

***PARTICIPATORY ADAPTATION AND DIFFUSION OF
TECHNOLOGIES FOR RICE-BASED SYSTEMS (PADS)***

Abstract

*The abstract should provide the following information:
the project title, the main research outcomes/impacts, the replicability perspectives (scaling-up/out) and
the overall context in which the research has been conducted
(geographical, political, socio-cultural and economic dimensions).*

Demand for rice is rapidly increasing in sub-Saharan Africa, outpacing regional supply. Imports of about four million tonnes per year represent half of the region's consumption needs, valued at USD 1 billion per year: a pressing need to improve regional production capacity is registered.

The project No. 488 "*Participatory Adaptation and Diffusion of Technologies for Rice-Based Systems (PADS)*" contributed to the poverty alleviation and the nutritional well-being of resource-poor farmers in West and Central Africa (WCA) by enhancing the productivity and profitability of farmers' rice-based upland and lowland systems. PADS strengthened the capacities of local and national partners to jointly evaluate, adapt and disseminate improved rice technologies using participatory field research and communication methods. The programme has successfully promoted WARDA's New Rice for Africa (NERICA) initiative for use in low-input rainfed systems.

Four different agro-ecological zones in WCA have been selected for the implementation of the research programme: savannas, forest, mountain and river areas. Given the highly diverse and dynamic nature of the rainfed rice farming, research activities took explicit account of site-specificity. What is practical and profitable for farmers at any given site depends on the unique combination of bio-physical, socio-economic, organizational and institutional circumstances. As a consequence, it is almost impossible for researchers to develop standard technologies that can be adopted on a large scale and thus easily replicated in different contexts. To this effect, the research programme developed a participatory approach taking into account the diversity of local specific conditions, with farmer experimentation and adaptation of technologies at hearth.

On the basis of the participatory approach, the perspectives to adopt research results and to replicate the research programme are more feasible. PADS not only facilitated the sharing of knowledge and innovations between communities and regions, but also investigated the possibilities of institutionalizing pro-poor research and development process.

The project registered outcomes on the human capital (e.g. increased technical knowledge), social capital (e.g. strengthened social relations) and environmental capital (e.g. increased rice productivity and soil fertility).

In 2003 PADS phase II has been approved with the aim of identifying, evaluating, enhancing and scaling up sustainable innovations in the inland valley systems - not only from research institutes, but also home-grown solutions developed by farming communities.

**Main successful technical
components of the
research programme:**

The following technical components have been developed through the participatory process-based cyclic approach:

- Promotion of new rice varieties;
- Seed multiplication techniques;
- Insect control activities;
- Post harvest activities;
- Variety demonstrations: short duration, salinity tolerance and iron toxicity tolerance.

SECTION ONE: THE INSTITUTIONAL CONTEXT

The project within the IFAD context, relevance to/linkages with other IFAD programmes/initiatives, implementing partners and main activities carried out.

- Existing linkages with other IFAD initiatives:

- Grants:

-Grant No.307: “*Research on Accelerated Diffusion of Rice Technology Programme in West Africa (RADORT)*”;

-Grant No.424: “*Validation and Delivery of New Technologies for Increasing the Productivity of Flood-prone Rice Lands in South and Southeast Asia*”;

-Grant No.662 “*Participatory Adaptive Research and Dissemination of Rice Technologies in West Africa, Phase II*”.

- Loans:

-*Lowlands Agricultural Development Programme (LADEP)*.

- Target regions and implementing partners:

-Côte d’Ivoire (four ecological zones: mono and bi-modal mountain, transition, savannas), Guinea (upper and low Guinea and forest), Ghana (Tamale, Kumasi and Volta region) and the Gambia (Lower River division, North Bank division and Western division).

-WARDA as the coordinator and the following partners in each country: in the Gambia (NARI, FFHC, ASWAC, SJFFP, NAS), in Guinea (IRAG, SNPRV), in Côte d’Ivoire (ANADER, OVDL, IDC, CNRA), in Ghana (CRI, SARI, UDS, UG, MOFA).

