – availability of a certified seed supply, stability of the seed supply system and easy access (including financial accessibility) to seed – are very much negatively affected.

Therefore the development and use of high-yielding seed varieties has been the technological force behind the reduction of rural poverty, successful Green Revolutions, and abundant food at prices profitable for farmers and affordable to the populace in most developing countries, particularly China, India, southwest Asia, the Pacific, and many parts of Latin America and the Caribbean (Tripp 1995; Joshua 1999; Louwaars and Marrewijk 1999). To this end this study examines the structure and functioning of the improved seed market, and assesses the prospects and constraints of private sector-led initiatives in the seed sub-sector with particular emphasis on rice. Furthermore, access to credit by the farmers to purchase the improved seed was also reviewed.

## **The problem**

Successive Nigerian governments introduced several agricultural development programs and projects since independence that are aimed at improving agricultural production in the country through the introduction and adoption of modern technologies. The National Agricultural Seed Decree (1992) established the National Seed Council aimed at promoting and stimulating the development of a functional seed industry. Despite these efforts and arrangements, the availability of improved seed varieties to rural farmers is still very low. Not only are farmers having difficulty in obtaining the necessary inputs on time and in good quality, but they are also paying very high prices (Obinyan 1994; IFDC/IITA/WARDA/FGN 2000; Adejobi 2004). Table 70 below shows a situation typical of Nigeria's improved seed distribution network, which could be described as poor, except for the South-west where about 47 percent of villages surveyed had an improved seed dealer.

**Table 70.** Percentage distribution of agricultural input and service providers in Nigeria by geopolitical zones

Input/Service	Percentage of villages with input dealer/service provider					
	NW	NE	NC	SW	SE	SS
<b>Credit Institution</b>	13.00	09.00	14.00	23.00	22.00	15.00
<b>Fertilizer Dealer</b>	23.00	34.00	13.00	30.00	27.00	05.00
<b>Pesticide Dealer</b>	17.00	29.00	13.00	37.00	11.00	05.00
<b>Improved Seed Dealer</b>	17.00	29.00	16.00	47.00	10.00	08.00
<b>Extension Agents</b>	53.00	74.00	39.00	84.00	48.00	27.00
<b>Veterinary Clinic</b>	23.00	29.00	17.00	44.00	07.00	05.00
<b>Others</b>	02.00	09.00	04.00	14.00	05.00	02.00

Source: IITA Rural Livelihood and Food Demand Structure Survey 2001

Farmers in many communities are yet to have access to improved seeds. Most seeds planted by farmers come from local sources, including the farmers' previous cropping, neighbors and relatives, or from local markets (Cromwell *et al.* 1992; Jaffee and Srivastava 1994; Louwaars and Marrewijk 1999). Many of the improved seed varieties have reportedly been in use for between one and two decades. As a result, their potential yield is no longer attainable, especially under the poor seed management system adopted by the farmers. Farmers have continued to use these varieties in the absence of replacement stock of improved varieties. Improved seeds often take a very long time to get to farmers, and adulteration has been reported in many communities. Consequently, many farmers have resorted to the use of local seed varieties, which are readily available and relatively cheap. This has implications for the attainment of self-sufficiency in food crop production. Private seed companies are scarce, largely because some have stopped production, and there are hardly any new entrants to the seed business.

These observations and the prevailing situation suggest the existence of problems in Nigeria's seed system. These are in spite of the agricultural seed policy, the legal framework and the institutional arrangements put in place to ensure the success of the seed system. This raises pertinent questions, which this study intends to address.

## Overview of the seed sector policy environment

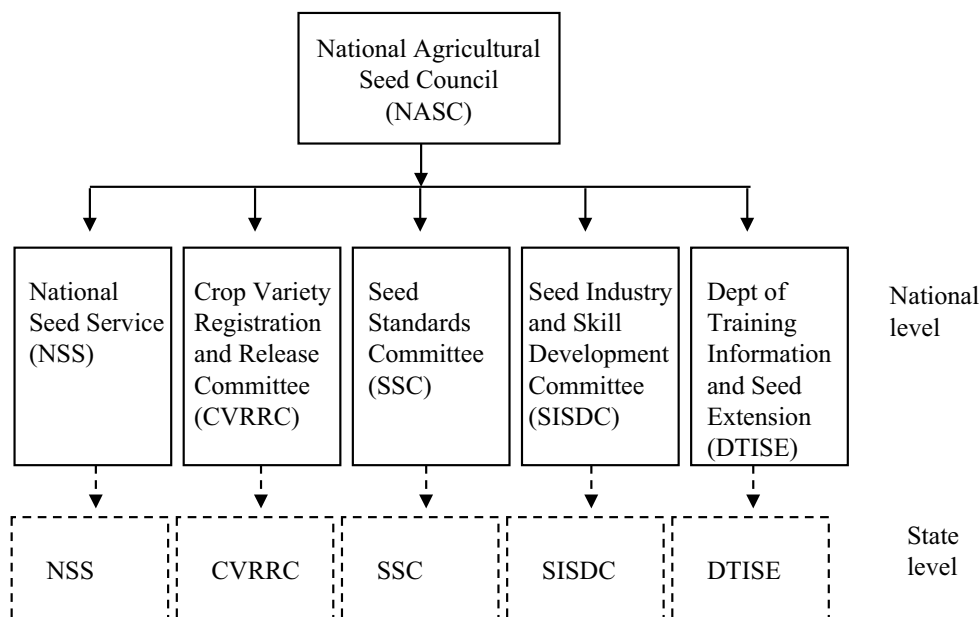
This section reviews Nigeria's seed sector policy by examining the performance of the various bodies in undertaking their responsibilities, as well as the appropriateness of the organization and implementation structures.

