

Findings



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Office du Niger : Ensuring Food Security for 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 original objectives were to: (i) supply the French textile industry with a large share of its needs in cotton; and (ii) significantly contribute to food security for the whole Sahelian region of the French Empire with a modern and commercial rice production system.

In 1982, fifty years after its creation, the ON was far from meeting these objectives.

- (a) only 6% (60,000 ha) of the target area had actually been developed;
- (b) the infrastructure was poorly maintained, and as a result one-third of the area developed was abandoned;
- (c) cotton production had been discontinued in 1970 because rainfed production systems in the South of the country proved to be more cost-effective;
- (d) the average yield of paddy had reached its lowest level, at just 1.6 t/ha; and
- (e) settlers were disgruntled over their poor conditions.

In short, the ON had drained huge public resources with little result. From the mid-1970s, the ON focused sharply on developing the area into a major national and regional rice-producing resource.

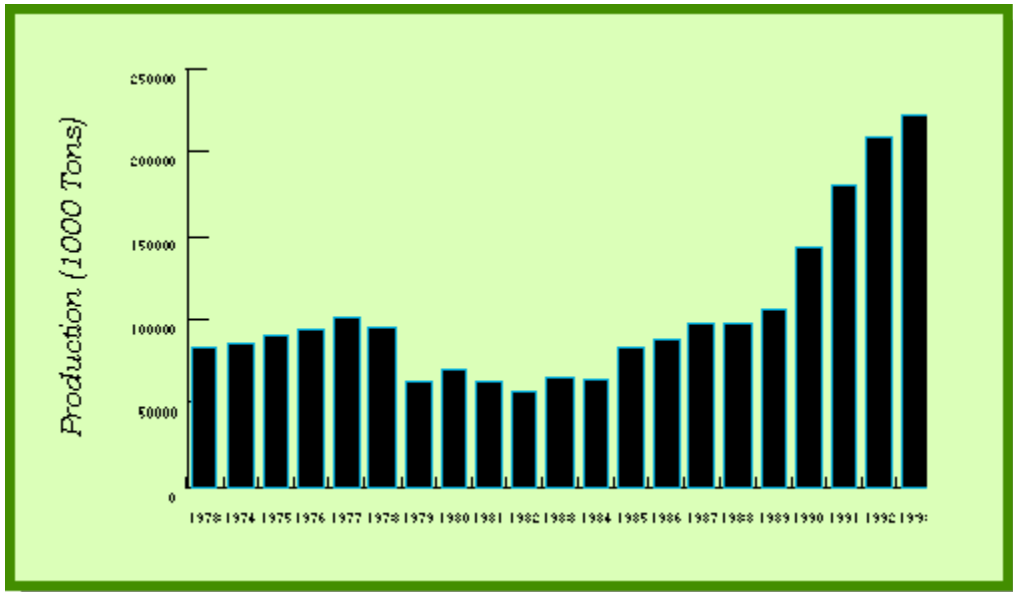
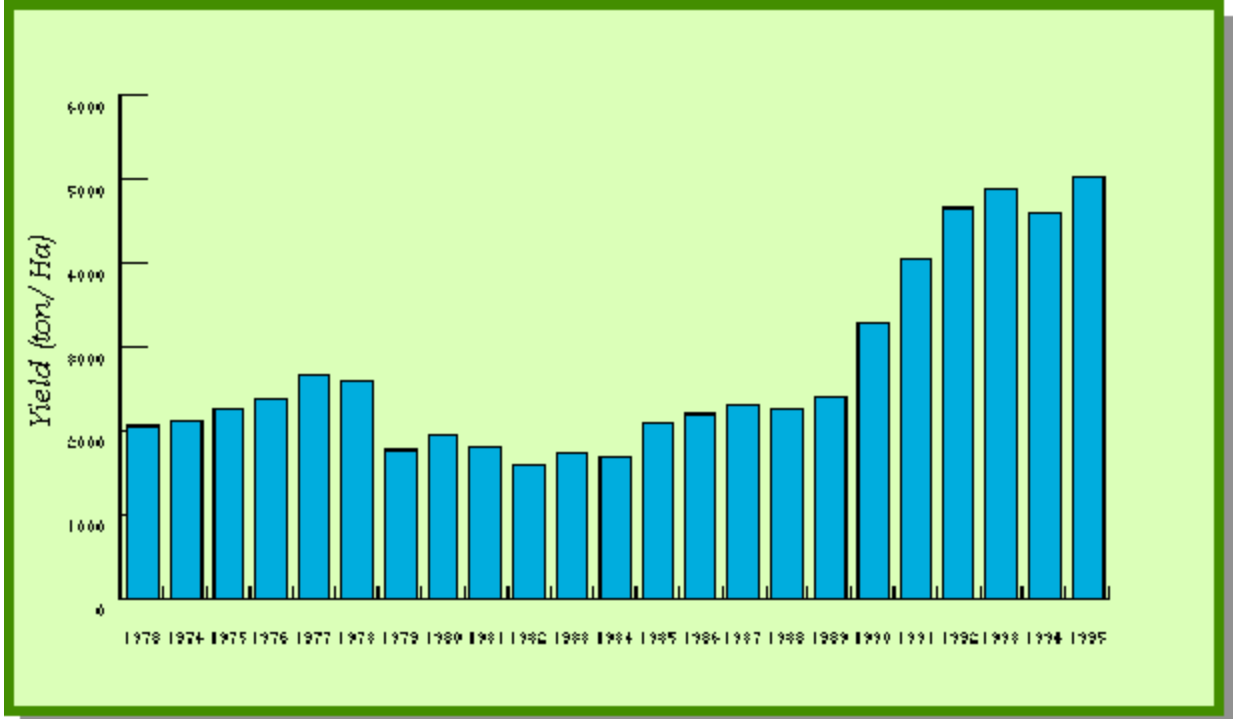
Successful Rehabilitation

