

➔ WEST AFRICA: HARVESTING A NEW RICE THROUGH SOUTH-SOUTH COOPERATION

In a Nutshell

Capacity development involving South-to-South transfer of technology, resources and personnel is not a new concept. But it is increasingly talked about as an alternative to conventional technical cooperation models, where the resource imbalance between the North and South is further accentuated by the asymmetry of modern scientific knowledge. The following case illustrates how capacity development took place through transfers and cooperation between Asian and African countries, with donors playing a facilitating rather than supervisory role.

The experience involved the cross-breeding of African and Asian rice to produce a high-yield, high-protein variety that grows well in difficult ecosystems in Africa. An umbrella organization of 17 African countries played a critical role, overseeing the technical, social and commercial aspects and managing the transnational collaboration. Donors, research institutes, private foundations and universities worked together to ensure that the rice variety was widely adopted.

The Story

Poor farmers in West Africa missed the Green Revolution, which changed the lives of their counterparts in Asia. High-yield varieties of rice, the staple of Asia's leap towards food security, required external inputs like fertilizers, which were not readily available in West Africa. There the challenge was to boost agricultural productivity without a major increase in external inputs; conserve and even improve the environment; benefit poor farmers; and most importantly, incorporate indigenous knowledge systems while encouraging farmers to participate in and take ownership of the changes. Essentially, West Africa needed to develop technologies adapted to the Sub-Saharan environment, rather than modifying the environment to fit the technologies.

The African indigenous rice strain, while resistant to local diseases and suited to the fragile upland ecosystems of the region, did not produce the high-yield crops of the Asian strains. However, demand for rice in West Africa was far outstripping production. A response was urgently needed.

It came in the form of the West African Rice Development Association (WARDA), a regional institution born of technical cooperation support from donors. Comprised of 17 West and Central African member states, its mission is to contribute to food security and poverty eradication, particularly in West and Central Africa, through research, partnerships, capacity strengthening and policy support related to rice.

In considering the introduction of new strains of rice, WARDA played a convening role, bringing all the actors together and marshalling appropriate resources. The first challenge was to develop a variety that combined the resilience of the African strain with the productivity of the Asian version. WARDA achieved this by turning to resident researchers from FAO, the Japanese International Cooperation Agency (JICA), and UN volunteers from Myanmar and the Philippines.

Once the strain was developed, the challenge was to put it through trials and then distribute it widely. Field pilots were conducted under the aegis of a Japan/US collaborative programme with additional technical cooperation from Japan, the UNDP Technical Cooperation for Developing Countries (TCDC) programme and the Rockefeller Foundation. Specialist inputs poured in from Cornell University, the French Institut de recherche pour le développement (IRD, a research institute), the International Rice Research Institute Philippines, the Colombian Rice Research Institute, the universities of Tokyo and Kyoto, the Japan International Research Centre for Agricultural Services, and Chinese research agencies. Through these efforts, the generic strain New Rice for Africa (NERICA) was born. Today, it has 3,000 lines.

Over the long term, the stability and resistance of NERICA is expected to reduce the risk associated with rain-fed rice cropping and increase productivity. This will give farmers incentives to use more inputs, intensify land use and gradually abandon the practice of shifting cultivation, thereby improving the sustainability of cropping in Africa's fragile uplands.

All along, the idea has been not to replace local varieties, but rather to promote the integration of NERICA into existing farms, with complementary technologies, sound natural resource management, and improved rice marketing and distribution systems. With the new strain, an innovative field trial and assimilation process, called the Participatory Varietal System, has been designed to enable "mix-and-match" options for farmers as they assess optimal outputs. This ensures that they do not forfeit traditional rice varieties completely.

Another issue relates to seed production and distribution, notorious bottlenecks in the dissemination of new crop varieties, as national seed systems are too often under-resourced and therefore unable to meet production needs. Since the rapid adoption of NERICA has fomented a demand for efficient seed multiplication, an alternative supply mechanism for small-holder farmers has been introduced. It involves certification only of the foundation seed, rather than waiting for mass quantities to be produced. This reduces the time required for seeds to reach farmers, and depends on farmers' practices and indigenous knowledge for mass production.

While NERICA has been an essentially endogenous process, an ever-growing number of donors have poured funds into some aspect of its development and spread. The World Bank and the African Development Bank are the latest to join a

now long list. Yet farmers have also embraced the new varieties. In Guinea, for example, 116 farmers planted NERICA varieties in 1997. In 1998-99, the number jumped to 1,000, and by the end of 2000, 20,000 farmers were planting the seed. The expected output of 15,000 tons was valued at \$2.5 million.

Results and Critical Factors

- The NERICA experiment demonstrates how Southern countries can devise their own solutions. There was quick cognizance of the problem, the creation of an efficient and collaborative institution, and cross-national buy-in.
- Beyond highlighting how a series of highly supportive donors can do exactly enough without being overbearing, the case demonstrates that a good idea can attract the best resources from across the world, irrespective of Northern or Southern affiliations. A plethora of research institutes, government departments, NGOs and universities came together, ranging from nationalities as diverse as Colombia and Japan, and including organizations like Cornell University and DFID.
- The NERICA experiment turned the most significant critique of the Green Revolution on its head, proving that new, high-yield crop strains need not be based on intensive use of water and fertilizer, nor do they need to be become a blanket replacement of indigenous crop strains.
- NERICA goes to the heart of the food security issue in West and Central Africa. It is therefore an intensely political issue – with happy outcomes. The social dividend is that because the variety eliminates weeds, it directly benefits women and children – who do most of the weeding in fields. The environmental dividend is that a low-input rice crop eases the impact on fragile upland ecosystems, with inter-cropping with legumes a further stabilizing factor.
- The seed distribution strategy developed for NERICA represents effective strategic planning for downstream activities – an area of weak capacity in many Southern countries.
- Finally, the NERICA experience encapsulates the positive benefits of listening to farmers and those on the ground in defining both the policy problems as well as the operational solutions.

Further information

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