

## **Irrigation water demand management and institutional change The experience of Tunisia**

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**Geographic / administrative level:** irrigation districts

### **Abstract**

Tunisia chose to undertake large-scale works to overcome regional disparities and to develop irrigated agriculture as early as the 1950s. In order to manage the numerous areas created, the country equipped itself with a centralised institutional framework articulated around the Development Office. The authorities have been concerned about bringing water to the farmers for three decades now. This was in line with the development objectives of the time, but the supply policy started to reach a limit when the resource began to become scarce and management demands increased. Efficient water recycling by these farmers became essential. The institutional framework in place could no longer meet these new needs. An institutional reform was implemented and a new decentralised management articulated around irrigator associations took the place of the former one.

We can thus analyse the structure of the strategic interaction of each of these two institutional frameworks thanks to the Ostrom theoretical framework (1993) and game theory. The interest of this work lies in consideration of the strategic reality and not only of the theoretical institutional framework. We demonstrate by games why management by offices has reached an institutional blockage and present a solution proposed by the irrigator associations. Irrigator associations offer new prospects in their management of the areas but they also give new challenges.

*Key words:* institutional framework, game, strategic analysis, dilemma, water demand, user association

**Type of tools for water demand management and integrated water resources management** (technical, institutional, legislative, economic, awareness-raising, etc.): The primary tool used for water demand management in Tunisia is an institutional one, the irrigator associations called ADGs (Agricultural development groups)

**Lessons learnt:** The transfer of the responsibility for the irrigated areas to the irrigator associations has led to better management. The Office's centralised management of irrigated agriculture demonstrated the need to compromise in two ways: reduction in discretionary power so as to limit concentration of power and the obligation to have a balanced budget with little freedom of action in the constitution of the funds, despite the extent of the assignment which was not adapted to this. This type of management was successful when the objective was local development; it was an offer policy for which the contribution of water was an end in itself. But when management demands increased with the depletion of the resource, and efficiency demands increased because of evolution in the direction of a market economy, this first institutional framework proved to be limited. A new arrangement was set up suppressing the offices and replacing them by irrigator associations. Now, instead of having one manager for all the areas of a region, there are as many managers as areas. However, this new approach poses the challenge of implicating the farmers. Having interests in common is not sufficient to engender work dynamics. Conflicts can exist between the farmers' individual interests and the

collective interests within the area concerned. Incentives and mechanisms should be deployed to overcome these problems.

**Justification of the importance of the paper** (with regard to water demand management and integrated water resources management): For a long time strategic interaction in the steps taken for defining and assessing the management of the irrigated areas in Tunisia was ignored. In this work we demonstrate the contribution of communication. Technical approaches as well as economic ones based on profitability are obviously important for the ADGs to work well, but they are not sufficient. Often the failure of associations is mainly due to strategic conflicts. Consideration of these aspects during feasibility studies by the ADGs would lead to better water management.

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