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Partnerships for impact

Africa Rice Center (AfricaRice) – Annual Report 2014

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Cover: Women grading parboiled rice in Malanville IP.

technological and biophysical issues (e.g. what variety is best suited to the local environment? how can we make parboiling more efficient?) and issues related to collective action, learning and knowledge-sharing.

Meanwhile, through the Global Rice Science Partnership (GRiSP), AfricaRice is also working at other levels to try to maximize the potential of the technologies (including development approaches) coming out of the hubs. GRiSP conducts policy research and advocacy to provide a suitable political environment for the rice sector to flourish. It also provides capacity-strengthening for partners to facilitate scaling up and achieving impact.

The IPs set an example of how diverse stakeholders can work together to achieve positive change, and the fact that individual communities benefit from being part of a hub and having an IP is indisputable. But the IPs and hubs are really only the testing and proving beds for technologies. AfricaRice simply does not have the resources to make all the good outputs from the hubs available to rice value-chain actors across the continent. That is where the 'scaling partners' come in. AfricaRice therefore documents all of the 'scalable technologies' (products and services) and makes them available via the Rice *e*Hub (www.ricehub.org) in various formats, including video. It also brings scaling partners together at innovation fairs to showcase the latest technologies. These scalable technologies are thus available for scaling partners to pick up, test, adapt and disseminate as they see fit, and with their own resources.

"Scaling partners from the private and public sectors may run with 'our' scalable technologies," says Wopereis. "What we want to achieve is that they report back on performance of technologies and on (gender-disaggregated) uptake." In that way, AfricaRice will be able to draw on its own M&E in the IPs and hubs, and profit from information coming out of the scaling partners' M&E to see more clearly how all these joint efforts are contributing to the intermediate development outcomes of the GRiSP 'Results Framework', which in turn feed into the CGIAR System-level Outcomes and the global Sustainable Development Goals.

Nigeria Rice Transformation Agenda

Nigeria is one of the biggest countries in Africa; it is also the most populous and produces more rice than any other country on the continent (and roughly on a par with Madagascar). It is therefore hardly surprising that AfricaRice and Nigeria have a special relationship. In the past few years, AfricaRice has provided input into the rice component of Nigeria's Agricultural Transformation Agenda (*see also* 'Case study: Nigerian Rice Transformation Agenda', *AfricaRice Annual Report 2013*, pages 14–15).

Taken as a whole, the Rice Transformation Agenda (RTA) was a complex set of partnerships, primarily initiated by the federal government to boost the Nigerian rice sector through to self-sufficiency.

AfricaRice's involvement was diverse: secondment of three senior staff to the Rice Value Chain (unit) of the Federal Ministry of Agriculture and Rural Development (FMARD); seed supply and seed systems development; and rice-sector mechanization. Its roles include provision of professional personnel (their time, knowledge and skills), seed, thresher–cleaner, training and other capacity-development inputs. The AfricaRice partnerships span from the federal ministry to farmers (especially if one includes the Nigerian rice sector development hubs where AfricaRice-led task forces are active on the ground). The novel partnerships, however, are those with the private sector.

Giving our best technologies for adoption in Nigeria

Contrary to what any commercial organization might do, AfricaRice is not averse to handing over its technologies to the private sector for scaling up to

a far greater client base than AfricaRice could ever hope to reach on its own. How else are we going to help countries such as Nigeria achieve their goal of rice self-sufficiency? In the context of the RTA, the two technologies in question are the thresher–cleaner and seed of improved rice varieties.

Mechanization

In 2013, AfricaRice took one of the 'ASI' thresher–cleaners from Senegal to Nigeria, along with its 'father', Malick Ndiaye. A 2-week intensive training workshop ensued at the National Centre for Agricultural Mechanization (NCAM) for 24 young engineers from 13 Nigerian manufacturing companies. These engineers built the first thresher–cleaners in Nigeria, which were branded ATATC for 'Agricultural Transformation Agenda Thresher–Cleaner'. One of the NCAM engineers was tasked with producing engineering drawings and specifications of the prototypes for subsequent evaluation and distribution. At the training workshop itself, five ATATCs were built, and subsequently 10 ATATCs were distributed to the main dry-season rice-growing states of the country to raise awareness of their existence and the value of using them.