In West Africa, the initial tests of modern High-Yielding Varieties (HYV) of rice consisted of pilot projects in the early 1970s spread across several countries and carried out with Chinese assistance. The results were impressive, with yields of 4-5t paddy/ha. This, combined with a severe drought in the Sahel served as a major push factor for the Malian Government, with the assistance of the West Africa Rice Development Association (WARDA), to prepare a master plan for the rehabilitation of the ON. This study, carried out between 1975 and 1977, served as the basis for a World Bank identification mission in 1977 and a technical assistance/engineering project in the following year. Soon thereafter other donors joined the efforts. The first physical rehabilitation pilot project was undertaken in 1982 with Dutch assistance. Presently, a group of six donors assist the ON - the European Union, the World Bank, and the Governments of France, the Netherlands, Germany, and the United States.

The overall result of the rehabilitation is an impressive turnaround between 1983 and 1994:

- (a) average paddy yields tripled, rising to 5t/ha (see graph), which compares favorably with the Green Revolution achievements in Asia ;
- (b) about 10,000 ha, or a fourth of the total area cultivated, were lands previously abandoned, since no new land development has been undertaken for rice since 1966;
- (c) attracted by an opportunity for income-generation, the settler population grew by 222%;
- (d) the per capita production of paddy rose from 0.9t to 1.6t; the combination of settler population and productivity increases making a significant contribution to poverty alleviation and food security for the country.

ON: Paddy Yield and Production Shoot Up



Factors of success

These can be divided into two categories: technical and institutional/economic.

Technical factors

Water management. Adequate delivery and disposal of excess water as well as maintenance of an optimum level of water in the paddy field are essential to rice intensification. They are

prerequisites of the use of dwarf HYVs, the effective use of fertilizers and labor-intensive practices. Water control has been achieved through the physical rehabilitation of the irrigation and drainage network. Given that this has been so far completed on only 40% of the total cultivated area, there is still a significant margin for raising average yield and overall production. In rehabilitated areas, the average yield can reach about 7t/ha. By contrast, in areas where rehabilitation has not yet started, the yield is only about 3t/ha. However, even this represents a doubling of the average yield in the last decade because farmers have partly succeeded in improving the water control themselves through bunding and land leveling by hand and animal traction.

Availability and extension of a comprehensive package of improved technological messages. These include information on pre-tested high yielding varieties, optimum plant density, age of seedlings, date of sowing, and fertilizer formulas specially adapted to the constraints of the zone and to local capacities. In the past many of these technologies were not adopted either because the necessary preconditions - such as water control - had not been met, or because a constraining economic context - such as Government price fixing or monopsony buying of paddy production by the Office du Niger - created enormous disincentives to production. A good example of a production technology that suddenly became attractive once water control and favorable macroeconomic conditions were achieved is transplanting (in the past five years, the percentage of area transplanted increased from 10% to 70%). The adoption of improved technologies by large numbers of producers was greatly facilitated by an improved agricultural extension service based on the fundamental principles of the Training and Visit System (T&V).

Appropriate agricultural mechanization. The rapid increase in yields caused serious problems of absorptive capacity in threshing and processing activities which were previously the monopoly of the ON. Fortunately, it was possible to make rapidly available to farmers small threshers and milling machines which were both financially and technologically appropriate. This limited motorization also permitted farmers to benefit from price and trade liberalization measures undertaken as of 1985 .

