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TUNISIA

IRRIGATION WATER CHARGES IN THE OASES OF SOUTH TUNISIA

by

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1. GENERAL

The area covered by the oases in southern Tunisia is estimated at about 20 000 hectares. No food plants can be grown in this area without irrigation. The main crop is the date palm, however, many other varieties of trees and vegetable are also grown.

Most of these oases were planted many years ago around natural springs. The farmers have organized themselves into water associations in order to operate and maintain the irrigation and drainage networks. Maintenance of the system is usually done at the end of each season (December/January) and the farmer himself participates or hires a worker to do the work with the team which is in charge of the maintenance. The number of workers or the number of days of work are determined according to the water rights of each farmer. In another way the farmers also have to contribute to the operation of the irrigation network; this is through the payment to the water master who is in charge of controlling the water rotation. He is usually paid by having the fruit of a certain number of date palms, depending on the water rights of the farmers.

However, the piezometric level of the water table has been going down for the last 25 years and the flow of the natural springs has decreased drastically to the point where most of these traditional oases were threatened. In view of this situation, the Government decided to undertake an overall study

of the area in what is called the Water Master Plan of the South. Two important development programmes were defined within this plan according to the water resources of the area. The first programme deals with the rehabilitation of the traditional oases and the second concerns the establishment of new oases.

2. POLICY REGARDING THE RECOVERY OF INVESTMENTS IN PUBLIC IRRIGATION SCHEMES

All the projects which will be implemented within the development programme defined by the Water Master Plan are considered as public irrigation schemes. The total cost of these programmes is estimated at about 250 million dollars. The investments include:

- the drilling of about 150 deep wells;
- the implementation of the irrigation network at the farm level;
- the implementation of the drainage network at the farm level.

All these investments will be made by the Government without any recovery. In fact, this area of the country is considered as less developed with regard to the other regions.

However, all the on-farm investments should be made by the farmer, and he will be able to obtain credit through the special fund for the development of agriculture (FOSDA). The farmer will have to finance 15% of the cost, 15% will be given as a subsidy and 70% as a mid-term credit with a rate of interest of 7.5%.

According to the first results obtained from the implementation of the first phase of the Water Master Plan, the increase in the revenue of the farmer due to the additional water and the drainage system is very impressive (3 to 4 times the initial

revenue), and the farmer should participate in paying back at least part of the investments. A study is being undertaken by the Ministry of Agriculture in order to determine the way in which farmers could contribute to the recovery of investments made.

3. PAYMENTS FOR THE ABSTRACTION OF WATER

No payment is required for the abstraction of underground water in Tunisia, but special permission is necessary to drill to a depth of 50 metres or more. Nevertheless, in some areas where there are problems of draw-down or saline water intrusion, the Government does not encourage the farmers to drill. In such cases, private irrigation systems are not financed through the special fund for the development of agriculture.

4. PRESENT POLICY REGARDING FINANCING OF IRRIGATION INVESTMENTS IN PRIVATE SCHEMES

Besides the public irrigation schemes, there are three types of private schemes:

- small farms of about 1 to 3 hectares irrigated by shallow dug wells;
- small agricultural companies (10) of about 30 to 50 hectares irrigated by one deep well in each company;
- one large agricultural company (STIL) of about 2000 hectares irrigated by about 40 deep wells.

As far as the first two types are concerned, their projects are financed in the same way as the on-farm investments in the public irrigation scheme. For the only large company involved in

land development in southern Tunisia, its investments are financed through the normal banking system.

5. PRESENT POLICY WITH REGARD TO O&M EXPENDITURE

Maintenance costs are calculated on the basis of the initial value of the investment as shown below:

-	Deep well	0.5%
-	Pumps and other irrigation equipment	3%
-	Irrigation network	1%
-	Drainage network	3%
-	Feeder roads	5%

For operational expenses, there are two important items: energy for the pumping station and manpower for the operation of the pump and the irrigation network. The energy is calculated on the basis of the power of each pumping station and the number of hours it functions per day. The manpower is usually based on a rough estimation depending on experience and the specific situation of each oasis.

