CHAPTER 4

Privatization Issues in Sudan Irrigation Sub-Sector

INTRODUCTION

Historically, the irrigated sub-sector dominated agricultural production in Sudan. Though it comprises only about 20 percent of the total cultivated area, it produces more than 50 percent of the total agricultural production. Some important and strategic crops are grown only in the irrigated sub-sector. These include, wheat, winter legumes and extra-long staple cotton. The sector has also an advantage over the rain-fed one (traditional or mechanized) in that it stabilizes agricultural production, especially food crops.

The Sudan irrigated sub-sector consists of schemes varying in size from a few thousands to over two million feddans with a combined area of 4.5 million feddans (1 feddan = 0.42 ha). The sector is dominated by four large parastatal schemes: Gezira, Khashm El Girba, Rahad and Es Suki having among themselves 65.3 percent of the total irrigated area. The combined share of the three defunct Agricultural Corporations, the Northern, White and Blue Niles, in the total irrigated area is 16.8 percent while that of Sugar Public Limited Companies (excluding Kenana Sugar Estate) is 2.9 percent. In addition to other public irrigation schemes (notably, Gash, Tokar, Barka and Abu Naama), the area of the public sector irrigation schemes at one time approached 93 percent of the total area.

Over the years, the government invested heavily in this sector making it the locomotive of the economy. Unfortunately, the sector did not live up to its expectations. Infrastructure has deteriorated, production, productivity and areas have decreased. The share of agriculture in Gross Domestic Product (GDP) has plummeted from 44 percent in 1971-75 to 34 percent in 1986-90. For the first time, the agriculture sector has lost its leading contribution to the GDP; presently, it ranks second to the services sector which commands 50 percent of the GDP. Within the irrigation sub-sector, some schemes faired better than others. Some have become a burden on the government.

In its attempt to halt and reverse this declining trend, the government is currently restructuring this sector with particular emphasis on institutional, technical, economic and environmental factors. These factors are intrinsically related. For the purpose of this conference, the paper discusses the privatization of irrigation schemes with related policies and issues involved from the perspective of the Ministry of Irrigation and Water Resources.

IRRIGATION MANAGEMENT IN THE SUB-SECTOR

Since the inception of modern irrigation in Sudan in the early decades of this century and until the present time, management of the irrigation system in most of the irrigation schemes remains in the domain of the public sector. The Gezira Scheme was managed from the beginning and until its nationalization in 1950 by a private company (Sudan Plantation Syndicate [SPS]) which was responsible for agricultural and business matters while the government built and then managed (through a government body known then as Sudan Irrigation Department, [SID]) the dam, the canalization system and the irrigation control works. SID was responsible for operation of the Sennar Dam, diversion, control and distribution of the irrigation water up to the head of the minor Canal. The SPS took over the responsibility of operating the minor canals and of field distribution of water. Maintenance of the irrigation system, upto and including the field outlet works, remained the responsibility of SID. After the creation of the Sudan Gezira Board (SGB) which took over from SPS, SID became the Ministry of Irrigation (MOI) after Independence with responsibilities including planning, development and management of Sudan's water resources.

The style of management in the Gezira Scheme (i.e., the division of responsibility between MOI and SGB along some recognized and well-defined lines) developed over a long time was so successful that it was emulated in other public sector irrigation schemes. This style of management recognizes the professionalism, specialization, expertise and limitations of each side.

The aforementioned setup of management seems well-suited to large-scale public irrigation schemes. On the other hand, privately owned small irrigation schemes are managed wholly by their owners, without MOI intervention whatsoever. The same thing applies also to some private small- to medium-size irrigation schemes, notably Kenana Sugar Company, Seliet and Elwaha. An interesting example of management is to be found in the four limited sugar companies which is very similar to that in the days of the SPS and SID in the Gezira Scheme.

Irrigation management in the pump schemes, started by private enterprise along the White and Blue Niles, witnessed a great deal of changes over the years. Before nationalization of these schemes in 1968, they were managed by the private sector. The Agrarian Reform Corporation (ARC) was created to take over the responsibility of these schemes including irrigation management. Later on, the ARC was dissolved and the Blue and White Niles Agricultural Corporations were established. At the same time, the Northern Province Agricultural Corporation was also established. Unfortunately, these three corporations ran into many difficulties including irrigation because of antiquated facilities and inability to operate and maintain such facilities. A couple of years back, the government decided to dissolve these corporations and to put them for sale. Also it decided that MOI should take over, in the meantime, the responsibility of operating and maintaining irrigation facilities in the Blue and White Niles Corporations. Ever since, the irrigated area has increased steadily reaching a fourfold increase this year to that obtained two years ago.

