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Making a Large Irrigation Scheme Work: A Case Study from Mali

Located in the heart of Mali, the *Office du Niger* (ON) is one of the oldest and largest irrigation schemes in Sub-Saharan Africa. The French, who began the scheme in 1932, planned on developing about 1,000,000 hectares (ha) over a period of 50 years. The scheme did not provide the expected resources for cotton and rice farming, and a major source of exploitation of farmers. Change began in the 1980's with Government/donor led reforms that resulted in dissolving the monopoly power of ON and increasing citizen participation in its management.

This report provides the context and details on how the government of Mali became committed to reform of the Office du Niger (ON), an irrigated rice scheme. The government's decision is presented as the outcome of a series of small power shifts triggered by pro-reform players. Reform advocates played a key role, and identified opportunities and applied their skills to tilt the power balance between agency and farmers to further goals of sustainability and partnership. Initial steps for reform had a significant impact, as they raised yields and farmer incomes in a single season. Coalitions grew into partnership institutions that became effective enough for government to consolidate them into a legal and financial framework. This case study serves as an illustration of how the World Bank and other donors can help governments turn public irrigation systems into financially sustainable operations.

Background

Mali is located in West Africa. Half of its 1.24 million square kilometers of land is arid, with aver-

age annual rainfall of less than 200 millimeters. Its population of an estimated 11 million in 2002 is growing by 2.4 percent a year. Mali is also one of the world's poorest countries, with 64 percent of the population living below the poverty line; life expectancy at birth is 43 years, and 57 percent of its people are illiterate.

Economically, Mali is vulnerable. It has a gross domestic product (GDP) of US\$240 per head. The country derives 43 percent of its GDP from agriculture; harvests depend on rainfall, because less than 100,000 hectares can be irrigated. Rainfall is highly variable, and droughts are frequent. Three commodities (cotton, gold and livestock) earn more than 90 percent of Mali's foreign exchange.

Mali was colonized by France from the 1880s until 1960. After independence, it was ruled by a one-party political system, followed by military control from 1968 until 1991, when a popular uprising led to a multiparty democracy and restored civilian government. Since the early 1990's, Mali has reduced its macroeconomic imbalances and liberalized its economy.

Creation and expansion of an irrigated rice scheme

The Office du Niger (ON) or Niger Authority was created by the French colonial authorities in 1932 for gravity irrigation on a million hectares along the Niger River. The ON refers to both the 60,000 hectare scheme and the organization that manages it. The project is located in the middle of Mali on

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land fed by the Niger River. The initial infrastructure was built by forced labor and land was cultivated by involuntary settlers. Settlers were forced to grow cotton to supply the French textile industry, but cotton crops failed through no fault of growers, and settlers became heavily in debt. Rice cultivation was permitted to feed the settlers and alleviate food insecurity in the region.

By the time Mali became independent in 1960, over 45,000 hectares had been developed. After independence, all managers of the ON were Malian; they expanded the scheme, but they did not change the management institutions. The government inherited a top-down management structure; operation and maintenance of intake and canals; and monopolies in crop processing and marketing of farm output.

The government and the ON formed a solid coalition that did not include farmers. The arrangement supported the government in providing a reliable rice supply for urban constituents; the government also guaranteed salaries for ON agency personnel and absorbed agency's losses. In 1969, with increased demand for rice, the government determined rice would be the only crop in the irrigated area. To expand the scheme, the government approached the World Bank and other donors for assistance. This became the beginning of reforms, although that was not the government's original intention.

How farmers became partners

After a situation analysis, the World Bank and bilateral donors concluded that expansion of the irrigation scheme would be economically unjustified until the scheme became financially sustainable. The key to becoming financially viable was the involvement of settlers as partners in scheme management, in addition to a grant of land-tenure security. Without significant reform measures, farmers lacked incentives to raise yields. Furthermore, agency monopolies needed to be abolished, management costs cut, and water delivery made more efficient.