SECTION TWO : THE PROGRAMME IMPLEMENTATION

The research programme:

Description of the technology/participatory methodology/approach developed, costs of the inputs used to implement the research programme, rural areas and context where the research has been implemented (specifying environmental conditions)

-The research programme has been designed to improve rice productivity, stimulate crop diversification and increase farmers’ incomes in four involved countries in WCA. The major challenge faced by PADS (phase I and II) is to change the mindset of people working with farmers: researchers and scientists are no longer the sole source of innovation in agriculture and farmers play a significant role as local innovators capitalizing on their day-to-day experience.

-PADS has been articulated on three complementary angles -technological, methodological and institutional angle- promoting technological changes and methodological approaches useful to farmers working within different farming environments.

-The programme has been based on a process-based approach which involves cycles of participatory diagnosis, planning, implementation and evaluation.

-To understand and identify local knowledge the three following tools have been used: i) knowledge matrix to classify people’s knowledge as deep, shallow, mistaken or missing, ii) local names as sources of local traditions, and iii) well-being analysis to allow farmers to identify the poorest sections in their own community, to evaluate the social dimension of farmer-to-farmer extension and to measure the impact of its interventions.

-To identify the major constraints on rice cultivation and marketing being experienced by farmers, the four PADS country teams used various participatory rural appraisal (PRA) tools (e.g. land use mapping, problem tree, matrix ranking).

- To help identify promising varieties according to site-specificity, PADS adopted WARDA's participatory varietal selection (PVS) approach with farmers playing a key role in testing and selecting varieties according to their needs.
- To select the most promising varieties a Community- Based Seed System (CBSS) approach has been developed.

Target group and impact:

Description of the target group, the beneficiaries and the benefits and the main research outcomes/impacts (vulnerable groups, project impacts and effects on the human, social and natural capital).

- *Impacts on the human capital:*
- *Impacts on the social capital:*
- *Impacts on the natural capital:*

Project target groups:

Resource-poor, small-scale rice farmers in the selected key sites in each of the four participating countries in WCA.

Impacts on the human capital:

- Increased knowledge in soil fertility management and liming, harvesting, iron-toxicity management, insect control, rice production, rice paddy and seed conservation.

Impacts on the social capital:

- Development of national coalitions (National Management Committees - NMCs) involving farmers' organizations, NARS and governmental/non governmental extension services;
- Closed partnerships developed between farmers' organizations and NGOs;
- Strengthened of the existing social communication networks.

Impacts on the natural capital:

- Increased rice productivity of 30%;
- Availability of high quality bio-products;
- Enriched biodiversity.

The gender dimension:

Women's role in the research programme, impacts on the gender equity and women's empowerment.

- As rice is mainly grown by women, women and their organisations have been continuously involved in all the phases of the research programme.
- Some of the NGOs, such as OVDL, put major emphasis on supporting the formation of women groups. OVDL supported 4 major farmer unions, grouping more than 200 women associations including more than 5000 women.

Accessibility:

Identification of the physical availability of the research outputs in different time and places as well as their affordability by the rural poor.

- Research outputs have been developed emphasizing low input technologies and taking into account farmers' indigenous knowledge and local available resources in order to provide easy accessibility by rural poor.
- Technologies have been developed on the basis of site-specificity and the combination of bio-physical, socio-economic, organizational and institutional circumstances. As different agro-ecological zones have been selected, physical availability of the research output in different places has been ensured.
- The implementation of the participatory cyclic approach based on farmers' indigenous knowledge facilitates the research outputs availability during the time.

Constraints faced during the programme implementation:

Difficulties faced during the implementation of the research programme, specifying the internal (limited infrastructure, lack of inputs etc) and the external (socio-political and environmental aspects) constraints.

Constraints related to:

- *Internal conditions:*
- *External conditions:*

Constraints related to the internal conditions:

- Low farmers' participation in the initial participatory rural appraisals because of the limited experience of some of the field staff involved;

Constraints related to the external conditions:

- Severe environmental conditions;

Institutional sustainability and degree of farmers' involvement in the research programme:

Underlying the degree of farmers' meaningful involvement in the definition and implementation of the main research steps/research process - which determines also the level of social and psychological acceptability- and explanation of the measures taken to support the institutional, organizational and professional changes at all levels.

