

Extending reach to strengthen value chains: Increasing consumer awareness of quality Senegal River valley rice

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Abstract

In 2008, the World Bank's *World Development Report* propelled agriculture to the forefront of the international development discourse for the first time in over two decades. That same year, responding to skyrocketing world cereal prices, Senegal developed a national self-sufficiency initiative called GOANA (Grand Offensive in Agriculture for Food and Abundance). Like other programs that see agriculture as the way forward for developing countries, GOANA focuses almost exclusively on production. The critical question is not whether Senegalese policy-makers can meet its ambitious target of self-sufficiency in rice production, but if they do, how then will local rice reach consumers? This question may be answered by the concept of a *value chain*: a strategic vertical alliance of non-adversarial relationships between stakeholders within a product's supply chain. The common target of all stakeholders in Senegal's rice sector is to make local rice competitive with imported rice, thereby stimulating import substitution, national self-sufficiency and food security. The sector, however, lacks quality control, availability in important urban markets and product recognition. Evidence from end-market studies reveals that a substantial proportion of urban consumers are unaware that quality local rice even exists. Therefore, we highlight the role of generic promotion strategies in increasing the awareness of urban consumers in order to strengthen emerging value chains of quality rice. Furthermore, we argue that policy-makers and stakeholders need to progressively upgrade the rice supply chain by: (i) investing in infrastructure to ensure post-harvest product quality, and (ii) adopting sector-wide value chain strategies that enhance chain competitiveness. Until we address these shortcomings, the promise of quality local rice as a viable competitor for imported rice may be no more than a potential unfulfilled.

Introduction

Senegal started to develop its domestic rice industry in the early 1980s. Cheap imported rice became a staple of the Senegalese diet during the colonial era, when it was used to feed the ever-important groundnut labor force. With a growing urban population in the 1980s and 1990s, rice overtook millet and sorghum as the main staple cereal in cities because it cooks quickly and is relatively easy to prepare. By 2000, Senegal was importing more than one million tonnes (mt) of rice per year, or approximately 70 kg per capita. With one of the highest urbanization rates in Africa (3.1% annually; UN, 2007, p 24), the Senegalese appetite for rice as a convenience food is unlikely to diminish. According to the French Development Agency (AFD), the demand for imported rice increased by 2% per year from 1998 to 2008. If the trend continues, demand will exceed 2 mt by 2020 (Gergely and Baris, 2009). To ensure food security, Senegal needs to cover more than the 20% of demand that it currently can with its domestic production.

Until recently, the Senegalese government and most donors focused almost all rice development efforts on production. This exclusive focus on production is an enormous hindrance to the competitiveness of local rice. Since the 1980s, the Senegalese government has invested in fertilizer, finance and infrastructure for production through its agricultural extension agency (Société d'aménagement et d'exploitation des terres du Delta du Fleuve Sénégal et des vallées du Fleuve Sénégal et de la Falémé, SAED), but has failed to provide the support necessary to make Senegal River valley (SRV) rice a viable commercial competitor. Senegalese producers sell only 30% of their production commercially (Campbell *et al.*, 2009, p 27). By ignoring integral components further downstream in the supply chain, like processing and marketing, some of the upstream investment efforts may not yield the anticipated return due to inefficiency losses, jeopardizing the national objective of combating import dependency and food insecurity. The entire mindset of the rice supply chain may need to be revisited so that it can evolve into one or several value chains focused on economic viability and competitiveness. In order to transform the rice sector from a poorly organized, barely profitable industry into a competitive mechanism to raise thousands out of poverty and contribute to food security, both horizontal and vertical linkages must be created and strengthened. Horizontal linkages need to occur among producers, traders and processors alike, thereby enabling them to aggregate an adequate supply of consistent quality and variety to sell and market to important urban markets like Saint-Louis, Diourbel, Touba and, most of all, Dakar.