The government agreed to improvements concerning water delivery, expressed an interest in infrastructure rehabilitation, and opposed all suggestions concerning reform. The government had little political room for maneuvering, as its actions were cir-

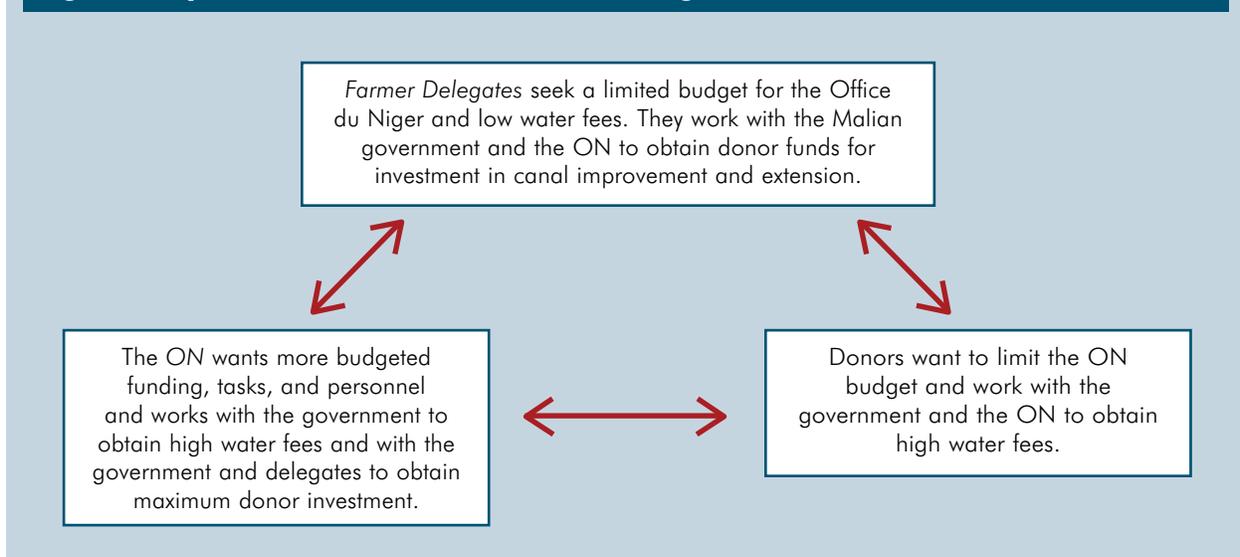
cumscribed by its stakeholder coalition. A stalemate ensued in 1982 when donors required government commitment to reform to release funding. One donor, the Netherlands, proposed a compromise that allowed for a combination of physical and institutional improvements on a single secondary canal.

The small reform steps were introduced along with physical improvements. Reform steps included: short- and medium-term credit for all farmers; a new system of management of the credit process through village associations; and a new mechanism for canal operation and maintenance that introduced village associations as partners. Results from this trial process were conclusive—yields more than doubled, and when the government requested donor assistance in extending the rehabilitated area, some power shifted from agency staff to farmers.

Through the introduction and spread of technologies that helped shape new institutions and forged a stakeholder coalition of organized farmers, who gradually replaced the agency staff as the most powerful group of stakeholders. The farmers gained further independence from the ON in 1984 and 1986 when they started to use small threshers and hulling machines, and did not have to rely on the agency to have their rice threshed and milled. Another bilateral donor negotiated farmer-friendly land-tenure rules and created transparent and user-accountable institutions. Through innovations and pressure, the staff in the donor projects obtained the government's verbal agreement to reform; the commitment to reform was confirmed with a Bank loan that mandated reform of the ON.

