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- FORUM -

MARKETS AND INSTITUTIONS FOR PROMOTING RICE FOR FOOD SECURITY AND POVERTY REDUCTION IN SUB-SAHARA AFRICA

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ABSTRACT

This paper presents aspects of promotion of rice *(Oryza sativa)* among markets and institutions as a key commodity for food security and poverty reduction. Rice is viewed as a central focus in all this. In fact, we are looking at rice as a driver of development in a broad sense. "Drivers of development" is an old concept and it goes back to a generation of development economists in the sixties. The publications of the U.S. based Agricultural Development Council and in particular Arthur Mosher raised the issue of drivers of development. Even Walter Rostow in his famous book on the "Five Stages of Economic Growth" discussed the drivers of development - the locomotive that will pull everything ahead - and concluded that agriculture under certain conditions could be a driver. This was against the popular conception of the 1950s with labour, surplus models ("development with unlimited supplies of labour") with agriculture as an unlimited pool of costless labour, waiting to be transferred to the industrial sector. Drivers of development are activities with large positive multiplier effects, producing a large value surplus, leading to a certain accumulation of wealth (savings) which can be the source of new investments, increasing (land and labour) productivities, with many forward and backward linkages throughout the economy, resulting in a continued process of positive cumulative changes in the economy and in people's living conditions. In this review article, issues of rural poverty, food security and agriculture in sub-Saharan Africa in general and how they relate to rice production and marketing are addressed.

Key Words: Drivers of development, labour, *Oryza sativa*, surplus models

RÉSUMÉ

Cet article présente des aspects de promotion de riz *(Oryza sativa)* sur les marchés et les institutions comme une denrée alimentaire clé pour la sécurité alimentaire et la réduction de pauvreté. Le riz est regardé comme un point central dans tout ceci. En fait, nous regardons le riz comme un conducteur de développement dans un sens large. Les « conducteurs de développement » est un vieux concept et il retourne à une génération d'économistes de développement dans les années soixante. Les éditions des Etats-Unis ont basé le Conseil de Développement Agricole et Arthur Mosher en particulier a élevé le concept de conducteurs de développement. Même Walter Rostow dans son livre célèbre sur le « Cinq Etapes de Croissance Economique » a discuté des conducteurs de développement - la locomotive qui tirera tout en avant - et a conclu que l'agriculture sous certaines conditions pourrait être conductrice. Ceci était contre la conception populaire des années 50 avec le travail, le modèle de surplus (« le développement avec les provisions illimitées de travaux ») avec l'agriculture comme une mare illimitée du labeur moins coûteux, en attente d'être transférée au secteur industriel. Les conducteurs de développement sont des activités avec des grands effets multiplicateurs positifs, produisant un grand surplus de valeur, menant à une certaine accumulation de richesses (les économies) qui peut être la source de nouveaux investissements, augmentant (la terre et le travail) les productivités, avec plusieurs connexions 'économiques, aboutissant à un processus continuel de changements cumulatifs positifs dans l'économie et dans des conditions de vie des habitants. Dans cet article, les problèmes de pauvreté rurale, la sécurité alimentaire en Afrique subsaharienne en général et leurs liens avec la production de riz et sa commercialisation sont adressés.

Mots Clés: Conducteurs de développement, labour, *Oryza sativa*, modèle de surplus

INTRODUCTION

Rice as a driver of development. "Drivers of development" is an old concept that goes back to a generation of development economists in the sixties. The publications of the U.S.-based Agricultural Development Council and in particular Mosher (1969) raised the issue of drivers of development. Rostow (1960) discussed the drivers of development - the locomotive that will pull everything ahead - and concluded that agriculture under certain conditions could be a driver. This was against the popular conception of the 1950s with labour surplus models ("development with unlimited supplies of labour") (Lewis, 1954) with agriculture as an unlimited pool of costless labour, waiting to be transferred to the industrial sector. Drivers of development are activities with large positive multiplier effects, producing a large value surplus, leading to a certain accumulation of wealth (savings), which can be the source of new investments, increasing (land and labour) productivities, with many forward and backward linkages throughout the economy, resulting in a continued process of positive cumulative changes in the economy and in people's living conditions. Can rice be such a driver of development?