The first comprehensive agricultural policy was formulated in 1985. The policy instruments, which were to remain valid for the next 15 years, were composed of macroeconomic policies, agricultural sector policies and policies for the support services. The macroeconomic policies included pricing, trade, exchange rate, and agricultural land policies. The sector-specific policies included food production, input supply, and subsidy policies while the support service policies included agricultural technology generation and extension, agricultural credit, insurance, produce marketing, and research.

However, the seed policy in Nigeria was recognized and given legal status with the enactment of the Agricultural Seed Decree No 72 of 1992. It was realized that successful implementation of this policy depends largely on the extent to which the different bodies established by the Decree perform their activities and discharge their responsibilities. The Decree established the National Agricultural Seed Council charged with the responsibility of promoting and stimulating the development of a dependable seed industry, to regulate and control the registration of released varieties, protect the farmers from the sale of poor quality seed, facilitate the production and marketing of high quality seed in Nigeria, and to provide legal backing for official testing, certification, sales, importation, exportation and use of seed (FRN 1992). Five other bodies were also established to work for the council in facilitating the development of the seed industry. These include:

- i. National Seed Service Unit
- ii. Crop Variety Registration and Release Committee
- iii. Seeds Standards Committee
- iv. Seed Industry and Skills Development Committee and
- v. Department of Training, Information and Seed Extension

Each of these units is responsible to the council on matters pertaining to its mandate. The council has five operating zones and five Zonal secretariats. Through this arrangement, it was intended to make the council's presence felt in all the states of the Federation, and Abuja and the Council would, among others, be able to monitor the seed development activities in the states readily. Figure 28 describes the organizational structure of the National Agricultural Seed Council.



**Figure 28.** Organisational structure of the National Agricultural Seed Council

The roles of the units under the National Agricultural Seed Council were limited to seed technology training, quality control and coordination of breeder seed production. The production of the breeder seed is the responsibility of agricultural research institutes, while that of foundation seed is handled by both the NSS and the private sector. Certified seed production is now in the domain of the private sector in conjunction with contracted farmers.

However, one outstanding attribute of the national seed policy that has been identified is that it is in line with regional/international standards and makes provision for the withdrawal of public sector agencies in favour of private sector

participation in key areas of the seed industry (IFDC/IITA/WARDA 2001), particularly marketing and distribution.

## Structures and functioning of the improved seed market

The improved seed market in Nigeria has been found to consist of both formal and informal sectors (IFDC/IITA/WARDA 2001). Those that were identified under the formal sector include the publicly-funded seed production and distribution agencies such as the National Seed Service (NSS), the State-funded agricultural development projects (ADPs) and the registered limited liability companies such as Premier Seeds (Nig) Limited, UAC (Nig) Limited, UT (Nig) Limited, among others (Table 71)

**Table 71.** Private seed companies registered with NSS, 2000

Company name	Location	Type of seeds marketed
Premier Seeds (Nig.) Limited	Zaria	<ul style="list-style-type: none"> <li>• OPV maize, rice, sorghum, cowpea, millet, wheat</li> <li>• Hybrid maize and sorghum</li> <li>• Assorted vegetables</li> </ul>
UAC Seed (Nig.) Limited	Zaria	<ul style="list-style-type: none"> <li>• OPV maize, rice, cowpea and sorghum</li> </ul>
Alheri Seed (Nig.) Limited	Zaria	<ul style="list-style-type: none"> <li>• OPV maize and rice</li> <li>• Hybrid maize</li> <li>• Assorted vegetables</li> </ul>
UT Seed, Limited	Tenti, Jos	<ul style="list-style-type: none"> <li>• OPV maize and wheat</li> </ul>
Savannah Seed Enterprises Limited	Jos	<ul style="list-style-type: none"> <li>• OPV maize and wheat</li> <li>• hybrid maize</li> </ul>

Source: NSS, 2000

From the table, it can be further established that most of these seed companies are located in urban centers far from the rural/farm centers where real, productive, on-farm activities are conducted. This has negative implications for the access to seed enjoyed by farmers.

On the other hand, the informal seed sector, which more often than not is involved in distribution, includes community-based organizations and non-

governmental organisations (NGOs). The players in the informal sector bridge the gap created by uneven distribution and inefficiency in the operations of the formal sector players (IFDC/IITA/WARDA 2001).

