SWEP

The Consortium for the Sustainable Development of Inland Valley Agro-ecosystems in Sub-Saharan Africa (IVC)

Rationale

Besides food insecurity and widespread poverty in SSA, environmental problems are becoming increasingly dramatic, differentiated by depletion and degradation of natural resources. However, a promising and largely unexploited land resource is the estimated 190 million ha of inland valleys. Depending on the country, only about 10-25% of these inland valley lowlands are currently used for agricultural production. Since its inception in 1993, the Inland Valley Consortium (IVC) has gained substantial experience in understanding and managing the inland valleys in WCA. Considerable progress has been made in documenting low-cost water management technologies and developing information systems and decision support tools for the exploitation of inland valleys.

Goal

To improve the livelihood of rural communities through the adoption and use of sustainable technologies fulfilling the production potential of the inland valleys in SSA

Purpose

To develop appropriate technologies helping farmers to profitably increase productivity of inland valleys, while conserving the environment and biodiversity

Outputs

- Productivity of inland valley agro-ecosystems increased
- Negative impacts affecting ecosystem services mitigated
- Repositories of past achievements and local innovations generated

The inland valley consortium is a collaborative effort of four CGIAR centers (WARDA, convening center), IITA, IWMI and WorldFish; four international organizations: CORAF, FAO, CIRAD, and Wageningen UR; and NARES in 12 countries: INRAB (Benin), INERA (Burkina Faso), IRAD (Cameroon), CNRA (Côte d'Ivoire), SARI and CRI (Ghana), IRAG (Guinea), IER (Mali), NCRI (Nigeria), LWDD (Sierra Leone), ISRA (Senegal), IRAT (Togo) and NARI (The Gambia).

New Research Program Structure

The Africa Rice Center (WARDA) is a leading pan-African research organization working to contribute to poverty alleviation and food security in Africa through research, development and partnership activities. It is one of the 15 international agricultural research Centers supported by the Consultative Group on International Agricultural Research (CGIAR). It is also an autonomous intergovernmental research association of African member countries.

The Center was created in 1971 by 11 African countries. Today its membership comprises 22 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, the Gambia, Ghana, Guinea, Guinea Bissau, Liberia, Mali, Mauritania, Niger, Nigeria, Republic of Congo, Senegal, Sierra Leone, Togo and Uganda.

WARDA's temporary headquarters is based in Cotonou, Benin; research staff are also based in Senegal, Nigeria, Tanzania and Côte d'Ivoire.

For more information visit: www.africaricecenter.org

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Africa Rice Center (WARDA)

Project Portfolio

New Research Program Structure

Millions of Africans are affected by the food crisis and especially by the increased prices and shortage of rice. Rice has become a staple food and high rice prices have caused riots in major African cities early 2008. In 2007, sub-Saharan African countries imported approximately 10 million tons of rice, which is close to one-third of the rice available on the world market. However, relying on the world market to supply rice has become a very risky, expensive and unsustainable strategy. Rice prices have tripled over the last three years and global stocks are rapidly declining. To avoid severe food insecurity, civil unrest, and an economic downturn there is an urgent need to increase rice production in sub-Saharan Africa.

The Africa Rice Center (WARDA) operates in partnership with National Agricultural Research Systems (NARS), sister CGIAR centers, academic institutions, advanced research institutions, farmers' organizations, non-governmental organizations and donors – for the benefit of African farmers, mostly small-scale producers, as well as the millions of Africans for whom rice means food.

WARDA's technologies, such as the NERICA rice varieties are disseminated in partnership with other organizations such as farmer organizations and NGOs that operate at the grassroots level. WARDA pays particular attention to the shortage of rice scientists and training of technicians and extension agents in Africa. The Center recently started a Post Masters program to boost national rice research capacity.

WARDA has created a special unit focusing on Training, Information Management and Extension linkages (RiceTIME Unit) to lead WARDA's contribution to the Emergency Rice Initiative (see www.africaricecenter.org) and facilitate rice information management and capacity building. RiceTIME hosts a number of regional networks, such as the African Rice Initiative (ARI) and the ROCARIZ network.

The External Program Management Review (EPMR) suggested in 2007 to review WARDA's program structure. A new structure was approved by WARDA's Board in March 2008. WARDA's new research structure contains four programs and one CGIAR Systemwide and Eco-regional Program (SWEP):

Program 1: Bridging genetic diversity and breeding to produce rice genetic resources adapted to changing environments (Genetic Diversity and Improvement)
Program 2: Enhancing productivity of rice-based farming while protecting ecosystem services (Sustainable Productivity Enhancement)
Program 3: Creating windows of opportunity through partnerships, learning and innovation systems (Learning and Innovation Systems)
Program 4: Rice policy and technology impact on food security and poverty reduction (Policy and Impact Assesment)
SWEP: The Consortium for the Sustainable Development of Inland Valley Agro-ecosystems in Sub-Saharan Africa (IVC)

Each of these programs is equivalent to one Medium Term Plan (MTP) project.

WARDA has developed a joint research strategy and implementation plan for Eastern and Southern Africa with the International Rice Research Institute (IRRI) and is currently working on a new Strategic Plan for 2010 – 2020.

