



Community management of crop diversity to enhance resilience, yield stability and income generation in changing West African climates (CODE-WA)

International Crops Research Institute for the Semi-Arid Tropics (ICRISAT)

Country/Region:	Burkina Faso, Ghana, Mali, Niger, West Africa
German participation:	University of Hohenheim
Leading scientists:	Dr. Ludger Herrmann
Duration:	May 2008 – April 2011

Initial situation

In West Africa, especially in the drier Sahelian and Sudanian zones, farmers are historically aware of fluctuations in climate. They state later onset of the rainy season and lower and less predictable rainfall as effects of recent climate change. They continuously search for alternative agricultural options to cope with this situation, including shorter-duration varieties of the major staple crops pearl millet and sorghum.

However, in the long run West African farmers need also to develop cash crop activities to escape the vicious cycle of poverty in subsistence agriculture and ensure a sustainable income and food security under growing population pressure.

Approach of the project

The major assumption underlying CODE-WA project activities is that increasing crop diversity helps to stabilise income and increases the number of response options with respect to seasonal variation.

The project offers to farmers a great number of varieties of major staple (pearl millet, sorghum, maize) and legume crops (groundnut, cowpea, bambara nut), which

are tested on-farm under farmer management. In addition new crop (i.e. sweet corn, moringa, in-season and off-season tomato) and management options (i.e. composting, micro-dosing) are offered, in order to diversify production and develop new income perspectives.

The project has chosen to work via national agricultural research institutions (NARS) with local farmer organisations (FO) in order to achieve a wider acknowledgment, a better distribution of results and to ease communication.

CODE-WA works with a strict participatory approach.

Farmers choose and evaluate the offered options and decide about continuation or changes in their environment.



The project also responds to new

ideas of the farmers if competence is available and tries to establish outside contacts where necessary. In fact, farmers in West Africa suffer from the poorly developed information pathways. That is why CODE-WA has also a focus on communication.

It wants to develop better exchange between farmers, as well as between farmers and researchers by introducing a variety of tools. The most important one is the so-called vertical farmer exchange visit.

Farmers from different agro-ecological zones visit their counterparts, exchange about agricultural management under the given climate and thus learn to deal with adverse seasons in their own environment.

In order to make full use of higher diversity at the variety level, farmers would need to have a better forecast of the coming rainy season. Therefore, CODE-WA has included a strong research component on meteorology and modelling to develop new forecast algorithms and regional varietal adaptation maps for pearl millet and sorghum in West Africa.

Major results achieved

CODE-WA activities have already increased the capability of NARS and FOs to cope with climate change, especially through participatory evaluation of adapted varieties.



A highlight was the first Vertical Farmer Exchange Visit, which opened farmers' eyes for new perspectives under changing climate by presenting agriculture in contrasting environments.

In addition, a regional network has been created, which

facilitates exchange of ideas, information, seeds, and agricultural techniques.

Introduction of communication tools into the scientific community like the ILLIAS software and Rule-Based Communication complete the picture.

Expected impact

The major impact will be the introduction of new crops, varieties and techniques at the four CODE-WA sites along the bio-climatic gradient from northern Sahelian to southern Soudanean zone. This offers opportunities to farmers to respond to whatever onset of the rainy season to assure stable yields despite climate variability, and opens up additional income options.

The capacity building and communication skill development efforts at NARS and FO level are thought to facilitate the introduction, distribution and adaptation of agricultural innovations in the near future.

Also the demonstration of strength of FOs in Niger and Mali will have its impact on the creation and reinforcement of FOs in Burkina Faso and Ghana.

Collaborating institutions: Farmer Organizations in Burkina Faso, Ghana, Mali, Niger; AGRHYMET Regional Centre, Niger; Institut d'Economie Rurale (IER), Mali; Institut National de l'Environnement et Recherche Agricole (INERA), Burkina Faso; Institut National de Recherches Agronomiques du Niger (INRAN), Niger; Savannah Agricultural Research Institute (SARI), Ghana

The Advisory Service on Agricultural Research for Development (BEAF) manages Germany's contribution to international agricultural research. Instruments for implementation are project funding, postdoc funding, small grants and liaising between German and international researchers. BEAF is part of GTZ and acts on behalf of the Federal Ministry for Economic Cooperation and Development (BMZ).

Imprint

Published by:
Deutsche Gesellschaft für
Zusammenarbeit (GTZ) GmbH
Advisory Service on Agricultural Research
for Development (BEAF)

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