The African Rice Initiative: Taking the NERICAs to Sub-Saharan Africa

A DYNAMIC strategy to alleviate poverty and bring food security to Sub-Saharan Africa—the African Rice Initiative—was launched by Pascal Affi N'Guéssan, Prime Minister of Côte d'Ivoire, at a special ceremony in the Ivorian capital Yamoussoukro on 27 March 2002. The launching ceremony was the climax of a year of intense activity on the part of WARDA and its partners. We look at the development of the Initiative and what it hopes to bring to the beleaguered rice farmers of Africa.

At the turn of the millennium, WARDA's work on the New Rice for Africa (NERICA) was reaching a watershed. Two species of cultivated rice had been successfully crossed for the first time in history, and a 'new biodiversity' was born in the shape of rice plants that combine the rugged adaptation to the local upland ecology of the African parent with the yield potential of the Asian parent. Numerous on-station and on-farm evaluations had confirmed everybody's dreams: the NERICAs competed with weeds better than their Asian parents, they didn't fall over or shed their grains before harvest like their African parent, and they frequently outyielded the best of the Asian varieties on farmers' fields.

Participatory varietal selection (PVS) had then taken NERICAs straight to the farmers, who voiced their approval loud and clear. As one farmer said at the launching ceremony, "Local farmers call the NERICAs 'ADRAO rice' [ADRAO is the French acronym for

The product: NERICA in a farmer's field

The goal: happy and food-secure rice farmers

WARDA] ... I especially like the taller ADRAOs because they are easier to harvest. They compete well with weeds... [they] have good cooking quality ... In fact, I like to eat the ADRAOs better than the glaberrimas." The glaberrimas are the indigenous African varieties that are usually favored over the Asian varieties for their taste and eating quality!

When PVS demanded more seed, the community-based seed system (CBSS) enabled farmers to produce their own seed and enough for their communities. The PVS methodology had spread to all 17 WARDA member states, and NERICAs were also being tested elsewhere on the continent, in such countries as Uganda and Zimbabwe. In December 2000, the first two official releases of NERICA varieties occurred—in Côte d'Ivoire, WARDA's host country. Meanwhile, five NERICAs were under wide-scale production in Guinea. In fact, in 2000, Guinea was on schedule for rice self-sufficiency by 2002 through a government-supported drive to revitalize the rainfed rice sector with a program that relies heavily on NERICAs.

"NERICAs had proved their worth and were growing beyond all expectations," says a proud Monty Jones, WARDA's Deputy Director for Research, Rainfed Rice Program Leader, and spearhead of the NERICA research activity. "In fact, the NERICAs were fast out-growing WARDA and taking on a life of their own."

Thus, in late 2000 and early 2001, Jones and other research leaders in WARDA started to work on a framework to take NERICAs onto a higher plane. In April 2001, WARDA hosted an International Workshop on NERICA-based Food Security in Sub-Saharan Africa. The workshop brought together over 90 participants, including ministers and deputy ministers from WARDA member states, the President of the Rockefeller Foundation, senior officials from the World Bank, the African Development Bank and the United Nations system, and agricultural researchers. The workshop participants endorsed the creation of a new consortium partnership—the Consortium for NERICA-based Food Security in Sub-Saharan Africa, or NERICA Consortium for short. "With all the stakeholders and donors behind us, we spent the next year developing the consortium concept into a realizable project," says Jones. The result is the African Rice Initiative, or ARI.

Political support at the launch

On 26 March 2002, rice stakeholders from Sub-Saharan Africa came together at WARDA Headquarters to discuss the project proposal. The day ended with representatives of the seven designated 'pilot' countries signing the ARI agreement document.

The launching ceremony itself was held on 27 March at the Houphouët-Boigny Foundation for Peace at Yamoussoukro, Côte d'Ivoire. The more than a hundred delegates comprised governmental ministers, diplomats, agricultural scientists and farmers, and representatives of donor agencies, NGOs and the ARI participating countries.

"The fact that WARDA is an intergovernmental association of member states plays a significant role in assuring political support for our work," explains Director General Kanayo F. Nwanze. "The ARI is no exception. The Guinea experience showed us that the potential of the NERICAs can only be achieved when there is strong political support and relevant policies to make the rice sector work." WARDA member states were represented at the launch by ministers and deputy ministers from Benin, Côte d'Ivoire, The Gambia, Guinea and Togo. One of the key speakers at the launch was Théophile Nata, Minister of Agriculture, Animal Husbandry and Fisheries in Benin, and Chairman of the WARDA Council of Ministers—WARDA's highest governing body. "Results of 30 years of research are before us," Nata said, alluding to WARDA's recently celebrated 30th anniversary, "let us succeed together at something that is at our fingertips."

