



## **Analysis of Stakeholder's Behaviours for an Improved Management of an Agricultural Coastal Region in Oman**

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Al Batinah coastal area is the main agricultural region in Oman. Agriculture is concentrated in Al Batinah, because of more fertile soils and easier access to water in the form of groundwater compared to other administrative areas in the country. The region now is facing a problem as a result of over abstraction of fresh groundwater for irrigation from the main aquifer along the coast. This enforces the inflow of sea water into the coastal aquifer and causes salinization of the groundwater. As a consequence the groundwater becomes no longer suitable for irrigation which impacts the social and economical situation of farmers as well as the environment. Therefore, the existing situation generates conflicts between different stakeholders regarding water availability, sustainable aquifer management, and profitable agricultural production in Al Batinah region. Several management measures to maintain the groundwater aquifer in the region, were implemented by the government. However, these solutions showed only limited successes for the existing problem.

The aim of this study now is to evaluate the implementation potential of several management interventions and their combinations by analysing opinions and responses of all relevant stakeholders in the region. This is done in order to identify potential conflicts among stakeholders to a participatory process within the frame of an integrated water resources management and to support decision makers in taking more informed decisions. Questionnaires were designed for collecting data from different groups of stakeholders e.g. water professionals, farmers from the study area and decision makers of different organizations and ministries. These data were analysed statistically for each group separately as well as regarding relations amongst groups by using the SPSS (Statistical Package for Social Science) software package. Results show, that the need to improve the situation is supported by all groups. However, significant differences exist between groups on how to achieve this improvement, since farmers prefer management interventions operating more on the water resources side while decision makers support measures for a better management on the water demand side. Furthermore, the opinions within single groups are sometimes contradicting for several management interventions. The use of more advanced statistical methods like discriminant analysis or Bayesian network allow for identifying factors and drivers to explain these differences. Both approaches, will help to understand stakeholder's behaviours and to evaluate the implementation potential of several management interventions.

Keywords IWRM, Stakeholder participation, field survey, statistical analysis, Oman