

The use of the Korsimoro Reservoir for dry season vegetable production upstream of the dam has had both positive and negative outcomes. Formalizing water management arrangements through an existing mechanism would help regulate water use among the various user groups, stem the flow of new entrants to vegetable growing and protect the environment.

The Opportunity

Reservoirs in Burkina Faso are intensively used and generate considerable value from the associated land and water resources. At the Korsimoro Reservoir (Figure 1) for example, there are now over 1,000 'informal' upstream vegetable producers using small pumps to withdraw water directly from the reservoir. Irrigated vegetable cultivation is three times more profitable per unit of area than downstream rice irrigation. The returns to water in terms of storage capacity, a measure of the original investment, are 20 times higher. The unofficial irrigated area along the reservoir banks is seven times larger than the official command area downstream. The demand for land around the reservoir suitable for cultivation is high and the area is still expanding. Upstream vegetable production was not a planned use of the reservoir. Introducing formal management mechanisms that involve stakeholders will help foster this unforeseen development while managing related trade-offs.

SMALLHOLDER INNOVATION IN BURKINA FASO

Based on a report by Charlotte de Fraiture, Gael Ndanga Kouali, Hilmy Sally and Priva Kabre

The Research

Researchers studied the Korsimoro Reservoir case to illustrate the positive and negative impacts of unplanned individual irrigation around communally managed water bodies. Data were obtained through process documentation and structured questionnaires among 100 farmers involved in rice cultivation, vegetable production, fishing, livestock and other activities during a three-month stay at the field site. Semi-structured interviews were conducted with officers from farmers' organizations, local government and other institutions. Results were shared in a village meeting attended by 23 men and 8 women also with the Department of Irrigation to verify and, where needed, refine the findings. Secondary data were obtained from project reports available from relevant ministries, minutes from village and Water User Association meetings and financial accounts from farmers groups and unions.

Main Findings

Organizational and economic aspects

- Vegetable farmers cultivate cash crops for the local and regional market. Most live in the area, some have land in the rice area downstream. Increasingly, people from outside the area come to Korsimoro for the dry season to earn additional income.
- Among the more than 1000 vegetable growers there is a high degree of organization. Together they cultivate 230 ha during the dry season and can generate healthy profits. However, returns can be variable due to market gluts and pest and diseases.
- Currently there are 169 local farmer families and 7 women groups cultivating 32 hectares of rice. Riceland owners can earn from USD 1,130-3,340/ha in the dry season compared with USD 5,000-15,550/ha for dry season onion cultivation on rented land. Further expansion of rice cultivation is limited by the lack of suitable land.
- Cattle owners and fishers have common interests (access, availability, water quality) but their activities are largely individual. Groups have been formed but remain inactive.

Korsimoro Reservoir

- 70 km northeast of Ouagadougou
- Built in 1984
- Volume: 4.7 million cubic meters
- Irrigated rice cultivation: 32 ha
- Irrigated vegetable cultivation: 230 ha

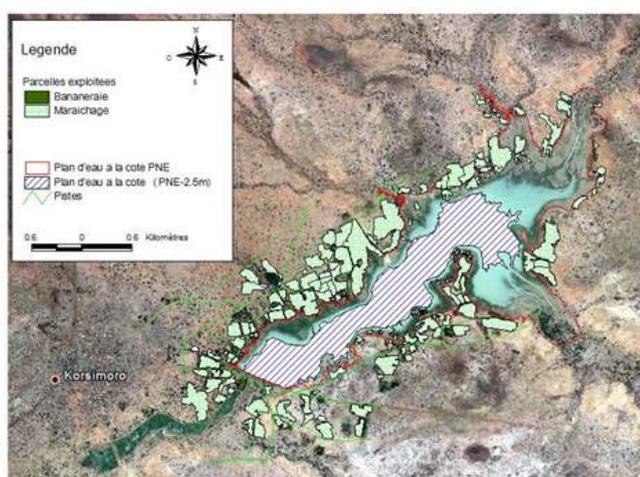


Figure 1. Google Earth image of irrigated areas upstream and downstream of the Korsimoro Reservoir

Impacts and emerging issues related to upstream vegetable cultivation

- Vegetable growers at the far upstream end of the reservoir are starting to feel the impact of increased pumping. Towards the end of the dry season, small pumps cannot draw water from the reservoir.
- Rice farmers are concerned over the unchecked growth of the number of vegetable farmers pumping from the reservoir. They see it as unfair that vegetable farmers do not pay water fees, do not contribute to maintenance of the downstream irrigation system, and do not seek permission to withdraw water.
- Fishers expressed concerns over agrichemicals and other pollutants from vegetable fields accumulating in the reservoir. Field observations confirm that large quantities of fertilizer and pesticides are used in vegetable cultivation, their improper use and poor agronomic practices. Oil and petrol leaking from poorly maintained motor pumps add to land and water pollution.
- Pastoralists claim that the increasing area under vegetable cultivation is blocking passage of their cattle to the water, particularly in the dry season. Fishers and pastoralists are insufficiently organized to enforce any measures to reduce the problems.
- Signs of over-use and conflicts are emerging among users as a result of the increase in the upstream area under irrigation and growing environmental problems.



Individually owned motorpumps draw water directly from the Korsimoro Reservoir

Solutions

- Some form of water user management mechanism is needed to regulate water use among the various user groups and control the number of vegetable growers and protect the environment.
- One potential entity is the Comité Local de l'Eau (CLE) or Local Water Committee. Initiated by the government in 2003, CLE's are supposed to serve as platforms for consultation, mobilization and promotion rather than a decision-making body with enforcement powers. The CLE for Korsimoro was created in 2006 and includes representatives of the vegetable farmers' union and the rice cooperative, cattle farmers, fishers and local chiefs, members of the district council, traditional chiefs and other office holders.
- The CLE is ideally situated to address water issues around the reservoir. It falls within its objectives to bring together the diverse group of water users to discuss and exchange water distribution and management issues. The CLE needs a clear mandate, strong leadership and resources to become an active agent for addressing water management issues. International donors could be the catalyst in shaping a reinvigorated Local Water Committee.

Potential Impact

Korsimoro is now known as a hub for onion cultivation in the region. At harvest time, traders come from as far as neighboring Ghana to buy in bulk. With an effective local water management mechanism in place, upstream vegetable farmers could be seen as pioneering an innovative and profitable way of using small reservoirs.

There are more than 1,300 small reservoirs in Burkina Faso. Government and donors have been promoting small reservoirs to enhance irrigated production, in particular rice, downstream from the reservoirs. However, the trends observed at Korsimoro Reservoir are typical of other reservoirs in Burkina Faso and indicate that broadening the planning and management approach of small reservoirs in the country to incorporate the broader group of users and uses might yield greater benefits.

These findings and recommendations are preliminary and are reproduced here for the purposes of discussion. The AgWater Solutions Project welcomes all comments and suggestions. These should be directed to AWMSolutions@cgjar.org, please write "Burkina Faso" in the subject line.