The operation and maintenance of the public irrigation schemes are done by two Government agencies (OMVPI Gafsa-Jérid and OMVPI Gabès-Médenine).

These two agencies also collect the charges. Usually the water charge has to be paid before receiving the water. In actual practice, the water master of each oasis gets an order to deliver water from the operation service and the order to deliver cannot be given unless the farmer has paid in advance for his water rotation.

The price of the water is subsidized by the Government. The subsidy represents about 50% of the total cost of the operation and maintenance of the irrigation system. However, it is quite difficult to separate the operation and maintenance costs. Generally, there is not a big difference between the estimated operational costs and those actually needed. However, there is a very large difference between the estimated maintenance costs and those really needed. This situation is due to the fact that the operation costs are readily accepted at the budget discussion because they represent real accounts that the Government agency has to pay at the end of each month, whereas the maintenance costs could be postponed to the next year.

The main components of O&M costs for the two Government agencies in charge of the oases for the year 1982 are presented in the following table (the figures are in 1000 dinars):

	Gafsa-Jérid		Gabès-Médenine	
Operation		501		352
- staff	99		124	
- energy	402		228	
Maintenance		121		65
- staff	76		48	
- repairs	45		17	
Total		622		417

The farmers participate in the O&M decisions in two ways. They are represented on the agency board where most of the decisions regarding O&M are taken and through the farmer organizations of each oasis. The irrigation schedule is prepared

by the agency but with the collaboration of the farmers' associations.

Any decision to stop the delivery of water in order to undertake emergency repair work is also taken after consulting the association.

6. CONCLUSION

It has been noticed that, in the case of the oases of southern Tunisia, participation of the farmers in the O&M expenditures is less noticeable than it used to be 25 years ago. This is because most of the projects that have been implemented are relatively technically complicated. As a matter of fact, most of the technical studies were made with the objective of reducing the investment cost without taking into account the O&M problems of the project. Moreover, the projects were conceived in such a way that they can only be operated by the Government water agency. As a consequence, the farmers can hardly participate in the operation of these projects.

More attention should be given to the aspects involving the farmers in the preparation of the technical and social studies for public irrigation schemes.