Senegalese President Abdoulaye Wade launched the Grand Offensive in Agriculture for Food and Abundance (GOANA) in 2008 as a response to the mounting food crisis. While GOANA and the subsequent national self-sufficiency strategy, Programme national d'autosuffisance en riz (PNAR), have ambitious aims and promising strategies to bolster production, they suffer from the same flaws as past programs and attempts by the government to develop the rice sector. The Senegalese government has stated that it aims to cover 45% of

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rice consumption needs with local rice by 2015. In addition to their production focus, both GOANA and PNAR largely fail to acknowledge the importance of the private sector and end-markets in the growth of the domestic rice industry. If production does increase at the rates prescribed in both plans, who will buy the rice? Research indicates that less than 60% of consumers in Senegal's urban zones (Dakar, Diourbel, Touba, Saint-Louis and Podor) are aware that local rice even exists. In addition, 30% of urban consumers perceive local rice to be of a much lower quality than imported broken rice (Fall *et al.*, 2007, p 22). The domestic rice industry has some significant challenges to overcome in terms of awareness and consumer perceptions before it brings an increased quantity to market. To accomplish the ambitious goals outlined in the GOANA and PNAR programs, the Senegalese government will need to broaden its strategic scope to transform the entire rice value chain.

The good news is that there is not only hope for, but also great potential in the domestic rice industry in Senegal. With renewed attention to agricultural development in Africa, Senegal is at a crossroads with opportunity. The question now is how to proceed, and value chain research may provide some answers. The value chain approach to market research is a holistic methodology that takes into account all firms in a market system — this is especially important for finding ways to make staple food commodity markets in developing countries more competitive at every stage. When staple food commodity markets are more competitive they will contribute to self-sufficiency, food security and income growth. By focusing research and development efforts on value chains, the irrigated rice sector can focus on end-market strategies without sacrificing increased productivity.

Much has already been written about the problems and constraints confronting irrigated rice growers in the SRV, but little attention has been paid to the end-market challenges of consumer preferences for imported rice, their lack of awareness of local rice, and their general perception of domestic rice as being of lower quality than imported varieties. This paper responds to this gap in the research and highlights potential strategies to combat end-market issues using the value chain approach to agricultural development.

Value chain upgrading

The main premise behind a value chain is to eliminate inefficiencies in a product's supply chain from production to consumption in order to generate higher profits and create mutually beneficial outcomes for all the stakeholders involved. In a value chain, it is in all stakeholders' best interests to work cooperatively with open communication and transparency. Creating and strengthening value chains in the Senegalese irrigated rice sector may prove to be a good solution for increasing competitiveness, reducing import dependency and contributing to food security, because it addresses what past plans have failed to acknowledge — end-markets and private-sector actors. Value chains seek to streamline output channels by linking producers to consumers and weeding out inefficiencies along the way. When stakeholders are acting communally and not purely out of self-interest, they are less likely to clog output channels with unnecessary logistics and bureaucratic obstructions. GOANA and PNAR remain important initiatives that bring much needed attention and funding to research and development in irrigated rice production, thus value chain upgrading is simply a complementary approach to complete the development picture. Without improved production the product will never gain in value because baseline value is created during the production stage. As you go further upstream, however, value chain upgrading may help to ensure that value is added through improved processing, storage, transportation, packaging and branding. Though each element of a value chain deserves a deeper evaluation, this paper focuses on the elements most closely linked to consumption: advertising and generic promotion. We concentrated on this research area because of the significant lack of awareness of quality SRV rice.

The state of awareness

When it comes to consumer awareness of local rice, experimental auctions have confirmed earlier surveys (Fall and Diagne, 2008; Fall *et al.*, 2007) showing an awareness gap of over 40% in Dakar, Senegal's largest urban center. Of the roughly 60% of consumers in Dakar that are aware of rice produced in the SRV, it is unclear how many of these people are aware of the quality rice varieties that are now available on the market. This awareness gap can be explained by several phenomena.