Consolidation of reforms

In 1991, a new government came to power in Mali that, after initial hesitation, followed through on the commitment to reforms. With the political support of the organized farmers, the new government was convinced it could take on the entrenched ON, now weakened by lost political leverage and social standing. Further, the farmers proved that they were a new political force when they threatened to march on the capital if the government did not stop the illegal rice imports that were depressing rice prices. The government's decision to consolidate the irrigation reforms squared with its policy to further liberalize the economy with the help of donors.

Figure 1. Dynamics of Performance Contract Negotiations

Under the new political scenario, reforms were quickly consolidated. With the political support from organized farmers, and the financial support of donors, the government appointed a reform unit directly under the prime minister's office, overriding sector ministries. The reform unit established a timetable that set the pace for reform and brokered compromises between the ON employees' union, farmers, ministries, and donors. Reforms aimed to: downsize ON staff; fine-tune new institutions; establish land-tenure security for farmers; and initiate full-cost recovery and joint management by elected farmers' representatives and agency staff.

One effective innovation was the creation of three-party performance contracts valid for three years that institutionalized a new balance of power between the government, the ON, and organized farmers. The contracts allowed the three parties to negotiate, monitor, and assess one another's contributions and performance. The framework for partnership combined farmer monitoring of the use of water service fees with agency administration and government authority for compliance; that fact that contract negotiations recurred on a regular basis allowed for continual adjustments of rules to meet emerging realities, such as the need to include a younger generation of farmers.

The reforms led to sharp increases in yields, copping intensity and incomes. The reforms reduced poverty through:

- Increased incomes of established farmers;
- Accommodation of newcomers;
- Liberation of women from daily chores of pounding grains and creation of openings for women to farm and trade; and
- Supported household shifts from subsistence cultivation to cash crops and commercial services.

The success of reforms further solidified the new institutional framework. User funding of operation and maintenance reinforced market discipline in credit, extension, and economic partnerships. The reforms appear sustainable.

Lessons on irrigation reform for other countries

Irrigation reform has posed challenges in other developing countries, so that the process that Mali went through is typical of irrigation reform elsewhere. Often, there is a lack of interest of focus in the accountability and performance of the public irrigation sector, even when it drains finances from such services as health, education and road building. Without strong, widespread support for implementing reform, governments may find it politically unfeasible to initiate reforms in a sector fiercely opposed to change.

Table 1. Water fee Collection and Infrastructure Maintenance (Current Terms), 1992–93 through 1995–96

Year	Fee Rate, Class 1 (CFAF/ha)	Fees Collected: (CFAF million)	Fees Collection Rate (%)	Expenditures on Infrastructure Maintenance (CFAF million)				
				From Water Fees	From National Budget	Total	Share Expenditures from Water Fees	Part of Water-fee Proceeds used for Maintenance works
1992–93	28,000	823	80.0					
1993–94	28,000	1,032	95.4	430	533	963	0.45	0.42
1994–95	32,000	1,216	97.7	553	562	1,115	0.50	0.45
1995–96	40,000	1,684	95.9	807	546	1,353	0.60	0.48

ha: hectares

Source: Authors, from ON Data.

The ON case demonstrates that governments can trigger a change process by granting farmers small gains that are achievable and politically feasible. The changes proposed by donors were the result of careful analysis, aimed at long-term sustainability. In the ON, the initial shifts concerned water, credit, and dialogue on the operation of the canal. A new government created an opportunity for further reform, and reform advocates shaped a new intervention (mobile threshers and hulling machines run by village associations) to meet the goals of reformers and the government. The long-term presence of field staff committed to farmer welfare, with good access to decision makers, also proved essential to on-going reform.

The experience in Mali illustrates that governments can adopt a testing phase to broaden the arena for support of irrigation reforms and reduce resistance to implementation. By encouraging farmers, national management institutes, NGOs, and other secondary stakeholders, as well as the irrigation department itself, it is possible to test solutions that include modern management perspectives and practices. In addition, governments can monitor the political feasibility of the test output, and preempt or reduce resistance through analysis of and planning for the political feasibility of implementation.



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