RESEARCH PORTFOLIO

RESEARCH PRIORITIES

SHORT TERM
- Raising productivity in farmers' fields: bridging the yield gaps ('extension agronomy', access to inputs, including seed of best-bet varieties)
- Re-working existing stocks of rice knowledge into formats ready for dissemination

MEDIUM TERM
- Producing the next generation of rice varieties building on the NERICA success: varieties for upland and lowland conditions, resistant to major (a) biotic stresses
- Expanding rice cultivation: tap Africa's vastly under-utilized rainfed lowlands
- Adopting and adapting agricultural machinery for land preparation, harvest and post-harvest: adding more 'energy to rice farming
- Building rice value chains: adding value to rice produce (grain quality)
- Harmonising rice policies (varietal release, seed legislation, input subsidies, import tariffs...)
- Diversifying rice-based systems

LONG TERM
- Invest in research and extension capacity building in Africa
- Adapt to and mitigate effects of climate change

PROGRAMS

1. Genetic Diversity and Improvement

Rationale

Rice yields in Africa are affected by a large number of abiotic and biotic stresses. The major abiotic stresses addressed through this program are drought, acidity, salinity, iron toxicity and extreme temperatures. The major biotic stresses that are considered are: RYMV, BLB, blast, African rice gall midge, stem borers and termites. In this program both conventional breeding and biotechnology will be used to exploit the rich reservoir of genetic resources present in the indigenous germplasm pool of African rice *Oryza glaberrima*, its wild relatives – *O. barthii* and *O. longistaminata* – and *O. sativa* landraces.

Goal

To improve the well-being of rice producers and consumers in Africa.

Purpose

To provide farmers with superior germplasm, adapted to local growing conditions and stresses and consumer preferences

Outputs
- Enhanced genetic diversity generated
- Improved and stable rice lines and varieties with good grain quality available
- Enhanced knowledge of G x E interactions for abiotic and biotic stresses available
- Enhanced involvement of farmers in rice genetic resources development established

Collaboration with farmer organizations, NGOs, NARES, IRRI, CIAT, JIRCAS, IRD, CIRAD, John Innes Centre, Universities of Cornell and Nihon

Activities in WARDA member countries, Ethiopia, Tanzania

2. Sustainable Productivity Enhancement

Rationale

In sub-Saharan Africa, rice yields are constrained by inadequate water control, low soil fertility, soil acidity and further hampered by biotic stresses such as blast, stem borers, termites and weeds. Gaps between attainable and actual yields are high, even in input-intensive systems. New challenges include competition for water from increasing demands from urbanization, climate change and increasing incidences of salinity and alkalinity. Integrated systems, like rice and aquaculture, livestock, vegetables, and fruit trees offer an array of opportunities for intensification and diversification, leading to additional income and improved nutrition for the farming community.

Goal

Contribute to food security and well-being of rice producers and consumers in Africa

Purpose

To enhance the productivity of rice-based systems through intensification and diversification, while minimizing negative effects on environmental services

Outputs
- Integrated management options for weeds, pests and diseases available
- Sustainable intensification options for rice-based systems developed
- Profitable opportunities for diversification of the farmers' portfolio of enterprises made available
- Use of environmental services optimized and safeguarded for future generations

Collaboration with farmer organizations, NGOs, NARES, CIRAD, IRD, NRI, WorldFish, IFPRI, ICRISAT, Universities of Hannover, Hohenheim, California, Sheffield and Wageningen

Activities in WARDA member countries, Madagascar, Tanzania

3. Learning and Innovation Systems

Rationale

The importance of partnerships in both technology generation and dissemination is commonly recognized. A better understanding of forces shaping institutional relationships will help in carving out future R&D strategies for pro-poor development. Networks and partnerships are operational structures within the broader innovation system, hence this program uses an innovation systems research approach to help shed light on their role and relevance with an emphasis on seed, learning and value chains.

Goal

To improve the livelihoods of rural and urban populations through strengthened partnerships, effective learning mechanisms and better functioning rice innovation systems.

Purpose

Increase the effectiveness of processes shaping the development and dissemination of sustainable technologies.

Outputs
- Partnerships and networks to promote rice sector development
- Mechanisms for pro-poor seed system development
- Agricultural education tools and learning pathways
- Strategies and tools to strengthen the rice value chain

Collaboration with farmer organizations, NGOs, NARES, IRRI, CIAT, CABI, COL, FARA, CORAF, ASARECA and Wageningen

Activities in WARDA member countries, Ethiopia, Kenya, Madagascar, Sudan, Tanzania

4. Policy and Impact Assessment

Rationale

A better understanding of the policy, social, institutional and market environment in which rice production and trade is taking place is vital in developing strategies for competitive rice sectors within a background of continuously growing demand for rice in Africa. Allied directly to this is the need to systematically assess the impacts of technical and institutional changes within the rice sector, with particular emphasis on productivity, profitability and poverty at the individual, community and national levels.

Goal

To enhance income and food security in Africa through sustainable rice sector development.

Purpose

Generate evidence-based knowledge and information that supports development of demand-driven rice technologies, policies and institutions to improve livelihoods, nutrition and economic development.

Outputs
- Tools, methods and enhanced capacity for impact assessment, policy analysis and priority setting
- Rice policy options and institutions for competitive domestic rice production
- Improved post-harvest systems for competitive domestic rice production

Collaboration with farmer organizations, NGOs, NARES, IFPRI, IITA, ICRISAT, IRRI, FARA, CORAF, UEMOA, ECOWAS, CIRAD, FAO, Oxfam, ROPPA, Universities of Florence, Wisconsin, McGill and Wageningen

Activities in WARDA member countries, Ethiopia, Kenya, Madagascar, Sudan, Tanzania