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Semi–Arid Africa Food Grain Research and Development
Recherche et Développement des Cultures Vivrières dans les Zones Semi-Arides de l'Afrique

Development of Small irrigation systems for value crops in Semi-arid zones in Africa

Concept Note

Prepared by

African Union/Semi-Arid Food Grains Research and Development (AU/SAFGRAD)

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Total Cost of Project: US$ 2,500,000

Requested Funds: US$ 2,000,000

Duration of Project: 60 months

Project Location: Semi Arid Areas of Africa

Project Implementing Organization

Name of the Organization: African Union Commission/SAFGRAD

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Background of the project

In many African countries, after the independence, attention was given to medium and large-scale irrigation. The objective was to produce cash crops such cotton or fruit by pumping water with gravity irrigation. In the first decade after independence, the new states did not invest heavily in irrigation. When they did, investments were normally made in medium to large-scale irrigation. In Burkina Faso for example, the government developed the SOCOBAM project around Bam Lake, and the Kou valley schemes in the area of Bobo-Dioulasso. In addition, agro-industry irrigation schemes were developed to supply either sugar refineries (Burkina Faso, Côte d'Ivoire and Cameroon), or vegetable processing units (Côte d'Ivoire, Nigeria, Senegal). These projects were designed, owned, and managed by the state and with the exception of the Inner Niger Delta in Mali. Unfortunately this type of water management generally performed below expectations (WB 2005).

During the following decades, community-managed smallscale irrigation programs were initiated to contribute to food security. In the 1970s and 1980s, West Africa experienced a series of droughts that forced governments to change their agricultural development strategies, which had been based mainly on rainfed agriculture. Small-scale irrigation schemes with small plots of equal size for each farmer, were developed. In the same period, irrigation experts recognized that farmers should be more involved in irrigation management and should receive support to develop irrigation systems for their farms (FAO 1987).

Rationale of the project

Improving agricultural water management is critical for better agricultural productivity in most of semi arid countries of Africa, where agriculture remains essential for growth, food security, and poverty reduction. Increasing agricultural performance can lead to dramatic improvements in the incomes of the poor. In some areas, irrigation helped double, even quadruple yields and lifted the beneficiary population above the poverty threshold. The Comprehensive Africa Agriculture Development Program (CAADP), which is based on four mutually reinforcing pillars, has focused its first pillar on expanding the area under sustainable land and water management.

Irrigation is also key to guaranteeing product quality and supply, which improves the competiveness of high value - added produce. Although staple crops currently dominate production in Africa, high-value crops have the potential for rapid expansion if adequately linked to regional, national, and international markets. Improved irrigation can create consistently high-quality produce and will be critical to integrating African farmers into the growing global agricultural markets and supply chains.

It should also be noted that governments have experienced several failures linked to the centralized management of water, which generally has not involved users. Alternative models, in particular the management of water by users themselves, are being proposed to allow agriculture to keep producing as much or even more, in a context of increasing population and rising food demand

Justification of the project

Despite the expansion of irrigation-based agriculture in the past years, overall water withdrawals for agriculture are still limited in Sub-Saharan Africa. For instance less than 3 percent of total renewable resources compared to 36 percent in South Asia and 51 percent in the Middle East and North Africa (FAO 2009). Of the 183 million hectares of cultivated land in Sub-Saharan Africa, 95 percent is rainfed and only 5 percent (or 9 million hectares) benefits from some kind of irrigation—by far the lowest rate of irrigation agriculture of any region in the world. Therefore, there is a huge potential for various types of irrigation. Studies from World Bank have identified number of plans to effectively increase water management in Africa. Among them the development of smallholder **private irrigation for**

high-value markets will have a great potential in poverty reduction in semi-arid zones of Africa.

Moreover, climate change could impact the availability of irrigation water in the future. Thus promoting irrigation water while in the same time strengthening agricultural value chains is key to improve food security in semi arid zone of Africa. Collective action and learning are indispensable and need to innovate continuously to adapt.

Objectives of the project

In the 1990s and 2000s, smallholder private irrigation pilot projects were implemented in Niger (Projet Pilote pour l'Irrigation Privée, PPIP), Burkina Faso (Développement de l'Irrigation Privée et des Activités Connexes, DIPAC) and Mali (PPIP). Pilot projects were followed by PIP2 (Projet de Promotion de l'Irrigation Privée) and PRO DEX (Projet de développement des Exportations et des Marchés Agro-Sylvo-Pastoraux) in Niger, PAFASP (Projet d'Appui aux Filières Agro-Sylvo-Pastorales) in Burkina Faso and the PCDA (Programme de Compétitivité et Diversification Agricoles) in Mali. There is now a need to take stock in the progress made in the development and dissemination of smallholder irrigation technologies and management, and to identify the successes and challenges of efforts to expand smallholder private irrigation systems.

The overall objective of this project is to identify and evaluate best practices (low-cost technology available) in smallholder private irrigation in Semi-arid zone of Africa, and promote the development of those technologies at farmer level.

Description of the project

This project will support the promotion of low-cost technologies through tests, demonstrations, along with the strengthening of local capacity. This will start by identifying the factors that influence successful adoption and scaling-up of small-scale agricultural water management interventions. The actions will focus on smallholder private irrigation that consists of small farms (less than 2 hectares,) privately owned under the complete control of the farmer.

To be effective for smallholder the approved irrigation systems will have to be known as:

- inexpensive
- simple to use and maintain

- efficient in terms of labor, energy, and water
- well adapted to local conditions and farming practices
- readily reproducible in a variety of regions

By now, the project will consider the low cost drilling technology, low cost pumping and efficient water distribution as the main criteria

Project output

- Farmers are actively involved in the management of water at ground level.
- Low cost technologies for water management (drilling, pumping and distribution) are introduced and promoted in the project area.
- Yield and productivity are improved in the small scale plots

Project Activities

- Establishment of trials and demonstrations as well as training programs
- Establishment of Farmer field schools
- Organization of guide tours
- Establishment of efficient communication strategy

Project budget and responsibility

The project will span over 5 years and the overall estimate budget is $ 2,5 million ($ 500,000/year). This will cover the cost of trials & demonstrations, trainings as well salary for one irrigation expert.

SAFGRAD will host the project coordination and partner will be responsible for fund mobilization.

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