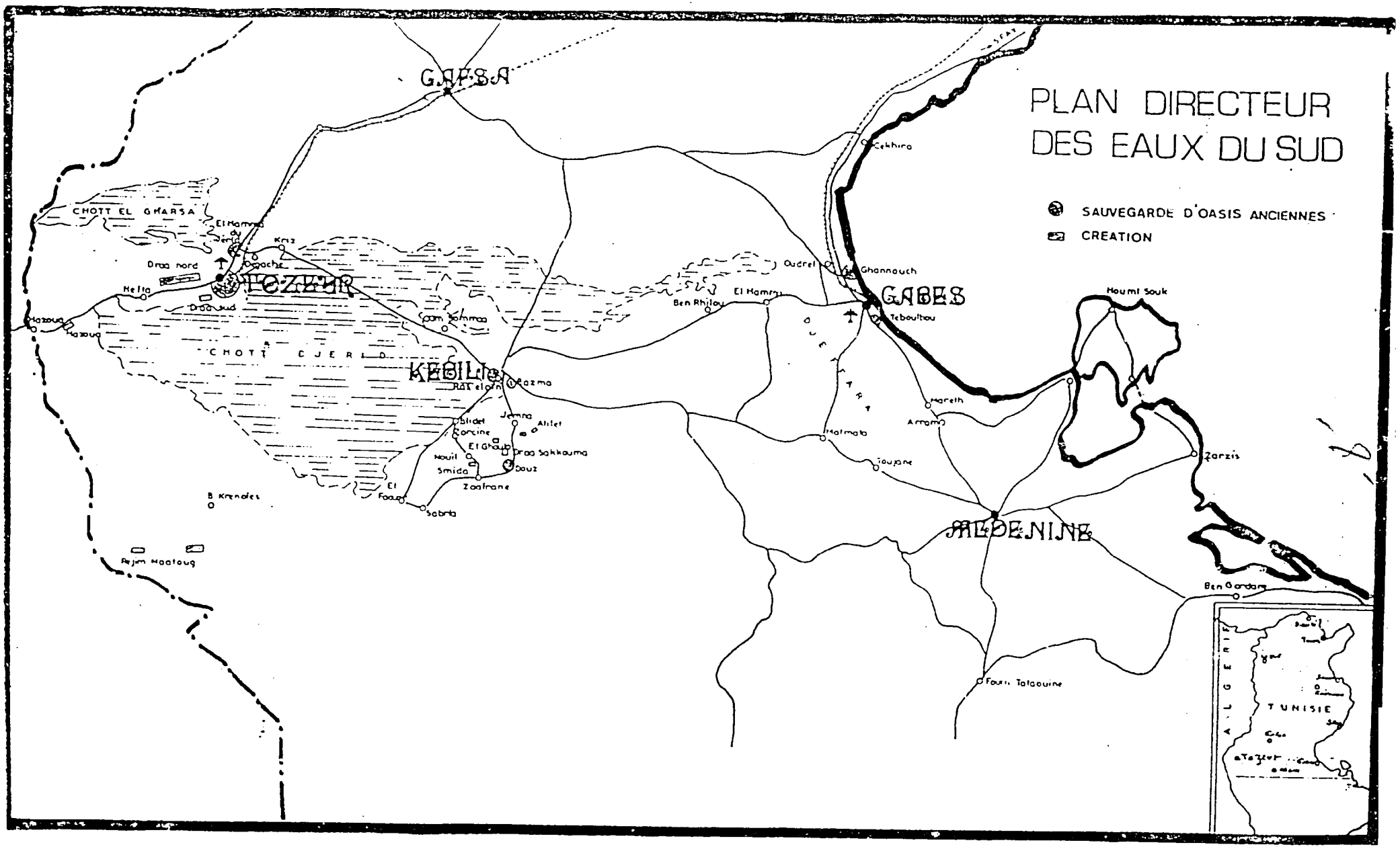
Table 1 PRICE OF ONE CUBIC METRE PER MILLIMES

	At present	Five years ago	Ten years ago
Gafsa-Jérid	10	4	2
Gabès-Médenine	15	8	4
Jendouba	15	10	-
Kairouan	15	10	4
Siliana - le Kef	15	10	-
Medjerda	17	14	6
Nabeul	20	14	4
Kasserine	15	6	4

Table 2 COSTS AND REVENUE FOR ONE HECTARE OF A MODERN DATE PALM PLANTATION

Revenue		3650 Dinars
- dates	3500 Dinars	
- other	150 Dinars	
Production costs		1350 Dinars
- manpower	800 Dinars	
- water	200 Dinars	
- fertilizer	250 Dinars	
- other	100 Dinars	
Net revenue		2300 Dinars

Which is about 3000 US Dollars


PLAN DIRECTEUR
DES EAUX DU SUD
SAUVEGARDE D'OASIS ANCIENNES
CREATION
GAFSA
CHOTT EL GHARSA
TOZEUR
CHOTT DJERID
KEBILI
GABES
MEDENINE
Cekhira
Ghannouch
Oudref
Teboulbou
Houmt Souk
Zarzis
Ben Gardane
Fourn Tataouine
Matmata
Toujane
Mareth
Arram
Ben Rhilou
El Hamma
Razma
Jemna
Alifet
Blidet
Zorcine
El Ghoula
Draa Sakkouma
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Smida
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Sabria
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