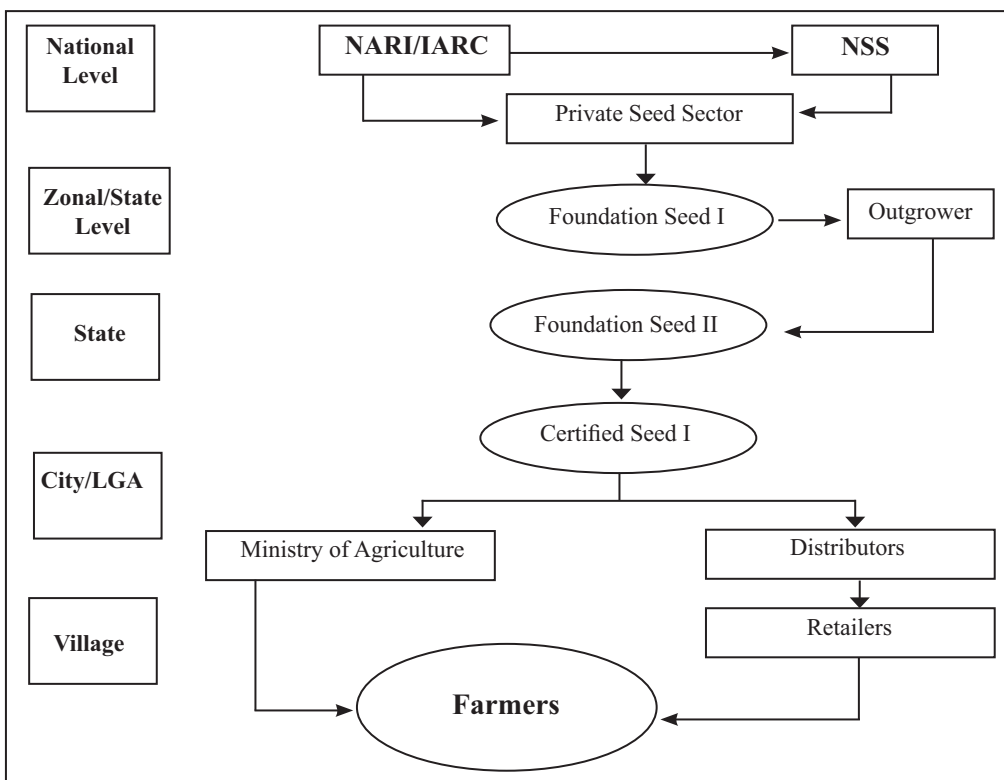
However, the improved seed market in Nigeria has two major players. These are the public sector and the private sector.

## **The Public Sector**

This consists of government organizations that are saddled with the responsibility of facilitating marketing and development of improved seed. As previously stated, the National Agricultural Seeds Decree of 1992 gave the National Seed Service (NSS) the responsibility for production and distribution of foundation seed and monitoring of certified seed. The NSS distributes seed through the farm-service centers of the Federal Ministry of Agriculture (FMARD), agricultural marketing of various States, and ADPs. But because of the poor presence of the aforementioned public service providers, the farmers' cooperative societies have also been veritable links between NSS and the farmers (Adejobi 2004).

## **The Private Sector**

This consists of private investors whose main interest is in procurement of certified and foundation seeds for distribution to farmers. Only five private seed companies (Table 71) can be identified in Nigeria at present, although there are many other private seed operators not registered with the NSS and therefore not to be regarded as certified seed dealers. The private seed companies obtain seed stocks from the NARIs, IARCs and the NSS to complement the stocks obtained from their own farms or through contract farmers. Figure 29 describes the marketing structure of the seed sector in Nigeria.



Source: IFDC/IITA/WARDA, 2001

**Figure 29.** Seed sector marketing in Nigeria

Although each company has its own distinct dealership structure, it can be seen that the dealership networks are concentrated in urban centers (Table 71). Farmers in the villages, where the seed is primarily needed, do not have easy access to seed from the private companies.

## Constraints and prospects for an improved seed market

From the foregoing it could be established that the improved seed market has not functioned effectively in reaching the most important end-users (i.e. the farmers). This section reviews the constraints to effective functioning of the market. The constraints identified are stated below:

1. Inadequate and delayed funding of the public sector institutions tasked with the statutory functions of seed production and distribution.

2. Poor distribution networks of both the public sector and the private sector seed companies, which are mostly located in the urban centers.
3. The private seed sector has been distorted by lack of financial support to expand their distribution networks and low demand for seed from farmers.
4. Inadequate funding for the ADPs resulting in poor extension services to farmers on improved seed.
5. Inadequacies in the seed sector policy implementation.

It is clearly evident that there is room for improvement in the improved seed market, particularly in the private sector. The prospects of expanding the improved seed market lie in the following areas:

1. There is need to expand the improved seed market through provision of financial assistance to private seed market operators to expand their dealership networks to the rural areas.
2. Proper integration and recognition of the informal and the private seed sectors, such as the community-based organizations (CBOs), non-governmental organizations (NGOs) and so on in the national seed policy for effective production and distribution programs.
3. Re-engineering of the various States' Agricultural Development Projects (ADPs) for adequate extension and training of farmers.
4. Harmonizing the discrepancies in the national seed policy for effective implementation and enhanced distribution of improved seeds to the ultimate end-users.

## **Conclusions and recommendations**

This paper reviews the structure and functioning of the improved seed market, and assesses the prospects and constraints of private sector-led initiatives in the seed sub-sector. It was observed that in spite of the input market reform of 1992, there has not been significant improvement in the administration of the seed sub-sector. Furthermore, it was observed that both formal and informal players operate in the seed market, albeit at different levels. Seed distribution networks

are concentrated in the urban centers while distribution in the rural areas, where the majority of farmers reside, is not well developed. The paper concludes that the improved seed market in Nigeria is far from able to support rapid growth in agricultural development vis-à-vis food security and improved household welfare. Policies aimed at ensuring adequate manpower development, seed quality control, and improved rural distribution network are highly desirable.