-PADS used a process-based approach to ensure a demand driven research effectively responding to demand from local populations: all entities intervening in the rice sector were involved in the joint identification of constraints and in the proposition of workable solutions. The approach involved a continuous and active participation of local communities in the whole research process. The approach consisted in a participatory diagnosis, a cyclic process of participatory planning, implementation and evaluation of activities, implemented by all relevant stakeholders.

-The extensive and effective farmer involvement, developed during the research programme, strengthened farmers' capacities in innovation, experimentation, evaluation and adaptation. Groups of farmers had full responsibility of planning, implementation and evaluation of PADS activities in the field (in the four countries a total of 2300 farmers have been involved: 300 in the Gambia, 500 in Guinea, 700 in Cote d'Ivoire and 700 in Ghana).

-WARDA researchers and scientists provided the overall supervision of the implementation (assistance to national planning and review meetings, information and documentation and organisation of trainings). Scientists and extension agents facilitated collaborative learning and action research, then implemented by (group of) farmers in the field.

Dissemination pathways:

Description of the ways through which the project results are made

The communication strategies at the village level:

- Technical fact sheets and leaflets (e.g. on improved rice varieties, weeds

available at the village level and at the national/international level (workshops, reports, seminars etc).

- *The communication strategies at the village level:*

- *The communication strategies at the national and international level:*

- and fertilizer management, the use of neem as a biopesticide);
- Field manual covering all the aspect of rice cultivation and post-harvest management to be used especially by the agricultural extension staff in Ghana;
- Farmers’ hand book on rice production and rice technology catalogs;
- Farmers’ Days and demonstrations on the field;
- Radio broadcasting (weekly programme);
- Farmer Field Schools (in Ghana);
- Posters;

The communication strategies at the national and international level:

- Training courses in the use of proposed materials organized for government extension and NGO staff;
- Newsletters;
- Scientific reports and technical publications;
- National, regional workshops and seminars.

Further research needs:

Identification of the new areas considered to be relevant and needed to be taken into account since they influence the adoption and/or the relevance of the research results (new problems or links not investigated by the research).

- More attention needs to be given to extension systems (such as rural radios, local markets, mosques and churches);
- Need to gradually include various aspects of Integrated Crop Management (ICM);
- The FFS approach developed in Ghana could be experimented in other contexts;
- Gender aspects need to be investigated for collecting information on food processing and cooking tests;
- Creation of farmers groups should be encouraged in order to facilitate credit grants.

SECTION THREE: USEFUL INFORMATION

Keywords:

Soil fertility management, soil liming, harvesting, iron-toxicity management, insect control, rice production, rice paddy, seed conservation, farmer field school (FFS), PADS I and II.

Useful links:

IFAD:

Newsletter: www.ifad.org/newsletter/pa/e/4.htm

Gender and rice in Gambia: www.ifad.org/gender/learning/resource/natural/gm_labour.htm

WARDA:

WARDA publications, 2000-2005: www.warda.org/warda/bibliograph.asp

NERICA: www.warda.org/warda/uplandnerica.asp and www.warda.org/warda/newsrelease.asp

ROCARIZ: www.warda.org/rocariz/

References:

Rice trend in sub-Saharan Africa: www.warda.org/publications/Rice%20Trends.pdf

Rice in the Economy of West Africa: www.warda.org/publications/Riceeconomy.pdf

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Acronyms:

- Implementing agencies:

WARDA: West Africa Rice Development Association

- Partners institutions in The Gambia:

ADWAC: Agency for the Development of Women and Children

FFHC: Freedom for hunger Campaign

NAS: National Agricultural Services

NARI: National Agricultural Research Institute

SJFFP: St. Joseph's Family farm project

- Partners institutions in Guinea:

IRAG: Institut de recherché agronomique du Guinée

SNPRV: Service national de promotion rural et de vulgarisation

- Partners institutions in Côte d'Ivoire:

ANADER: Agence national d'appui au développement rural

CNRA: Comité national de recherche agronomique

IDC: Institut de développement communautaire

OVDL: Organisation des volontaires pour le développement local

- Partners institutions in Ghana:

CRI: Crop research institute

MOFA: Ministry of food and agricultural

SARI: Sahelian agricultural research institute

UDS: University for development studies

UG: University of Ghana