A recent survey of urban consumers in Senegal revealed that the number one reason for the weakness of local rice consumption is the lack of marketing, cited by 45% of the sample. A lack of marketing means a lack of recognition, which also shows a lack of effective communication promoting local rice. The second reason, cited by 30% of the sample, is the perceived lack of quality. The third reason is the lack of availability on the market, cited by 26% of the sample (Fall *et al.*, 2007, p 44–45). Fall *et al.* (2007) emphasize that national policies need to gear marketing efforts toward urban consumers. They also encourage policy reform that will improve the rice value chain, which includes gaining better knowledge of consumer preferences, increasing the visibility and recognition of quality SRV rice, and investing in the infrastructure to help bring quality SRV rice to urban markets. Urban markets are the most important demographic to target because they represent approximately 65% of rice consumers in Senegal (Fall and Diagne, 2008, p 2).

Fall *et al.*'s (2007) survey and experimental auctions are not the only research to suggest the necessity of investment in generic promotion and advertising. Norman *et al.* (2008, p 720) say that advertising is essential to stimulate demand for a product because it, "can affect consumer willingness to pay without changing underlying consumer preferences". Data from our experimental auctions support this claim, pointing to an increased likelihood of purchasing quality SRV rice when consumers are aware of it. According to Rutsaert *et al.* (personal communication, 2009), after being introduced to quality SRV rice, Senegalese consumers in Dakar and Saint-Louis are willing to pay a price premium of 45 FCFA/kg relative to imported rice. They are further willing to add 17 FCFA/kg for PINORD's (Plateforme des initiatives du nord) Rival®-labeled rice. Although consumer preferences are deeply embedded in societal norms and market behavior, advertising and generic promotion may accelerate the transformation of these preferences and encourage consumers to 'go local' when selecting rice for their families.

Advertising and generic promotion

The development world is beginning to catch on to the idea that the development of agricultural commodity markets requires an integrative approach. In Senegal, this is demonstrated by a joint development report on rice value chains in west Africa spearheaded by USAID, which highlights the need for demand-focused strategies in west African rice sectors. The report acknowledges that prominent international institutions, "should prioritize support for research into consumer demand and preferences for local rice" (Wolfe *et al.*, 2009, p iii). There have been too few studies like those conducted by Rutsaert *et al.* (personal communication, 2009) and Fall *et al.* (2007). Though limited in scale, these studies provide valuable information for the course of future research and may inform policy-makers and private-sector actors on how to better target their development efforts.

With such a significant lack of awareness of quality SRV rice in Senegal, it seems that one of the best places to begin transforming the rice industry is with advertising and generic promotion. Norman *et al.* (2008) treat advertising as a complement to a product, saying that it can strengthen a product's appeal in two ways: extending *reach* and building *value*. According to Norman *et al.* (2008, p 722), *reach* is "when you contribute more information to consumers to raise their awareness". When you extend the *reach* of a product you are informing greater numbers of people about the product's existence. In order to decrease the awareness gap, increase consumer demand, and bolster the competitiveness of local rice, *reach* must be extended to a greater proportion of rice's most important audience. According to Fall and Diagne (2008, p 5), urban women between the ages of 18 and 60 should be the target demographic of generic promotion and advertising efforts, since they, as household managers, are the most likely to purchase rice. Television and radio will likely be the most successful *reach* mechanisms given that 52% of urban households own televisions and 88% own radios (Montgomery and Hewett, 2005). Grassroots-style marketing can also be extremely effective in a setting like Senegal. According to importer Marieme Diouck, when she first introduced imported aromatic rice she focused her marketing efforts on tastings and the distribution of samples in local markets (personal interview, 2010). Diouck's approach clearly paid off because her imported aromatic rice in the well-known blue 'Royal Umbrella' sack is now one of the most popular varieties in the Dakar markets.

In addition to extending *reach*, advertising can also complement a product by building *value* through widespread product recognition that connects the product with a certain image or concept. Building *value* is also most effective with a differentiated product, like quality SRV broken rice. Rice is not a homogeneous product and advertisers will need to exploit the differences in quality and type in order to distinguish their product. If a product is given a brand name its identity grows stronger and advertising focused on building *value* can be even more persuasive. Batra *et al.* (2000) further support Norman *et al.*'s concept of building value, saying that advertising can add *value* to a product by transforming it into a "status good". Through advertising, a product becomes widely known and often, the more recognized a product is the higher its associated 'status'. Advertisers have to be cautious, however, that their product represents the quality standards they promote, otherwise promotion could serve to undermine their objectives.

