AfricaRice

Towards rice self-sufficiency in Africa

Africa Rice Center (AfricaRice) – Annual Report 2016

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Cover: Modern rice mills, such as the Mukunguri Rice Mill in Kamonyi District, Southern Province, Rwanda, play an important role in national rice development programs.

About Africa Rice Center (AfricaRice)

AfricaRice is a CGIAR Research Center — part of a global research partnership for a food-secure future. It is also an intergovernmental association of African member countries. The Center was created in 1970 by 11 African countries. Today its membership comprises 26 countries, covering West, Central, East and North African regions, namely Benin, Burkina Faso, Cameroon, Central African Republic, Chad, Côte d'Ivoire, Democratic Republic of Congo, Egypt, Ethiopia, Gabon, The Gambia, Ghana, Guinea, Guinea-Bissau, Liberia, Madagascar, Mali, Mauritania, Niger, Nigeria, Republic of Congo, Rwanda, Senegal, Sierra Leone, Togo and Uganda. AfricaRice headquarters is based in Côte d'Ivoire. Staff members are located in Côte d'Ivoire and also in AfricaRice research stations in Benin, Ghana, Liberia, Madagascar, Nigeria, Senegal, Sierra Leone and Tanzania.

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Out-scaling Smart-valleys to boost rice productivity

Africa's inland valleys — the future food baskets of the continent — occupy an estimated 190 Mha.[1] The Smart-valleys approach begins by establishing a development plan in collaboration with farmers. This involves the identification of appropriate inland-valley sites for rice production (suitable land, access to markets, site and soil assessments), then the organization of local farmers for clearing the lowland and assessing its characteristics (especially water-flow routes); constructing infrastructure (canals, bunds, land-levelling); producing rice using appropriate technologies; and end-of-season maintenance.

"In general, any inland valley with U shape and with surface area larger than 5 ha can be considered suitable for Smart-valleys," says AfricaRice post-doctoral fellow in agriculture and climate change Elliott Dossou-Yovo. "However, the success of the approach depends more on the participation of farmers and on socioeconomic conditions including land tenure and market opportunities."

The Smart-valleys approach has its origins in the *sawah* system development, tested and refined in Togo from 2004. AfricaRice further refined the approach in Benin under the 'Sawah, market access and rice technologies for inland valleys' (SMART-IV) project (2009–2014). By the end of the SMART-IV project, 139 operational sites had been established, and farmers were duplicating the approach on their own land. Moreover, around 2000 farmers (55% women), 87 technicians and 47 lead farmers had been trained in Smart-valley development.

Participating farmers achieved significant yield increases: from the less than 2 t/ha previously to more than 3.5 t/ha. In addition, their gross revenue had increased from between 136,000 FCFA (US$ 241) and 233,000 FCFA (US$ 413) to between 250,000 FCFA (US$ 443) and 417,000 FCFA (US $740). Farmers testify that they are now less vulnerable to drought, flooding and crop failure, and therefore can afford to invest in inputs (seed, fertilizer) to increase rice productivity.

In light of the improved yields and income observed in Benin and Togo, the Smart-valleys approach is now considered as one of AfricaRice's scalable technologies for promotion throughout the continent, and is being demonstrated at various locations, especially within the rice sector development hubs. Demonstration has continued in Benin and Togo, since early 2016, with the 'Novel approaches for efficient targeting and equitable scaling of rice technologies' (ETES-Rice) project. In this project, the focus has specifically been on women and youth, with 40 technicians trained in the two countries in 2016. The approach is also being scaled out in Liberia and Sierra Leone.

Awareness creation of Smart-valleys among African governments, donors and development partners is being carried out through meetings, technical and policy briefs, and the development of a video. As a consequence, Smart-valleys is now included in Benin's agricultural agenda, led by the country's ministry of agriculture, livestock and fisheries.

Training provided in the Smart-valleys approach by AfricaRice in 2014 for the NGO Women in Law and Development in Africa (WiLDAF) resulted in the development in 2015 of nine sites totaling over 3.9 ha in Togo. Within a period of 9 months, neighboring rice farmers had achieved yield increases of between 100% and a massive 441%, over 1.55 ha. In 2016, GFA Consulting Group GmbH (funded by GIZ) recruited Dominique Hounton, a former technician of the SMART-IV project, to provide support to rice farmers in the development of an inland valley in Materi, northern Benin. Satisfied with the results, GFA Consulting Group plans to train seven field

[1] "Based on FAO and national databases, in particular FAO TERRASTAT (2003)" (Rodenburg J. 2013. Inland valleys: Africa's future food baskets. In Wopereis MCSW, Johnson DE, Ahmadi N, Tollens E and Jalloh A eds. *Realizing Africa's Rice Promise*. CAB International, Wallingford, UK).

technicians and develop more inland valleys using the Smart-valleys approach in 2017.

Ongoing plans aimed at increasing the adaptive capacity of Burkinabe farmers through climate-smart rice technologies, with a particular focus on Smart-valleys, will be implemented through the project 'Climate-smart rice technologies to enhance resilience of smallholder rice farmers in Burkina Faso' (CSA-Burkina), that will begin in 2017. AfricaRice itself plans to scale out Smart-Valleys to other countries, including Côte d'Ivoire and Ghana.

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Top: Construction of Smart-valley main canal, Materi, Benin. Bottom: Growing rice crop, Smart-valley, Materi, Benin