

Irrigated agriculture and resilience of family farms – a clash of perspectives



KEY POINTS

- To achieve diversity and resilience in food supply, government irrigation strategy must embrace compromises and synergies between national food security policy and the needs of small producers.
- Mechanisms for multi-stakeholder dialogue are needed to enable the logic of different systems to be seen in context, and to facilitate negotiation between stakeholders before deciding on the best strategies.
- Promoting governance tools such as land use plans helps to enable better integration of rice cultivation within an overall vision of local land use development, and reduction of conflict between the multiple users of dams.
- For migrant producers without access to rain-fed land, the government should define a minimum size for a rice-farming plot so that a farm (especially one growing a monoculture crop) can earn a reasonable level of income.

To meet the growing national demand for rice, governments in West Africa are promoting a model of agricultural investment which is oriented towards specialisation and intensification in rice farming, with the aim of increasing both production and productivity. For family farms, by contrast, rice production has to be part of a wider strategy to strengthen subsistence livelihoods and manage risk, by diversifying their sources of capital. Mechanisms for dialogue and negotiation are needed to bridge the gap between these different sets of priorities, and to enable better understanding of the specific needs for support of the different types of farm. New governance rules, based on inclusion and participation of producers, can make a contribution to improving the performance of irrigated rice systems.

The goal of food security is the backbone of agricultural policy in West Africa. In recent years the pursuit of this goal has meant rising investment in the agricultural sector and particularly production of rice, which has become a mass consumption food in both urban and rural areas.

Rice has a central place in national food security strategies, because of its importance in overall food consumption and imports. In the Dakar Declaration of October 2013, representatives of the governments of Burkina Faso, Mali, Mauritania, Niger, Senegal and Chad announced their intention to raise the level of investment in irrigated agriculture to increase the total developed area from 400,000 hectares to 1,000,000 hectares by 2020. It will be a major challenge to do this in a way that ensures that government objectives and strategy for achieving self-sufficiency in rice production also include measures for combatting rural poverty and strengthening sustainable livelihoods among small producers. A good understanding of the opportunities

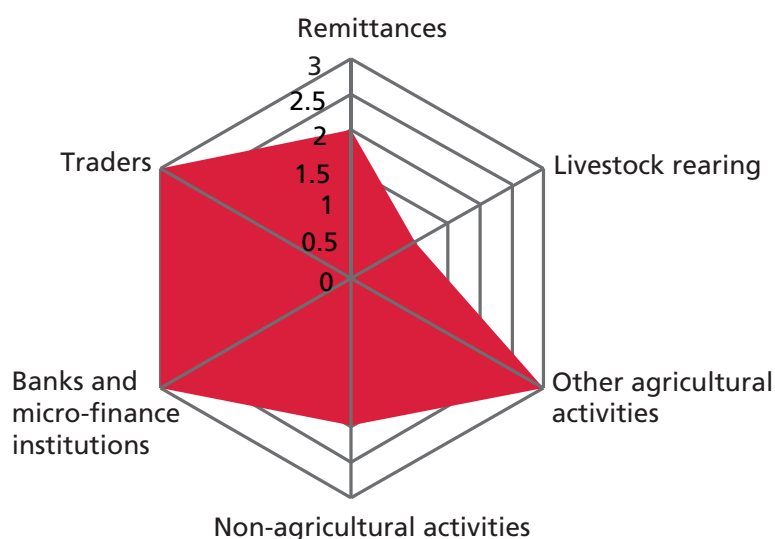
and the institutional and technical challenges will be essential, if the policies and investment models adopted are to strengthen the resilience of small rice producers. Research carried out by the Global Water Initiative (GWI) around the dams at Bagré (Burkina Faso)¹, Sélingué (Mali)² and Niandouba (Sénégal)³ aims to help develop this understanding.

The government perspective: dealing with what is most urgent

In Burkina Faso, Mali and Senegal, national food security, and in particular self-sufficiency in rice, are the key strategic objectives guiding major decisions in agricultural investment policy. This ambitious aim implies a policy of modernisation of agriculture in irrigated zones, enhanced use of external technologies, orientation towards greater specialisation in rice farming, and opening up to private investment.

By giving priority to investment in large dam projects such as those studied by GWI, governments hope to maximise

Figure 1. Sources of finance for agricultural activities, Bagré, Burkina Faso



Source: Ouédraogo, O., Sedogo, S.A. (2013). This figure shows approximately the relative importance of different sources of financing (0 = not important, 3 = very important).

yields and production to satisfy rising demand for rice in urban centres, which is currently met through heavy dependence on imports.

But is this choice by West African governments the most effective way of approaching the quantitative objectives of food security and reduction of rural poverty? The answer is not at all clear. Instead of the single universal policy promoted by government, an alternative vision is coming increasingly to the fore, which argues for an investment model prioritising investment in smaller scale irrigation infrastructure capable of being managed by producers themselves, and thus responding to the diversity of situations and needs of family farms.

The family farmer's perspective: diversification as the guiding theme

Diversification is an important risk management strategy, and one which creates opportunities for accessing other sources of income to help to meet a family's economic and social needs.