Building value by linking quality SRV rice with the concept of status holds great potential in Senegal because it, like many developing countries, is a society where status is important. The Senegalese show their status through the clothes they wear, the cell phones they use, and the televisions they buy. According to Batra *et al.* (2000), in periods of economic development, status is of great importance because there is often huge economic disparity and consequently social mobility. In a developing country, the easiest way to prove that you are moving up the socioeconomic ladder is to show your status through your material possessions.

The question then is how to make quality SRV rice into a status good? *Value* may be added by simultaneously improving quality and making it 'in' to buy quality SRV rice. As stated before, a key element in making quality SRV rice a status good is creating a distinguishable identity. The Oxfam-funded initiative PINORD is the first organization in Senegal to have a trademarked brand name for a quality local rice product, Rival®. For a one-time payment of 500 000 FCFA to OAPI (the African Organization for the Protection of Industrial Property), PINORD now has greater control over and ownership of its brand. Having a solid brand

identity attaches not only a tangible image to a product, but may also contribute to the creation of status if promotion campaigns successfully manage to attach this concept to the brand.

Quality enhancement and availability

PINORD was launched in 2006 with the mission “to contribute to the food security of the Senegalese people by improving their living conditions in a sustainable way through the promotion of local rice” (PINORD, 2009b, p 9). The initiative partners with six organizations in the SRV, private-sector donors, and a variety of other stakeholders to improve the irrigated rice sector. PINORD aims to (i) increase market access for SRV rice, (ii) reinforce the organizational capacity of rice growers and producer coalitions, and (iii) increase female entrepreneurship in the sector. Its collaborative approach to tackling the challenges and constraints confronting the SRV irrigated-rice sector is in line with value chain principles of supply chain management. PINORD not only links rice growers horizontally through producer organizations, but also links production, processing, distribution, marketing and consumption vertically through its brand, Rival®.

From its inception, PINORD recognized the total absence of marketing for local rice as a major obstacle to the mobilization of quality SRV rice on the market. PINORD’s promotion strategy is four-fold: improved packaging, improved transport, increased availability and points of sale in urban markets (especially in Dakar), and multimedia publicity surrounding the Rival® label (PINORD, 2007, p 53). This strategy addresses the awareness gap, perceived lack of quality, and lack of availability in urban markets — all issues raised by recent surveys and research. PINORD’s strategy to render quality SRV rice more competitive on the market *vis-à-vis* imported broken rice through supply aggregation, quality enhancement, improved distribution channels, and marketing, is an ambitious and innovative example of an agricultural development strategy for the SRV rice sector that goes above and beyond investment in production alone. Already, 80% of the rice produced by PINORD farmers reaches the market, which far surpasses the proportion brought to market by other, nonaffiliated producers in the area (PINORD, 2009a). While PINORD’s model for the increased commercialization of quality SRV rice is certainly a good preliminary step toward competitiveness, its operational scale is currently too small to impact the market significantly.

Another development organization operating within the framework of value chain principles is Japan International Cooperation Agency (JICA). Since 2004, JICA has been working in Senegal to develop the rice industry. From production to consumption, the Agency has launched initiatives to improve the capacity of the full range of irrigated rice stakeholders. JICA has attempted to address a plethora of issues including productivity, technology transfer, quality enhancement, access to credit, distribution and marketing. While JICA focuses a majority of its efforts on production and processing, it acknowledges the importance of end-market operations. Like PINORD, JICA developed a quality SRV rice brand called SENRIZ, which was launched in 2005 and made available in limited supply to several urban zones, including Dakar, Touba and Kaolack. Initially, SENRIZ reached the shelves of major supermarket franchises and appeared in several national press articles. Unfortunately, SENRIZ has since disappeared from the urban landscape, demonstrating the necessity of promotion and scaling-up in order to capture a profitable and competitive share of the rice market. SENRIZ’s failure has encouraged JICA to approach future development initiatives with a focus on incremental upgrading and sustainability (Sugiyama, personal interview, 2010).