After the training workshop, the attendees were given (yes, given!) copies of the technical drawings and specifications to take back to their companies for fabrication of a fleet of ATATCs to meet the growing demand (*see also* Box: 'Not just the private sector: Major adoption of the ATATC by the public sector in Nigeria'). Subsequently, six companies in six states started producing their own versions of the ATATC. Typical adaptations to the NCAM prototype have been to make the thresher–cleaner smaller and to add various components.

The ATATC manufacturers have won contracts from government, individuals and commercial farms.

Not just the private sector: Major adoption of the ATATC by the public sector in Nigeria

The Rice Value Chain organized demonstrations and market exposure of the ATATC in rice-farming communities across the 10 key rice-producing states in September–October 2014. As a result of the machine's success, the Federal Department of Agriculture (of FMARD) is no longer buying other sorts of threshers, and is to procure 200 ATATCs from local (private-sector) fabricators.

The ATATC has also been approved as cleaning equipment by the country's paddy-aggregation centers. The ATATC technology was adopted by the International Fund for Agricultural Development (IFAD) for a television documentary to create awareness.

The Minister of Agriculture showed a video on the ATATC to the governor of the Central Bank of Nigeria, who consequently promised to support promotion of the machines.

Seed

Another major element of the RTA was seed systems development. AfricaRice's 'normal' responsibility to its member states is to provide Breeder Seed of the required rice varieties, which the public sector (commercial seed producers) and private seed companies then multiply to Foundation Seed and from Foundation to Certified Seed, which is 'sold' to farmers. However, the public sector in Nigeria does not have the capacity to produce enough Foundation Seed, so AfricaRice has stepped into the gap by providing Foundation Seed both to the public sector and direct to the commercial seed producers. It is actually quite unusual for rice farmers to use Certified Seed, as they more often rely on the self-fertilizing nature of rice and save some of their grain to use as seed the following season. However, Certified Seed is generally of better quality than self-saved seed, so the government opted to subsidize it through a national Growth Enhancement Support (GES) program. Under

AfricaRice is working with the University of Milan to develop rice pastas. Who better to work with on pasta than an Italian university? "We are testing 100% rice pasta," explains Manful, "which has advantages over both wheat pasta and boiled rice." Rice is gluten-free, which means that it is a good starchy staple for those with gluten-related disorders. It has also been shown that rice pasta is more slowly digested than boiled rice, which aids in the management of type 2 diabetes. "We have developed many rice-pasta products," says Manful, "for which we are currently conducting consumer tests."

Parboiling (boiling or steaming paddy prior to milling) is becoming increasingly popular as a means of improving the quality and milling recovery of local rice in several parts of Africa. A secondary effect of parboiling is that it slows the digestion rate of rice. Having introduced improved parboiling techniques to several countries in the region (most recently through the rice sector development hubs), AfricaRice is now working with McGill University (Canada), the University of Milan and NARS partners in Cameroon, Ghana and Nigeria to improve the parboiling process to optimize the digestive rate of rice for those with type 2 diabetes.

"All of this work is being carried out under the broader framework of the Africa-wide Rice Processing and Value Addition Task Force," says Manful, "and validated technologies from the research are shared with all partners within the task force."

Smart-valleys

The 'Sawah, market access and rice technologies for inland valleys' (SMART-IV) project, which ran from 2009 to 2014, developed a method for the participatory development of inland valleys for rice-based systems. In 2014, the method was renamed from 'Sawah system development' to 'Smart-valleys', which is also the name of the follow-up project to SMART-IV.

The method itself has already been described in detail (*see* 'Working with farmers to improve water control in inland valleys', *AfricaRice annual report 2012*, pages 14–16). In summary, the Smart-valleys approach involves five steps:

1. Raising farmers' awareness of the system
2. Clearing the land
3. Designing the system
4. Implementing the system (putting the infrastructure in place)
5. Cultivating rice.

