



# Research priorities and actions for sustainable agriculture water management in MENA region

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The MENA region is naturally exposed to chronic shortage of water and almost all available water resources have been already exhaustively used. Agriculture is the most important sector with respect to consumptive water use, equals about 80% of the total water resources. Global climate change and pollution coupled with increasing population pressure and rapid economic growth have a major impact on water resources and their availability. The complexity of these global issues and the need for developing and implementing appropriate ways to manage agriculture water resources present a multitude of challenges to the scientific community and research to advance the current thinking on the technical, economic, environmental, social, and political dimensions of sustainably managing agriculture water demand and supply at local, regional, and basin levels. This paper provides valuable insights into the current research landscape, in the enormous diversity of situations across the MENA region, as well as drawing attention to the existing trends and research gaps in terms of irrigation water security and multiple challenges in this field.

In light of the considerable expertise already present in the region, potential for research in three main categories are highlighted: (1) policy issues composed of research topics in relation with water law/governance/policy and water economics in the context of transition and dynamic change of the region's countries, (2) water resources management that integrate water quality and quantity, and (3) water management

technologies providing innovative solutions that meet the challenge of agriculture sector in producing more food with less resources (water and energy) and less environment impact.

Research topics are explored from three point perspectives: "Relevance", "Gaps", and "Priorities". The paper presents some considerations about the relevance of the knowledge and skills in the domain of agriculture water management in the different context of the region. Basic research gaps, that receive little attention but are potentially important in the region such as crop productivity linked to water use efficiency, and unconventional water use, as key priorities for future research in the field have been addressed. More importantly, this work emphasizes the opportunities for potential research growth and knowledge transfer for a production and sustainable agriculture water management in MENA region.

To be competitive at the international level, research in the field of water management needs to be focused on local MENA problems and to take cognizance of a country's political context, local knowledge, skills, and culture. Particular efforts should be placed on generating collaborative research projects that is of relevance for the region rather than following a specific research agenda dictated by funding opportunities. It is through such approach that MENA region will be able to make its own valuable contributions to the global scientific community.