Foci of the Initiative

"The ARI is more than just the NERICA varieties," explains WARDA Director of Research Günther Hahne, "there are also complementary technologies to enhance soil fertility and make rice farming more sustainable."

"In addition, the Initiative will address the broader issues of policy environment and agro-industry," explains WARDA Policy Economist Frédéric Lançon. "After all, there is no point in increasing farm yields if the surplus rice cannot be sold!"

Many of these technologies have been reviewed in the pages of earlier Annual Reports—for example, the

Signing the Project document

From left to right: Bino Teme, Director General, *Institut d'économie rurale*, Mali; Hassan Sallah, Secretary of State, Department of State for Agriculture, The Gambia; Sery Bailly, Minister of Higher Education and Scientific Research, Côte d'Ivoire; Théophile Nata, Minister of Agriculture, Animal Husbandry and Fisheries, Benin; Elie Fassou Damey, Secretary General, Ministry of Agriculture and Animal Husbandry, Guinea; Kanayo. F. Nwanze, Director General, WARDA; Comla E. Paka, *Directeur de cabinet*, Ministry of Agriculture, Animal Husbandry and Fisheries, Togo; P-Justin Kouka, Assistant Director for Corporate Services, WARDA (assisting)

use of rock-phosphate as an alternative to expensive mineral fertilizer, and the WARDA-promoted thresher–cleaner to improve the quality of locally produced rice.

The focus of the first few years of the Initiative is the rainfed upland ecology. It is here that 40% of the West African rice area is found, and the first generation of NERICAs was developed for just this ecology. "From the third year of the Initiative, we expect to have new NERICA material for the rainfed lowlands," explains Jones, who worked with crop ecophysiologist Koichi Futakuchi to develop and test lowland material during the period when there was no lowland-rice breeder at WARDA, from mid-1999 to mid-2001.

What is more, "the ARI goes beyond the NERICAs even at the variety level," Jones explains. "We do not want to replace local varieties, but rather to encourage farmers to integrate NERICAs, and other new varieties, into their existing varietal portfolios." In this way, the Initiative should increase on-farm biodiversity. Consultant writer and long-time rice enthusiast, Tom Hargrove notes: "the strategy differs significantly from the Green Revolution in Asia where, initially, only one rice variety was spread widely. ARI advocates the introduction of a multitude of varieties, giving the farmers the option of choosing distinct rices for different needs."

Although the ARI is open to any Sub-Saharan African country, the initial focus is on seven West African 'pilot' countries: Benin, Côte d'Ivoire, The Gambia, Guinea, Mali, Nigeria and Togo. "Selection of pilot countries was based on each country's proportion of upland rice ecology, progress in NERICA evaluation and diffusion, experience in PVS and CBSS, and potential linkages to other food-security and poverty-alleviation projects, especially for women farmers," explains Nwanze. At the same time, NERICAs will be promoted—principally through PVS activities—in the remaining 10 WARDA member states, and in eight countries in East and Southern Africa.

Structure and function

"Each year, there is an increasing number of rice-related research-and-development activities in the region," explains Jones, "and there are opposing risks of either overloading some workers or else promoting disparate activities with no interrelation or communication among them." For this reason, the ARI seeks to use the most appropriate structural components from partnerships that have already proved successful, and to work alongside existing structures. "In particular," Jones notes, "we have adopted the Consortium Management Committee from phase 2 of the Inland Valley Consortium (IVC), and intend to work very closely with colleagues in ROCARIZ [*Réseau ouest et centre africain du riz*, the Rice Research and Development Network for West and Central Africa]."

Each pilot country is expected to establish a NERICA team from its existing pool of rice workers, and to identify a national coordinator. This is a structure essentially borrowed from the IVC, but its composition will be rather closer to that of ROCARIZ.

Meanwhile, a Consortium Coordinator will be appointed and a Secretariat established at WARDA's headquarters. The Secretariat will help develop training materials on ARI-promoted technologies and organize 'train the trainer' courses, it will also promote and facilitate information exchange among participating countries and players.

The ARI will have two main components: a Stakeholders' Platform and a Research Network. The Stakeholders' Platform will determine the goals of the Initiative and promote wide dissemination of NERICAs and complementary technologies. It will be composed of research and extension personnel from national programs, NGOs and farmers. The Research Network will play the complementary role of evaluating technologies in farming systems, and monitoring how farmers perceive them. The Research Network will also integrate components to improve farming systems still further, and be responsible for on-going technology

development of both biological and socio-economic components.