Efforts to improve the competitiveness of quality SRV rice through differentiated brand images like Rival® and SENRIZ are incredibly important steps toward increasing the profitability of the irrigated-rice sector in Senegal. By applying value chain principles to their supply chains, PINORD and JICA help to bridge the awareness gap and increase demand for quality SRV rice. Their marketing strategies are moderately successful, with mixed results attributable to the limited scale and/or longevity of their operations. In order to realize its potential, the irrigated rice sector should invest more in value chain upgrading, end-market activities, and sustainable project implementation. The question now is: who should spearhead these funding efforts?

Funding

Until the liberalization of the rice industry in the mid-1990s, SAED was the main marketing organization for the irrigated-rice sector. However, typical of many large, bureaucratic institutions, it was often slow and inconsistent in marketing activities. Corruption and strict licensing requirements for traders and wholesalers opened the door for what Morris (1988) calls a “parallel, illegal rice supply chain” (p 265). These parallel rice-marketing systems were run by private investment and profit-motivated individuals, and created a disincentive to share marketing information among producers. In the short term these parallel marketing schemes were more effective than similar public schemes, but in the long term they could not create the scale needed to be effective and were thus unsustainable. These two approaches to rice marketing illustrate a common tension between the private and public sectors. While the Government of Senegal has continued to support production-centered R&D, it has never reclaimed its role as the primary marketing organization for the irrigated rice sector.

To get a better sense of different public and private sector approaches to funding agricultural marketing activities, we look at examples from Ghana and Nigeria. In Ghana, it is government policy that a portion of

funding for agricultural development goes toward advertising. Norman *et al.* (2008, p 731) find that mandatory programs to finance advertising “always increase social surplus” and “almost always raise welfare”. The Ghanaian government views food security as a public good and therefore believes in the importance of investing in generic promotion for locally produced staple food crops. If Ghanaian farmers can sell what they produce and help feed their fellow citizens, Ghana will be less dependent on imports and therefore less susceptible to unpredictable market activity.

Senegal could imitate Ghana’s system and make government spending on generic promotion for the irrigated rice sector mandatory, but current governmental involvement in rice marketing shows potential challenges to this approach. According to a JICA report, in Senegal too often:

information on marketing rice is not delivered properly. The collection of the rice market information is under the responsibility of the Ministry of Commerce, but the collected information has not been delivered and utilized fully. For example, information on the consumers’ taste on rice has not been transmitted to rice millers and producers. (JICA, 2006, p 121)

Until the government establishes clearer and more well-defined channels of communication from consumers to producers, marketing will be inefficient and ineffective.

In light of the limitations of public sector financing, both Ghana and Nigeria follow a shared private sector approach to agricultural marketing that may offer a more promising model for Senegal. Olam, the largest regional rice importer in Nigeria, has invested significantly in promoting local production and marketing of local rice in Nigeria and Ghana. Campbell *et al.* (2009) support Olam’s approach in Nigeria and Ghana, saying that, “one of the most important prerequisites for developing a viable strategy for rice in west Africa will be to bring the private sector into the discussion and empowering it to play a meaningful role in both designing and implementing the strategy” (p 73). Though perhaps an unexpected advocate for local rice, private-sector importers could play a key role in the marketing and promotion of quality SRV rice if they begin to see it as a viable competitor to imported rice.