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# La gestion des dons et des aides alimentaires de riz au Bénin : impact sur la promotion de la riziculture locale

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## Introduction

Au Bénin, la demande de consommation en riz de la population ne cesse de s'accroître. En effet, la consommation du riz entre progressivement dans les habitudes alimentaires des ménages ruraux et urbains dépassant en moyenne une consommation de 14 kg par personne par an. Dans le même temps, l'essor démographique galopant (3 % par an) amplifie la demande domestique estimée à plus de 94 779 tonnes en 2004. Il s'en suit alors un déficit alimentaire chronique estimé à 54 122 tonnes en 2004. Ce déficit est comblé par les importations dont une partie est constituée de dons et d'aides alimentaires provenant essentiellement des gouvernements japonais et américains. Ces dons de riz dont les objectifs principaux sont supposés réduire le déficit alimentaire en riz et lutter contre la pauvreté ne sont pas sans incidence sur le développement de la riziculture locale et sur les conditions de vie des producteurs béninois. Il s'agira donc dans ce travail de décrire le mécanisme de gestion des dons et des aides alimentaires au Bénin et d'évaluer leur impact sur la riziculture locale

## Matériel et méthodes

### *Contexte de l'étude*

L'agriculture est la principale activité de la majorité des Béninois. La céréaliculture y occupe une place de choix. Elle est dominée par le maïs, le sorgho, le mil et subsidiairement le riz. En effet, malgré les potentialités et les atouts énormes dont dispose le pays pour la production du riz, force est de constater que la riziculture béninoise reste très peu développée. Ainsi, le bilan vivrier national en riz reste chroniquement négatif et dépasse actuellement 50 000 tonnes. Ce déficit alimentaire a eu pour conséquence le recours aux importations dont les volumes ne cessent d'augmenter faute d'une bonne politique de promotion de la riziculture locale. Par ailleurs, des dons et des aides alimentaires sont

également offerts au Bénin par les gouvernements japonais et américains pour combler le déficit alimentaire et pour réduire la pauvreté. Mais ces dons et aides alimentaires qui remontent à plus d'une décennie ont commencé par avoir des effets néfastes sur le développement de la riziculture locale. Afin de mieux apprécier l'importance, le mode de gestion et les impacts de ces dons sur la vie des producteurs béninois, une étude a été menée par le Réseau de développement d'agriculture durable (REDAD) et VeCO (Vredeseilanden Country Office). Le rapport de cette première étape de l'étude a fait l'objet de plusieurs observations au niveau du réseau des partenaires du développement de la filière riz au Bénin dont les représentants sont Oxfam, CCR, VeCO et REDAD. Ainsi, cette étude mérite d'être approfondie afin de servir d'argumentaire solide pour faire des propositions aux décideurs politiques.

### *Objectifs de l'étude*

Cette deuxième étape de l'étude vise à mettre en relief les impacts négatifs des dons et des aides alimentaires en riz provenant du Japon et de l'Amérique sur la vie des producteurs béninois.

De façon spécifique, les objectifs de cette étape se présentent comme suit :

- Décrire le mécanisme de négociation et de gestion des dons et des aides
- Evaluer les impacts des dons et des aides alimentaires sur les riziculteurs
- Formuler aux décideurs des propositions favorables au développement de la riziculture locale

Ce travail se fera en plusieurs phases :

- Une première phase de relance qui consistera en la collecte des informations et de données complémentaires
- Une seconde phase de traitement des données et des informations
- Une troisième phase de discussion avec quelques producteurs de riz pour recueillir leurs appréciations de l'impact du phénomène « dons de riz » sur la riziculture locale
- Une quatrième phase sera consacrée à la rédaction du rapport

## Resultats et discussion

Le Bénin reçoit des aides et des dons alimentaires de deux origines principales. Il s'agit des aides et de dons en provenance du Japon et des Etats-Unis.

### Les dons japonais

#### *Différents types de dons*

Le Japon accorde au Bénin quatre types de dons :

- L'aide alimentaire japonaise ou KRI
- L'aide à l'augmentation de la production alimentaire ou KRII
- Le don spécial japonais hors projets
- L'aide non remboursable

#### *L'aide alimentaire ou Kennedy Round I (KRI)*

Cette aide alimentaire japonaise prend la forme d'une subvention financière accordée à la République du Bénin, utilisée pour acquérir du riz destiné à être cédé à bon marché aux populations sur toute l'étendue du territoire national. Elle date de plus de deux décennies. Elle a démarré suite à la sécheresse ayant entraîné une pénurie alimentaire au Bénin dans les années 80. Depuis lors, même si la situation alimentaire du pays est redevenue normale, le système a été pérennisé sous réserves d'autres critères.

#### *L'aide à l'augmentation de la production alimentaire ou Kennedy Round II (KRII)*

Cette aide est une subvention financière que le gouvernement du Japon accorde au Bénin depuis 1985. Elle sert à réaliser les projets en vue de l'augmentation de la production vivrière. Il s'agit concrètement d'un fonds pour l'approvisionnement en produits et en matériels de production agricole tels que les engrais, les produits phytosanitaires (insecticides, herbicides...) les machines agricoles qui constituent des moyens efficaces pour l'augmentation de la production par surface unitaire. Cependant, le Japon a arrêté cette aide depuis l'année 2001 parce qu'une partie des produits notamment des pesticides reçue n'a pas été consommée et leur destruction cause de véritables problèmes de pollution de l'environnement dans les pays bénéficiaires dont le Bénin. C'est la DAGRI

(Direction de l'Agriculture) qui en assure la gestion. Après la vente, les recettes déposées dans un compte géré par le Ministère du Plan pour le financement des projets sociocommunitaires. Le KR2, nouvelle formule, vient d'être repris en mars 2006 avec l'octroi d'une aide financière à notre pays pour l'acquisition d'engrais d'une valeur de JPY 140 millions soit environ 700 millions de FCFA (2005). Selon les responsables de la DAGRI, les pesticides ne font plus partie des produits offerts dans le cadre de cette coopération bilatérale.