At the three dam sites in the study, diversification is the main strategy of the local farmers who have both irrigated fields in the dam schemes and rain-fed crops on higher ground. Raising cattle and small ruminants brings in additional income. Livestock are also an important source of energy (of draught oxen in particular) and of organic manure for agriculture. Other non-agricultural activities also provide incomes, such as seasonal paid work, migration, petty trading etc. At Niandouba, sales of livestock pay for agricultural inputs, at Bagré cattle herding provides a source of plough oxen, and at Sélingué artisanal gold mining enables farmers to repay loans. Different income sources are combined in a harmonious way to strengthen the resilience of the family farm.

These activities play an important role in financing rice farming, especially because the credit system is notoriously inadequate. Indeed, rice farming would have difficulty in surviving without them. For these farmers, the way they allocate resources is governed by the objective of balancing overall incomes and expenditure. So making rice farming more profitable is not always their first priority. On the other hand, these farms do need tenure security for their rice fields (currently obtained through payment of annual water rates), both to maintain their presence in the irrigation scheme and to continue to produce rice for family consumption.

Around the three dams, these diversified small farms are found alongside large scale producers, who have significant capital and who have access to large land areas to practise commercial rice cultivation mainly targeted at the urban market. These large producers are in direct competition with small producers for access to land, and current agricultural policy makes it increasingly easy for them to acquire land.

This means that the contribution which large scale farms make to the pursuit of national self-sufficiency in rice is often paid for at the expense of increasing vulnerability for family farms, for whom irrigated land tenure may become gradually more and more difficult to secure.

Box 1. Example of a large farm – “strong” diversification

The family farm has 10.5 ha of land, of which 5 are allocated to irrigated rice, 2 to maize, 3 to cotton and 0.5 to groundnuts. With three active workers and a plough, the agricultural income per person was 983,000 FCFA in the 2011-2012 season. Although the rice fields made a loss of 92,000 FCFA, the return from the other crops enabled the farm to achieve a large income per person.

This example illustrates the viewpoint of family farms. Their main concern is the performance of the farm as a whole, and keeping a balance of different activities, even if some activities are less successful than others. For many farms the first objective in maintaining rice growing as an activity is to contribute to feeding the family. It also enables them to keep a foothold in the irrigation scheme through having an irrigated plot.

Source: Adapted from Hathie et al. (2013)

Rice cultivation as a sole income

Around the three dams there are also smaller farms which are generally run by migrants or by retired civil servants with limited means. They often specialise in rice as a monoculture because they lack other kinds of capital (such as rain-fed fields or livestock). They cultivate rice to meet their own consumption needs, but also aspire to market their surplus production for additional cash revenues to meet other needs. For these farms the size of the plot is a critical factor. They rightly aim to enlarge their cultivated area and to acquire the inputs and equipment they need to enable them to achieve a good level of productivity.

Unfortunately, because they lack other sources of income, they are usually dependent on informal credit systems and on the quality of the irrigation infrastructure to be able to make a living. This increases their vulnerability. What is more, the structural nature of some of the problems of maintenance and governance of irrigation schemes tends to trap them in a precarious situation, one which is liable to continue so long as all the conditions for efficient irrigated farming are not in place. The main problems farmers face are the rational management of the irrigation system, access to credit, supply of good quality inputs, and access to markets.

Re-thinking the system of allocation of plots

The co-existence of these different sorts of farm should drive the authorities in charge of irrigation schemes to define a better strategy for designing and implementing differentiated services, to fit the needs and capacities of the different types of farming operation. Defining the rules for access to irrigated land must be at the heart of this re-thinking. It should start by taking into account equity considerations, the objectives of the government and of the producers, and the availability of land. New criteria for allocating land should also include the capacities and resources of the potential beneficiary farms, with the twin aims of strengthening the livelihoods of small family farms and taking on board the governmental objective of responding to urban demand for rice.

This is all the more important because different types of farms are affected differently by the new dam developments, with different effects. Some have lost a large part of their land to the construction of the dam and need to be fairly

Box 2. Small rice monoculture farm in Niandouba, Sénégal

This farm has 1.35 ha of rice monoculture and a labour force of two people. The last agricultural season was in deficit amounting to a loss of 8,000 FCFA per active worker.

This example illustrates the precarious nature of monoculture farms without complementary resources. Recourse to non-agricultural activities will be necessary to meet the family's needs.

Source: Hathie et al. (2013)

compensated. The area to be allocated to them must take into account potential yields and also the average price of rice, to enable them to make adequate incomes from their harvested production.

Other producers living in the area, but who have not suffered losses as a result of the development projects, are also legitimate candidates for farming plots. This category includes young people and women, who are too often left out of plot allocations. Finally, there are producers from other areas who hope to be able to profit from the new developments to get access to irrigated land.

RECOMMENDATIONS

To each according to his capacities

A more open approach is required, which takes into account the diversity of situations and capacities of each type of farm. Plots should be allocated to farmers who have the human and technical capital needed to exploit the land properly. The allocation will need to be done on the basis of an estimate of available area balanced against available resources.