Importers have emerging incentives to invest in the domestic rice industry because of price volatility and export policies, which became all too real during the food crisis in 2008. When countries like India and Thailand began placing restrictions on their exports, net-importing countries realized the real monetary risks behind import dependency. The realization that the international cereal market is increasingly unstable has led some importers to begin gravitating toward local rice. Prominent Senegalese importer Moustapha Tall has been involved in rice importation since the early 1970s and has significantly cut back his investment in the business since the 2008 crisis. Tall sees many of his fellow importers involved in a risky and unprofitable ‘race to the bottom’ as they try to beat their competitors’ prices and gain more customers. In his words, “the rice importation market is flooded and becoming less profitable. I don’t want to be a part of the race to the bottom, going from sale to sale, underbidding my competitors, and earning meager profit margins” (personal interview, 2010). Uncertainty and dubious profitability can be big motivators for businessmen like Tall. He wants to get involved in SRV rice, but like many investors has concerns about quality and supply limitations.

In addition to uncertainty, another problem for investors are pro-farmer government policies that create significant entry barriers and unforeseen risks. Wolfe *et al.* (2009, p 30–31) find that this producer-centric government attitude, “undermines the ability of private investors to access land for commercial rice production”, and that, “government strategy does not include incentives for existing commercially-minded Senegal River Valley farmers to scale-up production nor does it encourage subsistence-oriented farmers to become more commercial”. Thus, the opportunity for importers and other private investors to help increase the capacity and scale of quality SRV rice initiatives is currently contending with some strong disincentives, including the expectation that government policies that discourage commercialization may undercut any investments they make in the irrigated-rice sector. As Tall expressed, another disincentive is the lack of confidence in product quality and quantity, and the weakness of sourcing and distribution channels for quality local rice. If importers saw potential in offering quality SRV rice, one way to combat uncertainty in the product might be a small tax of 2–3 FCFA/kg on imported rice with the revenue going directly toward investment in quality enhancement and promotion. According to development consultants Gergely and Baris (2009), Dakar wholesalers who have purchased local rice and sorted it have had no trouble selling it, which may indicate potential receptivity and involvement of importers.

One such importer who is open to future involvement and investment, Marieme Diouck, says that if “Senegal wants to develop the irrigated-rice sector and put the brakes on importation, there needs to be decisive and dynamic action” (personal interview, 2010). Diouck believes that it is up to private sector actors to lead this effort because producers lack the necessary financial resources and the State has floundered in its previous attempts. She is ready to be the catalyst for change once the quality has improved and the quantity is reliable and bountiful. If Senegal wants to gradually replace rice imports with local supply and become more self-sufficient and food secure, it must first ensure higher quality and more reliable quantity of local rice, giving interested investors like Moustapha Tall and Marieme Diouck the confidence to provide the financial means.

From past government attempts at rice marketing and recent examples of successful private-sector-led marketing and promotion, it is clear that the ideal strategy for promoting quality SRV rice will somehow have to involve private sector actors. However, the report by Wolfe *et al.* (2009, p. 24) cautions that, “effectively supporting this strategy (which relies so heavily on local ownership, leadership and investment) will require clear expectations for modest and gradual progress but guarantee greater prospects for sustainability”. As Morris (1988) points out, private sector actors are notoriously driven by short-term profit prospects, which can negatively affect the sustainability of private sector initiatives. For this strategy to succeed, the private sector may thus have to learn to measure its success in years, not months. To help private sector actors feel confident in an initial investment, Wolfe *et al.* (2009, p 24) suggest that, “a USAID project could develop an umbrella branding strategy for local rice that individual firms could exploit or buy into”. Importers in Senegal already have one quality rice brand, Rival®, to source from and several other rice value chains that are being developed. Now, it is just a matter of gaining confidence in the reliability and consistency of product quality and availability. In order to convey this confidence, value chain pioneers like PINORD need to continue with their strategies for enhancing quality and eliminating inefficiencies. In time, through advertising and generic promotion efforts, it is to be hoped that importers and other potential private sector investors will see an increasingly stable opportunity for new profits and supporting their local communities.

Conclusions

Decreasing the awareness gap through advertising, generic promotion and other value chain strengthening tactics can have an impact on the competitiveness of quality SRV rice. PINORD and JICA have begun to develop rice value chains for quality SRV rice, going so far as to offer differentiated brand identities, Rival® and SENRIZ. While these efforts are a good start, they are not a panacea. The main challenge confronting these initiatives is scale, or the lack thereof, when it comes to the supply and recognition of quality SRV rice.