When all developing countries are considered together, rice provides 27% of dietary energy supply and 20% of dietary protein intake. Rice cultivation is the principal activity and source of income for millions of households in Asia, Africa and Latin America (Solh, 2005). During the last decade, rice has also become the most rapidly growing food source in sub-Sahara Africa (SSA) and as a result, the region had to increase rice importation to satisfy demand (Solh, 2005). Rice is the staple food of more than half the world's population and about four-fifths is produced by small-scale farmers for their own local needs. According to FAO, about one billion households depend on rice for their livelihood. Given its strategic importance, rice could certainly be a driver, but under what conditions?

In this review paper, the issues of rural poverty, food security and agriculture in SSA in general and how they relate to rice production and marketing are addressed first followed by those of rice production, consumption and imports in SSA and the markets and institutions affecting them.

Rural poverty, food security and agriculture. One out of five of the world inhabitants, about 1.2 billion people, live in extreme poverty. This is now commonly understood as living on less than one US dollar per day. Their poverty is not only a condition of low income, low consumption and lack of assets; it is above all a condition of vulnerability, exclusion and powerlessness. More than two thirds of them are in Asia; South Asia alone accounts for nearly half of them and they devote approximately half of their income to buying rice. About one fourth is in SSA, and this share is expected to increase.

Poverty is largely a rural phenomenon. Some 900 million people or 75% of the world's 1.2 billion extremely poor live in rural areas; in SSA, it is 80%. Rural poverty reduction must, therefore, be given priority if the Millennium Development Goals, particularly if the one relating to poverty, are to be met.

Most of SSA, except a few countries such as Ethiopia and Uganda, has seen little poverty reduction since the late 1970s; but a fall in the exceptionally high ratio's of rural to urban poverty. Often, thus, some reduction in rural poverty is accompanied by increased urban poverty as rural poor have moved to cities, without finding employment and opportunities to better their income. In contrast, successful rural poverty reduction usually works by raising the productivity of the poor, such as higher rice yields per ha and/or per day worked, while most urban poverty alleviation efforts are welfare-oriented. Moreover, rural poverty alleviation may reduce migration, thus helping to reduce urban poverty.

Poverty is not an intrinsic attribute of people, but a product of livelihood systems and the socio-political forces that shape them. There are intimate links between rural poverty, food security and agricultural development. Most rural people find their livelihood in agriculture, directly or indirectly. The agricultural sector contributes 30 to 80% to GDP (macro-economic development), employs 50% or more of the active population, and represents 50% or more of exports. Agriculture is also the principal source of

savings, taxes (mainly at export) and public finance. Most sub-Saharan countries, with a few exceptions (including Nigeria, Botswana and South Africa), presently, are really agricultural states. But agriculture is typically poorly performing, under-capitalised and not really competitive at the international level. Agricultural growth is only 2% per year for 25 African countries, and 4% in 17 other.

Comparative advantage of the agricultural sector. The capacity of the agricultural sector and agri-industries to absorb large amounts of labour (as a parking ground for later industrialisation) - no other sector can do likewise. The labour-intensive character of agriculture and agri-industries for modest investments.

Agricultural growth very much determines economic growth in sub-Saharan countries, as such growth creates market opportunities for other sectors, directly or indirectly. Agriculture must, thus, be the engine of growth at the present stage of development. High quality growth is sustainable and PRO-poor, PRO-women, PRO-environment and thus also PRO-agriculture.

Production, consumption and imports of rice in Africa. According to OSIRIZ (CIRAD, Montpellier), African rice production could surpass 20 million tonnes this year for the first time. This could lead to lower rice imports which were at a record level of 9 million tonnes in 2005. But international rice prices have been on an upward trend since early 2003, and this rise in prices seems to go on unabated. World rice production has been less than rice consumption since 2000. It is to be noted that the international rice trade was only about 28.3 million tonnes in 2005, of which Africa took 32 percent. Thus, in the international rice trade, Africa is a big player. The international rice market is now about 8 percent of global production, up from 3-5 percent in the 1980s. The international rice market remains "thin" compared with wheat or maize, which accounts for some 18 percent and 13 percent, respectively, of world production (Calpe, 2005).

Regarding the West African rice sector, the overriding problem is the decline in the region's self-sufficiency in rice production and increasing dependency on imports. WARDA reports that consumption is growing at 8% per *annum*, while domestic supply grows at only 6%. The gap, being filled by imports, is already costing US$ 0.82 billion per year. Over the period 1991-2000, domestic production was only 57% of consumption, and the situation is deteriorating with self-reliance for 2002 at only 39%. In West Africa, 78% of the total area planted in rices is upland, hydromorphic and lowland ecosystem, with only 22% irrigated (FAO, 2004).

