Food and Agriculture Organization of the United Nations

CIHEAM IAM BARI

AgWA Partnership for agricultural water for Africa

Les pratiques émergentes de la gestion de l'eau agricole en Afrique et au Proche-Orient

Workshop Thématique

Theme 3 WATER HARVESTING

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Theme 3: WATER HARVESTING

GUIDELINES

- Introduction
- Objectives
- Componantes
- Review of WH Technologies to be implemented
  - Basin level: BOULI
  - Field level: Rock bunds, Zaï; Half moons, Agroforestry
- Challenges
- Conclusion

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INTRODUCTION

The Scientific Community predicts 4 things for the Sahel area in the next fifty years

- Storms and violent rains
- Increase of drought periods
- Increase of Temperature and heat
- Extreme events (warmth and flooding)

The pilot project initiated by FAO will focus on WH technologies which can secure the food production and give incomes to vunerable groups.

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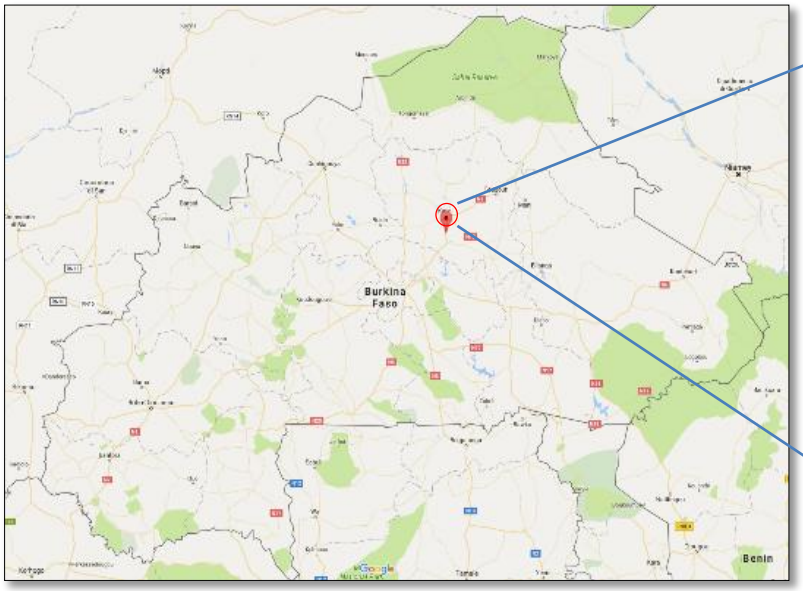
SITE LOCATION

Kamdaogo Goundrin is a village of Boussouma distric in Sanmatenga Province in North Center of Burkina. The site is located about 130 km from Ouagadougou.



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Objectives of the pilot project

The objectives are

- **To allow a sustainable use of the water in the bouli rehabilited**
- **To implement a combination of technologies, integrating agronomic practices, agroforestry and WH with ISFM on pilot farms**
- **To organize training and demonstrations with the beneficiairies**
- **To organise exchange visits between farmers to share knowledge and experience**
- **To support the elaboration of political stategies by policy makers in the water harvesting area**

Global approach of the project

- **Rehabilitation of a bouli for a solar irrigation of profitable crops and**
- **Participatory identification and selection of technologies involving all stakeholders**
- **Testing of promising technologies**
- **Capacity building by demonstrations and training in order to have a better up scaling of the technologies**

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COMPONENTS OF THE PILOT PROJECT

1 Physical rehabilitation on the bouli in order to increase the storage capacity. This necessitates technical studies like topoography, hydrology, pedology etc and agreement document between land owners and all stakeholders at village level and the Project Management Unit.

2 Conception of Solar system irrigation to assume supplement irrigation in the rainy season and full irrigation on profitable crops.

3 Conception of in situ WH methods to combine with agronomic and agroforestry practices in order to improve the productivity of land

4 Capacity building of actors involved especially farmers by training on WHT, demonstrations and exchange visits

5 Monitoring and Evaluation by the project management Unit including CEP specialist, extension services and communal authorities.

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THE BOULI

A Bouli at Kamdaogo
Goudrin, May 2017

Definition: The bouli is an traditional WHT for many use in the dry season. Nowadays, the bouli has been improved by Projects, NGO and research for irrigated crops in the dry season and wet season (rice)

We will focus our work mainly on the bouli in order to have a good management and better use for the 2 major use of the water in the bouli. Drinking water for animals and supplement irrigation for crops in the rainy season and garden market crops in the dry season.