More fundamental is that the SRV is not maximizing its production potential. AFD consultants Gergely and Baris (2009) calculate that there are 347 000 ha of irrigable land in the SRV, of which only 135 000 ha are being used. This constraint on production potential can largely be explained by the lack of access to credit, land tenure issues, weeds and birds, and a lack of price incentives for producers. The irrigated rice sector in Senegal is riddled with monopolies: the government has a monopoly on fertilizer and the Caisse Nationale de Crédit Agricole du Sénégal (CNCAS) has a monopoly on credit. These limitations are further compounded by the requirement that farmers use certified seeds in order to qualify for a CNCAS loan. The certification process itself is incredibly complex and thus exclusionary. These monopolies and certification schemes create huge bureaucratic and institutional inefficiencies, and limit the ability of farmers to scale up their operations.

With such a limiting input structure, only a third of all irrigated rice produced in the SRV is sold commercially. The rest is sold to informal traders called *bana-banas* in irregular quantities at sporadic intervals, or is used for home consumption. The quantities that farmers do sell are mostly sold in order to recuperate funds needed to repay credit taken out prior to the season. The informal trade with *bana-banas* seriously weakens vertical linkages between producers and traders, but without better chain-wide governance, farmers are left with few other options. Farmers have begun to band together through cooperatives with help from organizations like PINORD and JICA, who help them to aggregate rice supply for commercial sale. PINORD and JICA have enabled substantial progress in supply chain management, but have yet to help farmers achieve the capacity and scale needed to control a significant and profitable market share.

Another natural aggregation point for supply would be with traders and processors, but the lack of capital and the prevalence of small quantities, irregular interval trading (*bana-banas*) again undermines this potential by creating major inefficiencies further downstream. In order to combat these inefficient institutions for credit and inputs, and a lack of processing infrastructure, Swinnen *et al.* (2007, p 93) suggest that value chains may be put in place to, “assure consistent, reliable, quality, and timely supply” to markets. They say that if a staple food commodity sector is to create a big enough surplus and have it properly distributed to markets to contribute to economic growth and poverty alleviation, private governance and interlinking of markets will be essential (Swinnen *et al.*, 2007, p 27–28). Again, PINORD and JICA have made substantial headway in this department, but their efforts are far from enough to increase the competitiveness of quality SRV rice to a point where it can begin to erode import dependency and enhance food security.

Another problem of scale confronting the development of the SRV irrigated-rice sector is the extent of consumer awareness and the prevailing trends of consumer preferences for imported broken rice. The average household expenditure in urban areas in Senegal is 2500 FCFA per day, 30% of which is spent on rice (Fall and Diagne, 2008, p 10). Fall and Diagne (2008, p 11–12) also find that over 90% of urban consumers purchase imported broken rice and only 7% purchase local rice. With 60% of the population predicted to be living in urban areas by 2020, rice — a staple component of the urban consumer’s diet — is unlikely to experience a decline in consumption (Wolfe *et al.*, 2009, p 14). If the Senegalese irrigated rice sector is to survive it will need to take a larger share of this essential market. Consumer preferences are deeply embedded in the psyche, but are not unchangeable. Rice value chain pioneers must continue to develop strategies to change the consumer

mindset on local rice. Other private actors and international organizations need to work with value chain initiators to increase the competitiveness of quality SRV rice and change Senegal's position as the largest importer of broken rice in the world (Campbell *et al.*, 2009, p 10).

What is at stake goes beyond the livelihoods of SRV rice growers and the economic viability of the irrigated rice sector. In the broader context, rice value chain development and upgrading have significant implications for food security, poverty alleviation and overall economic development in Senegal and the rest of west Africa. Therefore, initiatives to better understand and transform consumer preferences for rice are an essential component of any self-sufficiency or development strategy involving national rice production in Senegal and beyond.

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