Since 2014, the project has focused on scaling up the method to more inland valleys. Originally promoted and implemented in Benin (5 sites) and Togo (7 sites), the Smart-valleys method had been extended to 139 sites by the end of 2014.

Scaling up

Scaling-up has been accomplished in partnership with national partners Cellule Bas-Fond (CBF, Benin) and Institut togolais de recherche agronomique (ITRA, Togo), plus three NGOs in Togo: Entreprises, territoires et développement (ETD), Groupe de recherche-action pour l'éducation au développement (GRED) and Women in Law and Development in Africa (WiLDAF). There are two main elements of the scale-up: capacity-building and demonstration sites.

The project also set about raising the visibility of the Smart-valleys method within the countries. A 'harvest celebration' was held in Benin, to which officials from the extension service, the Agricultural University of Kétou and the Ministry of Agriculture, Livestock and Fisheries were invited. Smart-valleys was also showcased at the 'Rice Innovations Fair' held at AfricaRice Cotonou for the agricultural development sector, including representation from the Embassy of Japan in Benin, farmer organizations and NGOs (*see also* 'Scalable rice technologies', page 58). The project also contributed to the national strategy for

Scenes from Smart-valley developments in Kara region, northern Togo

inland-valley development in Benin that is being developed by the Ministry of Agriculture, Livestock and Fisheries.

A set of three training sessions was developed for field technicians from the extension services, ministries of agriculture and NGOs. These comprised: (1) Smart-valley site selection and validation; (2) participatory development of the inland-valley site; and (3) maintenance of the site (infrastructure) and soil-fertility management. Separate sessions were also provided for lead farmers to enable them to act as peer trainers in their inland valleys.

Smart-valley promotion has targeted the three agroecological zones in each country, establishing demonstration sites in each zone. The demonstration sites were used not simply for demonstrating the technique, but also for the training sessions and additional 'on-the-job' training of farmers.

Nine training sessions — site selection and validation (4), participatory development (2), site maintenance (2) and lead farmers (1) — held between November 2011 and August 2014 reached over 148 field technicians and about 47 lead farmers. Meanwhile, the 'on-the-job' training reached an additional 502 local farmers. Further sessions on participatory development and site maintenance were planned for 2015; the latter under the Togolese National Agricultural Development Project (PADAT).

A 40-minute video was produced as an additional awareness-raising and training tool, and a guide for field technicians is being prepared. With these, plus the field technician and lead farmer curricular, scaling up should be further accelerated.

Adaptation and benefits

In 2014, Smart-valleys were established at 39 sites in Benin, covering 101 ha and involving 446 farmers (231 of them women). Meanwhile, in Togo the figures were 100 sites, 132 ha and 1040 farmers (587 women).

Adoption of the Smart-valleys approach has increased farmers' average rice yields and gross margins. In Benin, for example, gross margins from Smart-valleys averaged FCFA344,249 (US$ 700) per hectare, compared with FCFA129,456 ($260) for traditional rainfed cultivation. The large increase 'attributable' to the Smart-valleys approach in Benin was aided by the farmers' use of certified rice seed, as demonstrated by the figures from Togo (where certified seed was not used): FCFA253,990 ($500) for the Smart-valleys and FCFA165,746 ($360) for traditionally managed rice.

Some 52 farming 'systems' that included the Smart-valleys approach were identified. The most profitable

was Smart-valleys applied in lowland plus fertilizer (nitrogen, phosphorous and potassium [NPK], and urea), NERICA varieties and no herbicide, with a gross margin of FCFA503,197 ($1000).

The future

The approach will be further integrated with the activities of the AfricaRice rice sector development hub. The second phase of the Smart-valleys project will focus on the evaluation and introduction of tools in the Smart-valleys sites to improve rice production while reducing labor. These include *Rice Advice*, mechanical weeders and reapers. The second phase of the project will also see expansion into Liberia and Sierra Leone.

In Benin, the approach is being used in a new project funded by the Islamic Development Bank. It is also being included in proposals for further scaling out the approach in Benin and Togo.

Mural at AfricaRice Sahel regional station, Ndiaye, Saint-Louis, Senegal