#### *Le don spécial japonais hors projets*

Ce type de don est une aide en appui au Programme d'ajustement structurel (PAS). Ce don est octroyé sous forme d'aide en marchandises livrées à des opérateurs économiques qui en assurent la vente. Elle est arrêtée depuis 2000.

#### *L'aide non remboursable*

Il s'agit de l'aide accordée au gouvernement béninois pour le financement des projets de développement notamment le programme d'hydraulique villageoise qui est à sa cinquième phase pour un montant global de JPY 212 millions soit 1,06 milliards FCFA. Cette aide est gérée directement par les Japonais. Elle se poursuit jusqu'à présent. L'utilisation des recettes des trois premiers types de dons, conformément aux échanges de notes est soumise à l'accord préalable de la partie japonaise. Cependant, des trois types de don, seul le KRI est une aide alimentaire. De plus, elle offre une plus grande flexibilité à l'Etat béninois en matière d'allocation des recettes. Ainsi, une attention toute particulière lui sera accordée dans ce travail

#### *Importance du don de riz KRI*

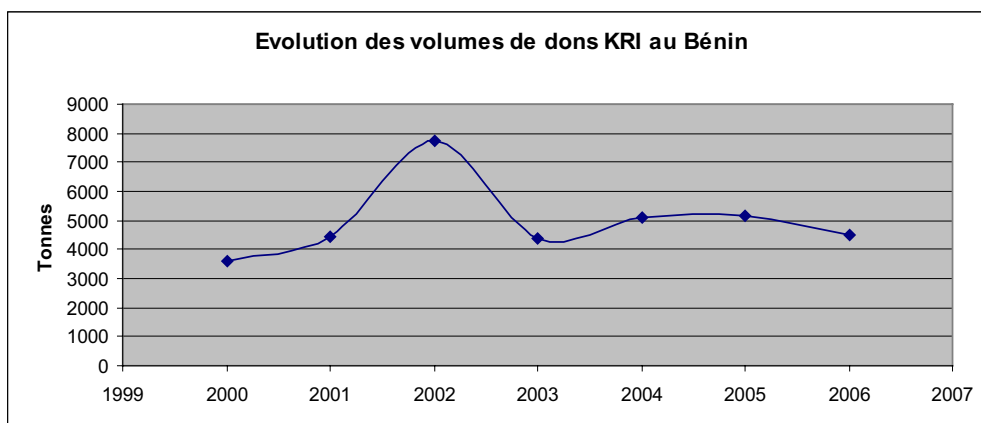
L'Etat japonais signe avec l'Etat béninois la remise d'un certain volume de riz correspondant à la valeur du don divisé par les cours du riz sur le marché international. Il s'agit d'un don numéraire équivalent à environ 200 millions de Yen soit environ 1 milliard de FCFA. Les quantités varient donc d'une année à l'autre selon les prix mondiaux du riz et selon les cours de yen (Tableau 72).

**Tableau 72.** Volumes de don japonais de riz KRI au Bénin

Années	2000	2001	2002	2003	2004	2005	2006
Tonnages	3 609	4 413	7 743	4 366	5 117	5 134	4474

Source : ONASA, 2006

Ces quantités offertes variant d'une année à l'autre (Figure 30) ne tiennent compte ni des importations commerciales ni de la production locale. En 2002, le don japonais représentait à lui seul 7,5 % des importations commerciales et 12,25 % de la production locale. Les recettes issues des ventes ne sont pas négligeables. Elles s'élevaient en 2002 à 1 102 492 783 FCFA.



Source : ONASA, 2006

**Figure 30.** Evolution des dons du riz japonais au Bénin

### *Gestion du don KRI*

Pour la livraison du produit, le gouvernement béninois établit en collaboration avec le gouvernement japonais un cahier des charges soumis à un appel d'offre international auxquelles seules les sociétés japonaises peuvent postuler. La marchandise est délivrée en une seule cargaison, chargée par la Société béninoise de manutention portuaire (SOBEMAP). Au Bénin, le don est supervisé par un comité interministériel composé par les Ministères du Commerce, de l'Agriculture, des Affaires étrangères, du Plan, de la Famille, de l'Intérieur et

