



Tunisia

Integrated Management of Water Resources

External Evaluator: Société Centrale pour l'Équipement du Territoire-Tunisie

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Field Survey:
December 2004-August 2005

Outline and Objectives

In Tunisia, rural development in inland areas has been actively promoted since the incumbent president, Ben Ali, took office in 1987. ODA loans have been being used to implement 3 irrigation projects aiming at rural development in northern regions of the country since the mid 1990s, and all of them were expected to reach completion by the end of 2004. Northern Tunisia has a semi-arid climate and its annual precipitation greatly varies from 400mm to 1,200mm depending on regions. The region also suffers from periods of both dry and wet weather that comes in irregular cycles of between 5 to 10 years, meaning that appropriate water resources management were a key issue. Accordingly, this thematic evaluation attempted to conduct an interim evaluation of the 3 projects ahead of the ex-post evaluation that would be conducted in the second year following completion, from the standpoint of the five DAC criteria and of integrated water resources management, as a means of both identifying key issues necessary to resolve for securing and facilitating the realization of effects/impacts of the projects and their sustainability, and simultaneously, of proposing action plans geared towards the resolution of the issues.

	Water Pipeline Construction and Irrigation Project in North Tunisia	Goubellat Irrigation Perimeters Construction Project	Barbara Irrigation Project
Loan Amount	14.13 billion yen	2.64 billion yen	1.91 billion yen
Disbursed Amount	10.71 billion yen	2.01 billion yen	1.51 billion yen
Loan Agreement	February 1996	December 1996	March 1998
Executing Agency	Ministry of Agriculture	Ministry of Agriculture	Ministry of Agriculture

Evaluation Results

(1) Results of the Interim Evaluation

No problems were identified in terms of the relevance of the 3 projects (Water Pipeline Construction and Irrigation Project, Goubellat Irrigation Perimeters Construction Project, and Barbara Irrigation Project) with Tunisian national policy (five-year national development plans; water resources development plans) both at appraisal and at interim evaluation. Further, despite huge delays in implementation resulting from expansions of the irrigated area, delay in the delivery of concrete pipes and other factors, project costs were less than planned and outputs (water channels, etc.) were either as planned or more than planned. The effectiveness and impacts of the 3 projects cannot yet be confirmed due to the limited time that has elapsed since their completions. However, such positive effects as the more than 2,000 hectares of expansion of irrigated land in response to increased demand from farmers have been observed and thus it is anticipated that the planned targets of the 3 projects will be reached in the coming years.

(2) Issues necessary to resolve (for securing and facilitating the realization of effects/impacts of the projects and their sustainability)

The interim evaluation brought to light the following 3 key issues.

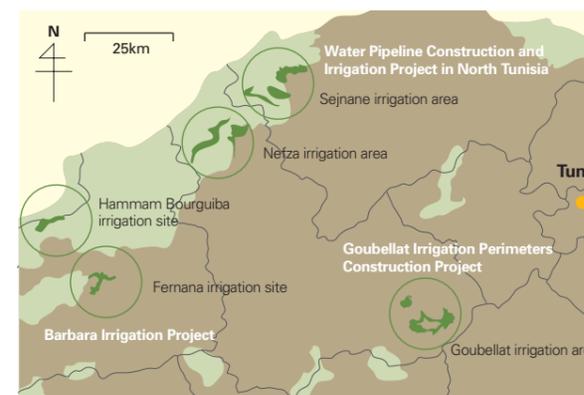
Personal and organizational issues:	Needs to build capacities of farmers and water users associations to manage and operate the irrigation facilities; difficulties that the majority of farmers are experiencing in borrowing funds from financial institutions to construct irrigation canals on their land in the absence of registered land certificates; and others.
Land-related issues:	Needs for more appropriate water resources management coping with poor penetration of irrigation water caused by the calcareous or aqueous nature of the soil in many sites; poor irrigation efficiency caused by slopes with a gradient of 10% or more (20% in some cases).
Technical issues:	Poor irrigation efficiency in that many farmers have to share small numbers of terminal canals for delivering water to their land that is subdivided into pieces; vulnerabilities to salt damage of irrigated land due to insufficient development of drainage networks.

(3) Action Plans (geared towards the resolution of the issues)

Regarding the need to strengthen the operational and maintenance capabilities of farmers and water users associations - one of the personal and organizational issues - it is suggested that the Agricultural Popularization and Training Agency (AVFA) pass on its knowledge to Territorial Popularization Cells (CTVs), extension units of Regional Directions of Agricultural Development (CRDAs) in the northern Tunisia and that the CTVs provide training for the farmers and water users associations. In relation with farmers' fund-raising efforts, it is suggested that Agrarian Reform Agency (ARA) undertake to regroup irrigation sites and that it promote land registration; it is also proposed that the financing capacity of Tunisia Bank of Solidarity (BTS) and National Bank of Agriculture (BNA) be expanded.

To address soil and slope-related issues, it is suggested that agricultural institutes put forward irrigation methods that are consistent with soil conditions after having undertaken detailed soil surveys, and that work be undertaken to stabilize the ground as a means of preventing the dissipation of water resources and any worsening in irrigation efficiency.

To address the technical issues of shared use of terminal canals, it is proposed that new multi-intake hydrants be introduced as a means of preventing any worsening in irrigation efficiency. To counter salt damage, furthermore, it is proposed that additional drainage channels be constructed and that monitoring of salinity and routine cleaning of irrigation sites be undertaken.



Water Pipeline Construction and Irrigation Project in North Tunisia (Nefza irrigation area / Sejnane irrigation area)

Goubellat Irrigation Perimeters Construction Project (Goubellat irrigation area)

Barbara Irrigation Project (Hammmam Bourguiba irrigation area / Fernana irrigation area)



A tenant farmer growing melons in the Nefza irrigation area



A melon grown in the Nefza irrigation area



The workshop in progress on the outskirts of Tunis

Feedback Results

In order to explore the feasibilities of the action plans that were proposed as a means of addressing and resolving the particular issues, 4 workshops were held (one in each of the project sites and one on the outskirts of Tunis). In the seminars, representatives from the Ministry of Agriculture, research and educational facilities, financial institutions, NGOs, and farmers lively exchanged their views and opinions. For instance, farmers expressed a desire for training to address their lack of knowledge on and technical skills in irrigation practices, while the Ministry of Agriculture mentioned that in addition to carrying out the proposed action plans opportunities for farmers and water users associations to visit successful irrigation sites should be created. At the roundup workshop on the outskirts of Tunis reflecting the results from the 3 workshops, the secretary general of the Ministry of Agriculture announced that all proposed action plans were to be implemented.

Future Work

The Ministry of Agriculture has initiated investigations towards the implementation of the action plans, but priorities will need to be assigned given the diversity and difficulties involved in implementing the action plans. Subsequently, the Ministry has indicated its wish to receive technical assistance from JBIC, in connection with the provision of technical guidance on irrigation practices to farmers and with improving their fund-raising capacity, and JBIC is in discussion with the Ministry on the specifics.

(Please refer to Expert Evaluations p. 22 for more details.)