Consumer demand for rice in West Africa has grown faster than domestic production; two-thirds of the increased demand has been met with imports (IRRI, 2002). Predictions suggest that imports will increase to about 4.5 million tonnes in 2010 and anywhere between 6.5-10 million tonnes by 2020 (WARDA, 2002).

Even in Mali, a West African rice production success story, in part due to high import parity prices, which give the landlocked country a national protection, self-sufficiency is only about 80%. There were high expectations in the 1990's that Mali would become a regional exporter of rice, because of the high returns obtained by farmers in Niger and elsewhere, where the economics of production are quite good. But sluggish progress in extending the irrigated areas, its high cost and stagnating productivity (5-6 tonnes of paddy rice/ha), albeit at a high level, failed the expectations. In addition, domestic rice consumption is increasing very rapidly. Even in Niger, where private small scale irrigation is expanding, self-sufficiency is now less than 30%.

In Mali and Niger, it is claimed that up to 1 million ha can be irrigated by gravity, but presently no more than 80,000 ha have been developed, and about 5,000 ha are added to production every year. Main constraints are the high costs of infrastructure development and the issue of land ownership and titling. Recent schemes made significant progress in establishing the primary infrastructure, but the beneficiaries (the secondary networks) have performed poorly, with lack of uniformity across the scheme, and uneconomical plot sizes, as small as 0.25 ha (Coulter and Havrland, 2005). Issues of ownership pose a major challenge everywhere where public authorities are involved in infrastructure works. In contrast, privately owned

irrigation schemes, usually pump irrigation, work well everywhere and seem quite profitable, for instance in Senegal, Mali and Niger; although their uncontrolled growth poses problems of the public good and may even cause environmental damages. In Niger, there is proliferation of wild, private irrigation developments just outside the perimeter of the main drainage canals. This was never intended and does carry a risk.

Seeking to eliminate imports over a short time span is totally unrealistic. In the case of Mali, with rapidly increasing domestic production, but rising consumption still outstripping production, the Government in 2004 removed the Value Added Tax (VAT) on imported rice with a view to easing consumer prices. This was motivated by political considerations, but was counter-productive on stimulating local production and new investments in the sector. Even the anticipation of the abolition of VAT on imports put a cap on domestic price rises and increased domestic shortage and speculation. Thus, in 2004, consumer prices rose to around US$ 800 per ton in Bamako.

In Nigeria, between 1986 and 1994, there was an import ban, subsidized provision of inputs and finance for production, but none of these measures halted the long-term trend to import-dependency. Despite several measures, including the legalization of private fertiliser imports, Nigeria still imports around 2 million tons of rice a year, with consumer prices probably the highest on earth because of an import duty of 120%. Consumer prices are over 950 $/ton.

In Madagascar, eating well means having sufficient rice to eat. Rice alone accounts for over 50% of the calories consumed and occupies two-thirds of the cultivated agricultural area. Rice production is 12% of GDP. Consumption is on average 117 kg rice per person per year. Poor rural families eat on average only 107 kg, while the wealthy eat 154 kg. Every year, an average of about 200,000 t or 10% of national production or 20-30% of marketed production, are imported. The income elasticity for rice is 0.47 while the price elasticity is -0.62 and the cross-price elasticity for cassava and other substitute food is +0.50. And the income elasticity for the poorest part of the population - the rural poor - is 0.75. In Madagascar, rice is life and the key to food security and poverty alleviation (Bockel, 2005) (WFP-HIVA, 2006).

The truth of the matter is that in SSA, growth in rice demand as a preferred staple is so strong that production extensification and higher yields per ha will not be sufficient to fill the gap and meet rice demand. Extensification or a rapid increase in the area under rice, irrigated as well as rainfed, is necessary. In particular, the commissioning of new irrigated rice schemes is mandatory. After all, only about 4% of the cultivated area in SSA is irrigated, and this figure includes inland valleys and lowland rice fields with water control structures. By comparison, in Asia, 40% of the agricultural area is irrigated, but there is almost no room for expansion.

MARKETS AND INSTITUTIONS

Importance of quality of locally produced rice. WARDA did some very important studies on the need for an upgrading of the quality of locally produced rice. In Nigeria, between 2001 and 2003, WARDA, with NISER and USAID financing, discovered that local rice was being discounted by around 30% *vis-à-vis* imports. Imported rice is preferred for its long white grains; although considered less tasty, demands less preparation as it contains no stones.