des Finances. Il s'agit d'une commission de la gestion des dons présidée par le Ministre du Commerce. Elle fut créée par décret et amendée le 30 décembre 2004. Elle reçoit les dons, propose le prix de cession et la formule de répartition, suit la distribution et rend compte au gouvernement. Ainsi, le riz donné à l'Etat béninois doit être vendu. Il est distribué sur toute l'étendue du territoire y compris dans les zones de production. La distribution est assurée par la Centrale COOP et l'Office national d'appui à la sécurité alimentaire (ONASA) depuis 1996, chacune dans une zone bien délimitée. En 1996, la répartition du riz était de 60 % pour la centrale COOP et de 40 % pour l'ONASA. Mais depuis quelques années, la répartition est équitable entre les deux structures. Rappelons que la Centrale COOP est une structure privée dont la fonction principale est la distribution des produits alimentaires tandis que l'ONASA est une institution étatique relevant du ministère de l'agriculture. Les deux structures soumettent un projet de répartition et un prix de cession à la commission de gestion des dons et des aides alimentaires que le Conseil des ministres étudie. Ce prix est fixé en tenant compte du prix du riz le plus bas et le plus consommé sur le marché par la population. Le prix de cession du riz donné est généralement fixé au minimum au deux tiers (2/3) du prix FOB et à un maximum non loin de ce seuil. Ainsi, le prix varie de 4 500 à 5 000 FCFA pour le sac de 30 kg soit un peu plus de 50 % du prix de vente du riz local. Ce prix supposé unique varie cependant légèrement d'une zone à l'autre. Avec la décentralisation, un comité d'orientation et de gestion du riz japonais est installé au niveau local. Ce comité est présidé par le maire et a pour membres le responsable du Centre d'études pour les coûts de production en agriculture (CeCPA), le responsable des affaires sociales, un représentant de l'association du développement, une représentante des femmes, le chef de la brigade ou le commissaire, un représentant de l'ONASA ou de la Centrale COOP.

A l'issu de la vente, une ristourne est allouée aux communes et aux structures de distribution notamment à la centrale COOP et à l'ONASA selon les termes du contrat liant les deux parties. Pour l'utilisation des recettes, le gouvernement béninois établit une liste de projets à réaliser et la soumet à la partie japonaise. Ensuite, les deux parties s'accordent sur les projets à financer et le gouvernement japonais autorise les dépenses. Le Ministère du Plan assure la gestion desdits projets qui consistent en la réalisation des infrastructures sociocommunitaires (constructions d'école, de pistes rurales, de puits, etc.). Ce qui veut dire que les autorités béninoises sont en grande partie responsables de la gestion des dons japonais.

## Situation de l'aide alimentaire japonaise dans les pays de la sous-région

**Tableau 73.** Situation de l'aide alimentaire japonaise dans la sous-région en 2005

	Date	Total de l'aide	En nature	Objectif
<b>Burkina Faso</b>	8 mars 05	1,5 milliards		Fonds hors projet
		1,4 milliards pour l'achat d'engrais (KRII-2004)		Augmenter la production agricole du pays
	15 avril 05	1,5 milliards pour l'achat de riz (KR-2004)	Plus de 6 500 t de riz	Monétarisation pour financement de projets de développement économique et social
<b>Bénin</b>	15 avril 05	1,5 millions d'€ pour l'achat du riz		Résolution des problèmes alimentaires des populations défavorisées
	mars 06		KR2 pour achat d'engrais	Augmentation de la production agricole du pays
<b>Mali</b>	12 avril 05	1,5 milliards	6000 t de riz 3000 t d'intrants (KRII-2003)	
<b>Sénégal</b>	22 mars 05	1,250 milliards	6800 t de riz	Populations plus diminuées (affectées par la crise acridienne et sécheresse) + alimentation du fonds de contrepartie (développement)
<b>Niger</b>	avril 05	500 millions pour l'achat de 2300 t de céréales (fruit d'anciennes monétarisations)	7200 t de riz (vendu au prix du marché, les autres céréales achetées avec le fruit de la monétarisation seront vendues à prix modéré)	Atténuation de la crise
<b>Gambie</b>	15 avril 05	180 millions de yens pour l'achat de riz	4900 t de riz (KR)	Amélioration de la sécurité alimentaire et promouvoir le développement socio-économique

Source : Médias, internet

Signalons que le fonds de contrepartie est le fruit de la monétarisation qui doit servir au financement de projets de développement agricole. Mais le pays doit avoir l'accord de la partie japonaise pour le dépenser. D'autre part, en comparant la situation au Bénin par rapport à d'autres pays comme le Burkina, le Mali, le don KR2 qui permet l'amélioration de la production agricole n'est repris qu'en mars 2006.

### *Constats faits sur la gestion des dons japonais*

Des trois types de don, seul le KRI offre une marge de manœuvre au gouvernement béninois. Selon les autorités, il est plus flexible.

## **Comparaison entre les prix de vente du riz KRI et du riz local**

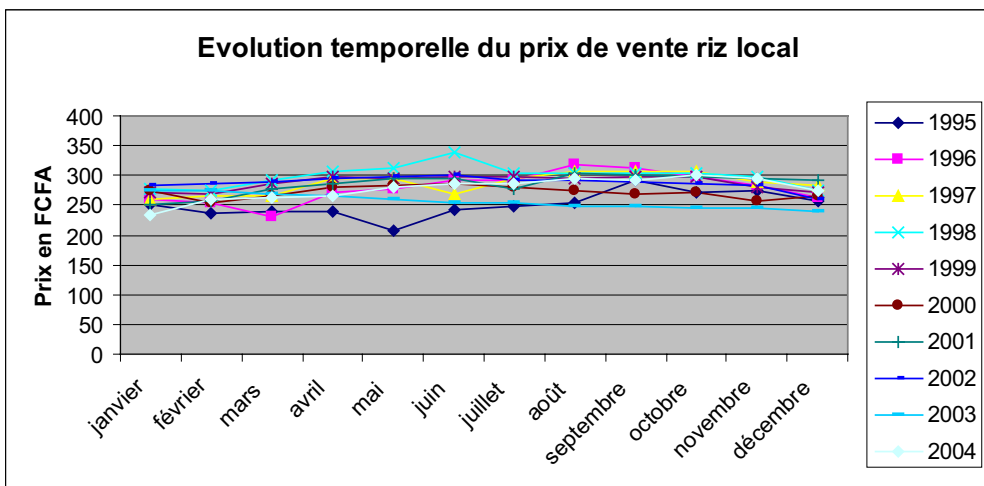
**Tableau 74.** Prix de vente du riz local entre 1994 et 2005