In irrigation management, two of its main functions are operation and maintenance (O&M) of the irrigation system and its facilities. It is often the case that the success or failure of an irrigation scheme depends on how well or bad O&M are carried out and to whom these functions are entrusted. Table 3 shows who is responsible for what in O&M of the irrigated sub-sector.

Table 3. Operation and maintenance of irrigation systems.

Nature of ownership	Percent of total area	Responsibility for O&M
Large public-sector schemes	65.3	MOI
Medium public-sector schemes (Gash and Tokar)	7.3	Gash and Tokar with technical assistance from MOI
Small public-sector schemes	16.8	MOI (in the majority of these schemes)
Public limited companies (mainly sugar industry)	3.0	MOI (at present)
Private schemes	7.6	Private sector

As can be noticed from the Table, MOI domination is overwhelming. This near monopoly may be attributed *to the following:*

* Since most of these irrigation schemes are developed and owned by the government, it is assumed that the government should also be responsible for their O&M.

* Over the years, MOI has provided a complete range of services to O&M. This includes resources, expertise, research and development. Being the government agency responsible for planning, designing and implementing irrigation projects in the country, MOI is in a better position to assume responsibility for O&M.

* The level of sophistication and complexity in O&M increases with the size of the irrigation system. Neither agricultural corporations nor the private sector has the expertise or resources to carry out these functions adequately and in a cost-effective way.

* Some O&M functions like desilting requires expensive equipment and expertise to operate and maintain them beyond the means of any single agricultural corporation or the private sector. Centralization of such functions in the hands of MOI is necessary and cost-effective.

* O&M is not attractive enough for the private sector because of the initial high capital investment and the low return on that investment.

Centralization of O&M in the hands of MOI is not without problems. Some of these are inadequate funding, the sheer size and the enormous geographic extent of the irrigation sub-sector. Also the absence of competition leads to complacency and, hence, inefficiency.

PRIVATIZATION ISSUES

Privatization of irrigation schemes is a complex process raising many interesting and sometimes difficult issues. It is beyond the scope of this paper to discuss them all (hopefully some of these issues will be dealt with
in other papers of this workshop). The paper is confined to issues directly related to irrigation.

The irrigation schemes put forward for privatization have two things in common: they are all pump schemes and their water sources are the Nile and its tributaries. However, they vary considerably in their size, land classification, conditions and complexity of their irrigation facilities and in other infrastructure. These variations together with the geographic location will determine to a large extent the attractiveness or otherwise of a particular scheme for privatization.

Some of the issues involved are highlighted and discussed briefly as follows:

1. *Sale of privatized schemes.* It is most probable that the government will not be able to sell the schemes put forward for privatization. In this case, the government has three options to consider: a) to sell the remaining schemes, or b) to rehabilitate these schemes and put them for sale again, or more drastically c) to abandon these schemes.

2. *Ownership.* It is unclear so far to whom the government is going to sell these schemes. Prospective buyers can be an entrepreneur, a company or a cooperative society. Irrigation management style, turnover process and future relationship with MOI depend largely on the nature of ownership. It is suggested here that the size of ownership be as follows:

   entrepreneur - less than 100 feddans
   cooperative - between 100 and 10,000 feddans
   company - more than 10,000 feddans

3. *Water allocation and water rights.* After privatization, it is natural to expect the new owner to select a cropping pattern and cropped areas which maximize his profit. This may run against national interest. Given the dwindling water resources in the country and the increasing demand for water, maximizing net return with respect to each unit of water is a national objective for better utilization of our water resources. MOI may exercise some control in this respect, e.g., reducing water allocation and/or reviewing water rights, where and when deemed necessary. A minimum of water rights for each scheme needs to be established and guaranteed. This issue needs further development and institutionalization.