A minimum area of land will have to be defined which enables a household of a given size to be properly fed, as will the necessary conditions for farming it properly (such as access to inputs and agricultural machinery). A graduated mechanism will be needed to vary the area of land allocated so that it corresponds to the human and financial resources available to the family, to enable farmers to diversify their livelihoods.

Box 3. Women's weak tenure rights

In Niandouba, women who are allocated a plot represent 12% of the population, and the plots are relatively small, amounting to 0.27 ha on average. The situation is similar in Sélingué where women represent about 16% of the population at Malinkoura and 12% at Sélingué, with individual plots on average below 0.3 ha.

Sources (Sénégal): Sakho-Jimbira, 2013 [unpublished]; (Mali): (Kergna et al, 2013)

An adapted offer should be made to producers who do not fulfil all the requirements. The government might steer them towards rain-fed crops while providing them with the services they need, such as agricultural advice and seeds. These farmers could aim to return to irrigated farming later, when their key assets such as land, livestock holdings, active labour force etc. are sufficient.

Towards inclusive governance of irrigation schemes

Building a shared vision, consistent with both the strategic objectives of governments and the aspirations and needs of producers, is an indispensable step towards establishing appropriate agricultural policies. To do this, mechanisms for multi-stakeholder dialogue will have to be set up, to enable the logic of the different systems to be understood in their contexts, and the most suitable strategies to be adopted through negotiation between the different actors. This process will need to be supported by a governance system based around two main features: (1) multi-stakeholder dialogue and negotiation platforms at national and local levels; (2) definition of rules of transparency and accountability, with systems for holding the different stakeholders (including the state) accountable to each other for their decisions and actions.

The establishment of the future Land Occupation and Allocation Plans (POAS Plans⁴) in Senegal could offer a way into this new system, and could act as an instrument of negotiation and collaborative governance for the sustainable management of land and the integration of irrigation schemes into their immediate environment. This kind of tool can potentially facilitate better exploitation of the complementarities between the different economic functions that land fulfils.

CONCLUSION

Despite its strategic importance, the quest for food security must not become disconnected from the objective of making family farms more resilient. This means that the ways in which land is allocated and services are provided within irrigation schemes will have to be re-thought, to take account of the needs and capacities of the different types of farms, while at the same time putting in place new mechanisms for the governance of these large developments, primarily through establishing multi-stakeholder dialogue platforms.

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Notes

This policy brief is based on the data collected in research studies in three countries, on the dams at Bagré (Burkina Faso), Sélingué (Mali) and Niandouba/Confluent (Sénégal) and a synthesis report:

- Guèye, B. (2014) Specialisation or diversification? Divergent perspectives on rice farming in three large damirrigated areas in the Sahel. GWI (West Africa).
- Hathie, I., Diouf, L., Diouf, M., et Kama, M. (2013). Les enjeux pour les petits producteurs dans l'irrigation à grande échelle : Cas du barrage de Niandouba et Confluent (Anambé), Sénégal. GWI (West Africa).
- Kergna, O.A., Cissé, I., et Meité, F. (2013). Les enjeux pour les petits producteurs dans l'irrigation à grande échelle – cas du barrage de Sélingué et de Maninkoura au Mali. GWI (West Africa).
- Ouédraogo, O., Sedogo, S.A. (2014). Les enjeux pour les petits producteurs dans l'irrigation à grande échelle – cas du barrage de Bagré, Burkina Faso. GWI (West Africa).

1. The Bagré hydro-agricultural dam was built between 1989 and 1993. The potential irrigated area is estimated to be 29,900 ha, of which about 3,380 have so far been developed. A total of 1,673 families in 16 villages are farming the irrigated area in 2013. The dam and its intervention zone were handed over to Bagrepol in 2010.

2. The Sélingué hydro-agricultural dam was built in the late 1970s and the area was flooded in 1982. It currently produces 15% of the country's electricity and has a potential irrigated area of over 20,000 ha of which 2,300 ha have so far been developed. The dam is managed by the ODRS.

3. The Niandouba/Confluent dams were built between 1982 and 1999. They cover seven villages (*Communautés Rurales*) with a total population of 112,000 inhabitants. The irrigated area is 5,000 ha but only 1,800 ha were under cultivation in 2011. The dam is managed by SODAGRI.

4. A participatory process for reducing land conflicts in Senegal <http://gwiwestafrica.org/en/participatory-process-reducing-land-conflicts-senegal>

GWII WEST AFRICA

The Global Water Initiative in West Africa is an action-research and advocacy project. We work with family farmers and governments to shape policies and practices that support livelihoods and food security in the context of large multi-purpose dams. The project is funded by the Howard G. Buffett Foundation and implemented by IIED and IUCN.

www.gwiwestafrica.org

IUCN

The International Union for Conservation of Nature helps the world find pragmatic solutions to our most pressing environment and development challenges. IUCN's work focuses on valuing and conserving nature, ensuring effective and equitable governance of its use, and deploying nature-based solutions to global challenges in climate, food and development.

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The International Institute for Environment and Development promotes sustainable development, linking local priorities to global challenges. We support some of the world's most vulnerable people to strengthen their voice in decision making.

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