	1998	1999	2000	2001	2002	2003	2004	2005
Prix moyen riz local	299	288	272	286	288	256	278	299
Prix officiel riz KRI	150	166	183	173	183	166	150	150

Source : ONASA et nos calculs

Tandis que le prix moyen de vente du riz local entre 1998 et 2005 était de 284 FCFA/kg, celui des dons de riz japonais au cours de la période n'était que de 165 FCFA/kg, soit un peu plus de la moitié du prix de vente de riz local pour la même population.

Par ailleurs, selon les producteurs de riz et d'autres personnes rencontrées, lorsque le don du riz est mis sur le marché, on note une chute non seulement du prix du riz local mais aussi des prix des produits de substitution tels que le maïs, le mil, le sorgho,... Cette situation s'expliquerait par le phénomène d'élasticité croisée des produits.



Source : ONASA, 2006

**Figure 31.** Evolution temporelle du prix de vente du riz local.

#### *Bénéficiaires des dons de riz et riziculteurs*

Les dons de riz japonais normalement destinés aux populations démunies sont la plupart du temps cédés aux fonctionnaires, aux élus et aux commerçants disposant de bonnes relations avec les comités de distribution. Ces bénéficiaires sont généralement des individus qui n'ont aucun problème alimentaire. Ainsi, ils achètent le riz japonais qu'ils mettent sur le marché local à un but purement lucratif qui n'est ni celui visé par le gouvernement japonais ni par le gouvernement béninois.

#### *Utilisation des recettes du KRI*

Les revenus tirés de la vente du don KRI (Tableau 75) varient d'une année à l'autre. A l'issue des ventes, les recettes sont regroupées dans un compte spécial avant leur utilisation.

**Tableau 75.** Recettes issues de la vente du don japonais du riz KRI

	2002	2003	2004
<b>Recettes (millions FCFA)</b>	1102	536	546

Source : ONASA, 2005

Les recettes issues de KRI ont servi au cours de ces dernières années à la construction d'écoles, de hangars et de pistes. Force est de constater que le financement de l'agriculture en général et de la filière riz en particulier n'a jamais été réalisé à partir des recettes de KRI.

#### *Don KRI et production locale*

Les quantités de dons de riz KRI ne tiennent compte ni des importations commerciales ni des productions locales. Cependant, selon les responsables de l'ONASA, la mise sur le marché des dons se fait généralement en période de soudure (Sud : entre mars et juin ; Nord : entre avril et juillet).

## **Les dons américains**

#### *Historique*

A l'instar du Japon, les Etats-Unis apportent une assistance alimentaire en riz à la République du Bénin. En plus du riz, l'huile comestible, le blé, la farine de blé sont également importés. C'est le *Catholic Relief Services* (CRS) qui en assure la gestion. La structure s'est implantée au Bénin depuis 1958. En ce qui concerne le riz, l'assistance alimentaire comporte deux volets à savoir la distribution alimentaire et la monétisation (vente de vivres). Si le programme de distribution alimentaire date de plusieurs décennies, celui de la monétisation n'a commencé qu'en 2001 pour une durée initiale de cinq (05) ans. Le premier quinquennat se poursuit jusqu'en septembre 2006 avec la possibilité d'un renouvellement.

#### *Importance*

Pour chacune des deux composantes, les volumes importés varient très faiblement d'une année à l'autre. La distribution alimentaire s'élève à environ 500 tonnes par an. S'agissant de la monétisation, l'opération s'effectue sur toute l'année. Son volume moyen est de 9 000 tonnes par an. Ces importations américaines de riz faisaient près du tiers de la production nationale en 2000. Ce qui indique le degré de dépendance de notre pays.

#### *Gestion*

Les bénéficiaires du programme de distribution alimentaire sont principalement les écoles sous forme de cantines scolaires destinées à assurer la fréquentation de l'école par les enfants et à limiter les déperditions au cours du cursus scolaire.

Quant à la monétisation des vivres reçues à travers l'aide, elle constitue un mécanisme de satisfaction des besoins de fonds pour la réalisation des objectifs de développement et un moyen de développement des capacités des entreprises locales. Ainsi, les bénéficiaires sont les sociétés, les associations et les groupements. Pour la vente, le CRS lance un appel d'offre et c'est la structure la plus offrante qui est retenue. On en déduit que la gestion des aides alimentaires américaines est entièrement sous le contrôle du CRS.

#### *Constats faits sur la gestion*

- Le rôle du gouvernement béninois dans la gestion de la monétisation par le CRS n'est pas jusqu'ici clairement perçu
- Aucune partie des recettes de monétisation du riz par le CRS n'est utilisée dans les projets du développement de la riziculture locale

## **Conclusion**

### **Impact des dons et des aides alimentaires sur la riziculture locale**

Ces dons et ces aides alimentaires contribuent à l'augmentation de la disponibilité du riz à un prix accessible, à la satisfaction des besoins énergétiques des populations, au renforcement du budget d'investissement de l'Etat. Cependant, tout porte à croire qu'ils ont un impact négatif sur la riziculture locale. En effet, les risques et incidences à court et à long terme sont nombreux.