Thus, in terms of quality, domestic rice is not competitive with imported rice. Demand is driven primarily by urban consumers who require a “fast food” that saves time for food preparation and fuel for cooking. The other advantage of imported rice despite the fact that it is more expensive than local rice is that urban consumers prefer high and uniform quality, and branding on typical sacks.

Even in Senegal where the bulk of imports is relatively low- priced 100% broken rice, quality is an issue as the imported broken rice is typically of uniform appearance and quality. Local rice is often mainly whole but heterogeneous, with foreign matter, and unbranded. To improve quality of local rice, institutional innovations are needed that make producers more responsive to end-user requirements and attach more importance to milling and cleaning and identity preservation (no mixing of different rice varieties).

Producer organisations in irrigated rice schemes. Farmers' irrigation schemes have invariably formed cooperatives, associations or group enterprises through which they obtain common services, notably credit, threshing and payment of user fees. Experiences are that these organisations often perform poorly or have serious problems (highly indebted, bankrupt, etc.). This may be because these groups are composed of people from diverse origins, brought together in a less than a fully voluntaristic fashion, lacking cohesion and consensus. Coulter and Havrland (2005) report that in the Niger and Mali, only about 2% of all producer organisations working in the zone were functional and effective, the others were technically bankrupt.

Many associations belonging to the village as a whole, have no formal association status; often have no formal accounting system, and entirely depend on the integrity of its leaders. It is, thus, not surprising that many fail, others are purely political organisations, capturing resources through political networks. It is thus, unrealistic to expect them to perform effectively as farmer-owned businesses. Cooperatives, when established, have to be coherent with pre-existing hierarchical social structures.

There exists no model of how to effectively structure a producer organisation. Some of these were set up simply as a conveyor belt for channeling external support and when that support stops, that may be the end. Many of them lack business orientation and responsiveness to the members. How to create and support effective institutions is a major challenge (Eicher, 1988). The question of effective institution building is still very much on the table as many of the existing institutions have a chequered history.

The adoption of NERICA rices. NERICA, a new rice variety that is high yielding and resistant to local stresses and is early maturing, was specifically designed for smallholder farming conditions in Africa characterised by low-input conditions and upland rice ecologies. It is a major breakthrough of WARDA and a major scientific achievement (Orr and Ahmadi, 2004).

In 2002, WARDA launched the Africa Rice Initiative in order to scale up the dissemination of the NERICA varieties. But according to WARDA, the constraints to adoption of NERICA rice are still poorly understood. It is not known why there is such large adoption in Guinea, where there has been limited funded dissemination programme, compared to a more slow adoption in Côte d'Ivoire or Nigeria. However, it is known that community-based seed production is a crucial issue to meet the demand, besides other factors although donor-support for seed production by farmers appears equally vital.

Unlike in Asia, farmer-to-farmer diffusion of new rice varieties does not seem to have happened on a wide scale in West Africa. The reasons for this are not clear and need further investigation (WARDA, 2002-2003).

CONCLUSIONS

Rice is the only cereal that can be grown under a wide range of soil moisture regimes, from deep-flooded to dryland, and in different soil conditions. Rice is a tool for food security and poverty reduction, particularly in SSA, where there is a wide range of agro-ecologies. Almost everywhere in SSA, and particularly in the cities, rice consumption is increasing rapidly as a convenient and preferred food staple. The importance of quality and branding of locally produced rice has been highlighted. With over 30% of the internationally traded rice going to Africa, Africa is a key player in the market. And rice prices since early 2003 have been riding the primary commodities prices boom, even before the boom started. Thus, rice is becoming more and more a strategic commodity and not just in food security and poverty alleviation but in several other development sectors. With increasing international rice prices, locally produced rice in Africa is becoming more competitive and investments in rice production, whether irrigated or rainfed, are gaining in profitability. Also the returns to investments in rice research and development are increasing and we hope that in particular African Governments will become more supportive of rice research and extension, including improved (NERICA) local rice seed

production. If that happens, rice can truly become a "driver of development". But the markets and institutions supporting rice development must be considerably improved and strengthened. This is a daunting challenge as the improvement and strengthening of the key markets and institutions, is something that cannot be done overnight, and for which there are no ready-made blueprints.

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