Institutional/economic factors

Liberalization of paddy marketing and processing. Initiated in 1985, liberalization measures allowed farmers to obtain substantially greater returns on their production, despite certain cases where individual farmers lost large sums of money by entering into contracts with dishonest traders. Over the past 5 years, the private sector has taken over the processing and marketing of paddy (the percentage collected by the ON rice mills fell from 67% of paddy production in 1983/84 to 4% in 1993/94). Artisanal mills spread very quickly within ON areas and, over time, became more cost-efficient than the industrial rice mills because of their mobility, limited overheads, and better quality.

Land tenure security: for which the principal instrument was the granting of usufruct rights on land which can be inherited, provided water fees are regularly paid and the plot is correctly farmed.

Access road construction: which has had a substantially positive impact on production and sales in the areas now accessible year-round through asphalt roads. It also demonstrates the urgent need for such roads in the area where access is still very difficult.

Institutional reforms and new partnership with farmers. In order to sharpen the ON's focus, a restructuring was carried out in the mid-1980s to streamline its functions. Its key services now include (i) delivery of water; (ii) operation and maintenance of the infrastructure through contracting instead of by force account; (iii) administration of land ; and (iv) agricultural extension. The liquidation of the other units resulted in a staff cut of more than 70 %. The social impact of this measure has been mitigated by a 3-year severance package and the opportunity for many ex-staff to establish themselves as independent farmers or providers of associated services (threshing or milling contracts, network maintenance or providing customer services for agricultural machinery). Also, the reduction of the salary burden has enabled the ON to allocate a much greater share of the revenues generated from irrigation fees to the operation and maintenance of the network, thereby contributing to sustainability. More important, user committees ensure that settlers are treated as full partners regarding the utilization of fees collected by them. As a result, fee collection has improved dramatically, reaching an unprecedented level of about 97% in 1995. It has also been possible, over the last 2 years, to raise the fees by 43% in order to fully recover operation and maintenance costs.

Lessons from the ON experience

Right environment. Restructuring has a much better chance of success and sustainability when it occurs in the context of the right macro policy and with the right technology package. The impressive results of the investments made in ON infrastructure and the take-over by the private sector of marketing and processing activities created momentum and support for the ON's restructuring.

Focus on water management with transparent financing. Refocusing the irrigation institutions on the essential water services, with well-defined sources of funding, is key to success and sustainability. In the case of ON, water maintenance is to be funded solely from the producers' water fees.

Government commitment and participative approach. Such major restructuring requires the commitment not only of the Ministry of Rural Development, but also of the entire government, and particularly of the Ministry of Finance. The government clearly committed itself to the ON's restructuring by setting up an ad hoc unit directly under the authority of the Prime Minister and with the sole mandate of carrying out this task in three years. While it takes time to build consensus and commitment in a participative way around the key objectives and principles of restructuring, this is vital to success.

Donor coordination. Strong donor coordination is essential to promote key policy changes and restructuring, particularly when these changes are politically or socially delicate. In the case of the ON project, joint donor missions have contributed to building a strong common platform over the years. Also, coordination and team work with the IMF resulted in 1992 in a very unambiguous joint message to the government regarding the urgency of restructuring.

Land tenure. Farmers need land tenure security as an incentive to invest in their fields. The ON experience with usufruct rights has shown that farmers can feel land secure without actual landed property. In several areas, farmers are now willing to finance the irrigation investments at the field level.

Partnership with producers. Building a partnership with producers is essential to successful and sustainable irrigation schemes. The partnership between farmers and the ON in Mali was a dramatic departure from the top-down approach of the past and has already generated high payoffs, such as the radical increase in water fees recovery.

Prospects for the future

Of major concern are the technical risks associated with soil degradation as a result of salinization, in addition to the impact of a wide range of rice diseases. Agricultural credit still suffers from years of lax behavior in the past during which farmers rarely repaid their loans. Even today, despite the increased income and production security generated from rehabilitation and higher yields, the level of unpaid loans remains very high, with the risk of declining use of essential inputs and appropriate machinery.

Because the first rehabilitation programs were very costly, there was a question as to their cost effectiveness, and hence, their expansion and sustainability. However, the willingness on the part of the farmers to carry out a significant part of the maintenance and civil works previously undertaken by the ON has not only relieved that concern, but has also made it possible to expect that all the land area presently developed will be totally rehabilitated by the year 2000. This will most likely require a new approach in which the beneficiaries will be responsible for a significant portion of the rehabilitation, and no longer be the recipients of a turnkey operation.

The prospects for Mali to become not only self-sufficient in rice production, but also to export throughout the sub-region are promising. The still embryonic double-cropping technique is taking hold throughout the rice -growing region, irrigation rehabilitation is proceeding actively, new land developments are under way, and economic competitiveness has been restored after the CFA devaluation. All this points to a future full of promise for the Office du Niger and for Mali, with the prospect of fulfilling Mali's long-standing dream of becoming the "rice basket" of West Africa.

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