#### *A court terme*

- Découragement des riziculteurs ;
- Discrimination sociale car un petit nombre de personnes s'accaparent la plus grande quantité qu'ils revendent sur les marchés urbains et régionaux ;
- Concurrence déloyale du don du riz vis-à-vis du riz local. En effet, le don du riz est plus compétitif que le riz local car il coûte à peu près deux fois moins cher que le riz local et il est vendu parfois à un prix inférieur au coût de production du riz local qui est de 158 FCFA/kg ;
- Manque de débouchés à l'intérieur pour l'écoulement du riz local ;
- Mévente de la part des producteurs nationaux ;

- Bradage du riz local par les producteurs ;
- Baisse des revenus des producteurs et surtout des productrices qui s'adonnent particulièrement à cette culture ;
- Faible volonté pour l'investissement dans la filière ;
- Détérioration des conditions de vie des populations rurales.

#### *A long terme*

- Découragement des efforts accomplis par les projets et programmes de développement de la filière riz dont les effets sur la vie des producteurs risquent d'être négligeables voire nuls ;
- Baisse de la production locale du riz et des revenus des producteurs ;
- Faible valorisation des potentialités rizicoles existantes ;
- Insécurité alimentaire due à l'incapacité du Bénin à faire face à la demande locale en cas de suspension soudaine des dons et aides ;
- Augmentation du degré de dépendance du Bénin voire une souveraineté nationale hypothéquée durablement ;
- Accroissement des inégalités entre les hommes et les femmes car ces dernières tirent une bonne partie de leurs revenus de la riziculture ;
- Faible diversification agricole avec comme conséquence le renforcement de la dépendance du pays à l'égard de la monoculture ;
- Problème sanitaire car la plupart des aides et des dons alimentaires sont constitués de réserves alimentaires datant de plusieurs années et pourraient être de qualité douteuse ;
- Elargissement du déficit de la balance commerciale et donc un produit intérieur brut de plus en plus faible.

### **Recommandations de Oxfam International sur l'aide alimentaire**

Pour éviter que l'aide alimentaire aboutisse à une réduction de la production domestique de nourriture et mette en péril les moyens d'existence des paysans pauvres, le document de l'Oxfam International sur l'aide alimentaire a fait des recommandations dont en voici quelques unes :

- L'assistance alimentaire doit être exclusivement fournie sous forme d'attributions de fonds ;
- L'assistance alimentaire ne doit en aucune manière être liée, ni explicitement ni implicitement, à une quelconque transaction commerciale ou à des services émanant du pays donateur ;
- Le recours à l'assistance alimentaire en nature devrait être limité aux situations dans lesquelles il existe un manque grave et avéré de nourriture au niveau local et/ou lorsque les marchés locaux ne fonctionnent pas et que des achats régionaux de denrées alimentaires sont impossibles. Dans toutes les autres situations, l'assistance alimentaire devrait être fournie sous forme d'argent permettant d'acheter de la nourriture localement ou au niveau de la région ;
- La monétisation de l'assistance alimentaire devrait être limitée et remplacée par des donations en argent afin d'éviter le déplacement de la production locale ou des importations commerciales ;
- Une assistance alimentaire ne devrait être fournie qu'en réponse à des demandes émanant de gouvernements nationaux, d'agences spécialisées des Nations unies, d'autres agences régionales ou intergouvernementales pertinentes, d'organisations non gouvernementales ou d'entités caritatives privées.

## **Suggestions pour la gestion de l'aide alimentaire au Bénin**

La riziculture béninoise présente un avantage comparatif par rapport à d'autres cultures. De même, le riz local possède un avantage comparatif par rapport à l'importation à partir de certains rendements. Mais de nombreux obstacles se posent à sa promotion parmi lesquels se trouve la gestion des aides et des dons alimentaires. Ainsi, pour réduire la concurrence déloyale des dons et des aides alimentaires et amorcer un véritable développement de la filière rizicole au Bénin, il apparaît impérieux de :

### *A court terme*

- Aligner le prix de cession du don de riz au prix du marché du riz local
- Mettre le don sur le marché seulement en période de soudure
- Négocier avec le CRS le financement des projets rizicoles après la monétisation
- Utiliser les recettes du don japonais ou une partie pour financer la production, la transformation et le conditionnement du riz par l'acquisition d'équipements adéquats avec l'implication des producteurs du riz
- Renégocier la poursuite des dons KRRI avec l'implication des riziculteurs à la formulation de sa demande et à sa gestion

### *A moyen terme*

- Négocier avec les gouvernements japonais et américains pour convertir les aides et les dons de riz en équipements agricoles adaptés ou en intrants pour la production agricole en général et la riziculture en particulier
- Augmenter les taxes sur les importations du riz et les utiliser pour financer la riziculture locale

### *A long terme*

- Arrêter les importations de dons et d'aides alimentaires de riz au Bénin et les remplacer par d'autres formes d'assistance à faible impact négatif sur la production locale
- Négocier pour que les importateurs achètent au moins 20 % du riz local sur les quantités importées
- Réduire progressivement les importations commerciales de riz en utilisant les instruments appropriés