The Research Network will share its findings with the Stakeholders' Platform, so that they can be adapted on target farms. The Network will also provide feedback into research and development in the national programs and WARDA. The Research Network will comprise two coordinators—one for each of two research themes—and 10 PhD students recruited from within the region (not all necessarily from pilot countries). In addition, the ARI will seek additional funding for full-time communications specialist and technology module developer.

In the first year, each pilot country will hold a stakeholders workshop to identify existing knowledge and technologies, and identify key research sites. The key sites should overlap with those of existing programs, so as to maximize research efficiency. Rapid surveys will be conducted to identify (potential) bottlenecks to technology dissemination, on the basis of which scaling-up strategies will be developed. Strategies will be reviewed and input from the Research Network integrated at a second stakeholder workshop in the third year.

On the ground

"PVS and CBSS will be principal mechanisms for the wide-scale dissemination of NERICA and complementary technologies," explains WARDA Technology Transfer Agronomist Toon Defoer. However, under the guidance of Defoer and WARDA's Participatory Rice Improvement and Gender/user Analysis (PRIGA) network, PVS has evolved. "Now, instead of stopping at the third year with farmer adoption through seed purchase," continues Defoer, "we initiate a new two-year extension-led PVS at the same time as the research-led phase moves into its final year."

In PVS-extension, development and extension agents from the national program, research organizations, NGOs and the private sector take the lead in taking new varieties to 'new' farmers (that is, farmers not previously involved in the PVS-research). "This is truly scaling up," enthuses Defoer, "as these extension teams work with 400 to 500 farmers at a time—a scale at which the research-led phase couldn't possibly hope to operate." (*See* Box.)

PVS-extension: A first step in scaling up

As its name suggests, PVS-extension is led by development and extension agents, rather than by researchers.

PVS-extension starts in the third year of the PVS-research process, so that it runs simultaneously with the final year of PVS-research in a given site (agro-ecological setting).

The extensionists take the top four varieties selected by farmers at a specific PVS-research site to groups of 400–500 previously unexposed farmers in the same general area as the PVS-research (varieties are selected for site-specificity). They also provide the farmers with simple evaluation forms, highly illustrated for ease of communication and recording with illiterate farmers. These forms list the selection criteria for varieties identified by farmers in the research phase.

PVS-extension participants grow the varieties in their own fields next to their usual varieties (much as in PVS-research year 2). They are then asked to evaluate the new rices at maturity and post-harvest. The farmers are encouraged to meet and discuss their observations and views of the new material.

Thus, PVS-extension provides a check on the validity of data gathered through PVS-research. The results are compiled and distributed to breeders, national seed boards, and community-based seed producers.

As larger groups of farmers are involved in PVS-extension than in PVS-research, the PVS-extension provides further validation of the outcome of the research phase. Breeders can use this feedback to refine their breeding goals for appropriate varieties. All the information generated from PVS-research and PVS-extension, combined with data from formal variety evaluation on station, are compiled and provided to the relevant seed-release body. The release board can then see at a glance exactly which varieties are popular among the farming communities and promote them to pre-release demonstration trials and subsequently release them. For CBSS practitioners, it is clearly advantageous to know which varieties are preferred by their communities, so that they can be targeted for seed-multiplication.

Prospects

Given the success and rapid impact of NERICAs in Côte d'Ivoire and Guinea, the United Nations Development Programme projects that 1.7 million farmers will be growing almost 210,000 ha of NERICAs in West and Central Africa by 2006. This would provide savings of up to US$88 million per year that would otherwise be spent on rice imports.

The first phase of the ARI is expected to cost $15 million for five years. Donors already 'on board,' inasmuch as they have expressed interest in funding certain aspects of the work, include the Government of Japan, the United Nations Development Programme, the World Bank, the Rockefeller Foundation, the African Development Bank, the United States Agency for International Development, the International Development Research Centre (Canada) and the Food and Agriculture Organization of the United Nations. However, ARI activities can only start in earnest when that money is in the bank.

"With the launching of ARI, we are releasing control of the NERICAs to other stakeholders who can take them to the next plane," says Nwanze. "Our job is to produce technologies that will make the lives of poor rice farmers easier. The evidence shows that the NERICAs clearly fit into that category. Now it is time to hand them over to those who can best put them to their intended use."

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