4. *Sustainability.* Failure in attaining and sustaining efficient performance was the key factor which led the government to privatize these schemes. If the private sector is to succeed where the public-sector has failed, the government should not, from the beginning, let the privatized schemes be on their own, particularly the small-scale ones. Support from the government, for a specified transitional period is essential. This support may take many forms such as technical assistance, credits and soft loans for upgrading and renovating irrigation facilities, O&M, training in repairing and servicing of pumps, channel construction, maintenance procedures, irrigation water management, etc.

5. *Competition for services and resources.* Privatization will increase the demand for services and resources. There is already an acute shortage in trained and experienced professionals, service personnel and technicians as well as insufficient service facilities. MOI may face difficulties in keeping its trained and experienced staff away from the lure of the private sector. Financial flexibility will enable MOI to improve its performance and to remain competitive in rendering its services.

6. *Turnover of management responsibilities.* In pursuance of the government policy of privatization of some irrigation schemes, care needs to be exercised in turning over management responsibilities to the new owners because they may lack experience and/or may be ill-equipped to handle the job initially. MOI should continue providing support for O&M till such time as the private sector can take over in a phased-out program. Development of strategies using lessons and experiences derived in other countries for turning over management responsibilities to the private sector is quite essential.

7. *Public intervention.* It is most probable that some privatized schemes, in particular small to medium ones, will turn, at some time in the future, to MOI to assist in or take over the management of these systems. How will MOI respond to such a request and which criteria and guidelines are to be followed in such cases? Methodologies and procedures need to be developed to make such intervention most beneficial.

POLICY ISSUES

The points discussed in the preceding section just touch on a far complex process as privatization of irrigation schemes. This complexity stems from the variety of environmental, technical, social, economic, institutional and political implications of privatization. These implications result in a series of questions related to the appropriate policy to be used. The following policy issues are discussed in such a context with special emphasis, of course, on irrigation aspects.

1. *The national role of MOI.* As water resources are a national asset, its planning, development and utilization are the most important functions that the government can perform in support of irrigation development. Clearly, these are functions that cannot be performed by the individual irrigation schemes whether private or public. Therefore, the integrity of MOI in discharging its duties is of utmost importance. Also important is the jurisdiction of MOI over formulating and enforcing water regulation and management laws. (The recent Irrigation and Drainage Act approved by the government is a welcome step in this direction).

2. *Turnover of O&M responsibilities.* From MOI experience, it is extremely difficult and costly (in human and material resources) to centralize O&M functions for numerous small and scattered irrigation schemes. MOI experience is largely in big irrigation schemes. Given these realities, MOI has realized the need to turn over the management of small and medium-scale privatized

irrigation schemes to the new owners (with the safeguards discussed earlier, in particular, appropriate resource assistance). This policy is advantageous to everybody:

i. it makes the privatized schemes more responsive to their irrigation systems which in turn leads to possible reduction in O&M costs;

ii. it will free the hands of MOI in concentrating its efforts in managing the large irrigation systems and improving their performance.

3. *Establishment of water user's associations.* It is generally believed that irrigation systems where farmers are entrusted with some or all irrigation management functions are more successful than those where farmers' participation is minimal or nonexistent. Recently, MOI was made responsible for managing the minor canals up to and including field outlet pipes in the big irrigation schemes, as from the 1992 season. This makes MOI, for the first time, render its services directly to the farmers. Farmers' participation in some functions of irrigation management at the minor level and below, should be encouraged and every effort should be made in promoting and institutionalizing this role.

4. *Water charges.* Although MOI will not be responsible for O&M in the privatized schemes, these schemes will be asked to pay water charges commensurate with the real value of water on a volumetric basis at the abstraction point whenever possible, as this is the most direct method of water charging. The reason for this is twofold: a) water is considered not only as a commodity but also as the most important input for agricultural production; its planning, development and utilization cost money and, therefore, privatized schemes should contribute in meeting these costs, and b) to encourage proper water management and water conservation measures in these schemes.
5. *Integrated approach in privatization.* As privatization of irrigation schemes is intricate and complex because it encompasses a wide spectrum of related issues, there is a need for an integrated approach combining (among other things) irrigation management, land use and land policy.

CONCLUSION

Privatization of irrigation schemes is perhaps more complex than their nationalization. Sudan has some experience in the latter but not in the former. Therefore, sailing in such unchartered waters needs careful consideration in planning, implementing and following up this process so as to reach its intended shores. The Ministry of Irrigation has a crucial role to play in the orderly turnover of management responsibilities and in giving a helping hand to these privatized schemes.