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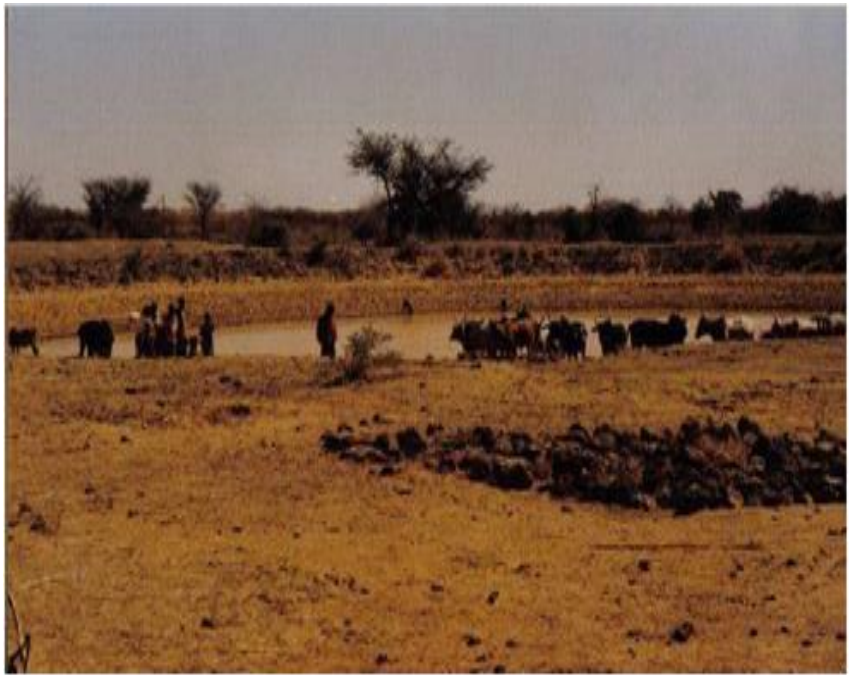
USE OF BOULI



Watering can irrigation

Bouli is a used for market garden crops in the dry season and profitable crops in the wet season (rice, maize, tomato).

In our project, we do expect to improve the production of profitable crops by using solar irrigation in order to increase the income of rural people.

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ROCK BUNDS/STONES LINES

The impact of rock bunds on sorghum yield varys from 30 to 80% compared to fields without rock bunds depending of the use of organic manure.

Constraints: labour, lack of organic manure, lack of rocks, needs of little materials to determine the slop. Necessitate training

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USE OF Zaï (Crop Zaï and zaï forestry)

Example of a farmer innovator called Yacouba Sawadogo

Farmers innovators are leaders for this zaï Forestry. There is a difference between Crop Zaï and Zaï forestry. The zaï is well spread in Burkina Faso and other sahelian countries like Mali and Niger. The impact on sorghum yield varys from 80 to 120% compared to control plots (Maximum yield on sorghum with zaï is about 2200 kg/ha and 260 kg/ha to control plots in northen part of Burkina.

Constraints: labour to dig the holes, lack of organic manure, needs of little materials, land tenure

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USE OF half moons

The impact on sorghum yield varys from 100 to 300% compared to control plot depending of the use of compost manure and total rain of the year.

Constraints: labour is important, lack of organic manure, lack of rocks, needs of little materials to determine the slop, necessitate training

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USE OF ORGANIC MANURE/COMPOST MANURE

The efficiency of most WHT on crop yields depends of the use of compost or organic manure and fertilizer. The yield increases from 60 to 120% for sorghum and millet. Constraints: labour, needs of little materials and charts.

Thème 3: **AGROFORESTRY**

USE OF AGROFORESTRY/ Farmer Managing Natural Regeneration (RNA)

A strategy of a land barrower to rehabilitate the environment

Example of Ouermi Budu in the north of Burkina. The farmer is not a land owner but he rehabilitated a farm of baobab (*Adansonia digitata*) which brought 500 to 1000 dollars/year to his household.

Constraints: Land tenure, labour, difficulties to protect from animals, lack of equipment.

EXPERIENCE AND KEY LESSONS

Key mechanisms for sustainable dissemination of WH technologies

- **Facilitating local ownership**
- **Facilitating access to productive inputs and equipment (improved seeds, fertilizers, pesticides, storage and transformation)**
- **Facilitating financial services (microfinance) and markets**
- **Facilitation knowledge sharing**

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THE CHALLENGES AND HOW TO IMPROVE

Challenge	Improved possibility
Improve the Livehilhoods of rural people	by securing the food production and the land tenure
Improving the crop production	By sustainable management of the land including WHT, new varieties with short cycle and high performance and ISFM
Reduce the poverty of vulnerable people	by investments in agrosylvopastoralism sector (Rural credit like microfinance, training to new methods of production, Werhouse, transformation, distribution.

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THE CHALLENGES AND HOW TO IMPROVE

Challenge	Improved possibility

The big challenge is the adaptation to the effects of climate change

- **Increase use of Water harvesting technologies and fertilizer (organic and mineral)**
- **Use of improved materials (new varieties with short cycle and high performance)**

Reduce the migration by giving opportunities to young people and women at local level

- **Rural credit (microfinance)**

Theme 3: CONCLUSION

Finally we do want to

- **Increase the use of rational WHT and irrigation methods accompanied by Integrated soil fertility management**
- **Use production techniques which can protect the natural resources**
- **Obtain the food security and diminish the rural poverty through incomes generated by the Bouli.**

THANK YOU FOR YOUR ATTENTION