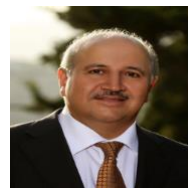


## Pillars of Jordan's Water Security-The Challenge of Capacity Building



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Water security is defined as the sufficient availability of water for individuals or nations at specific times and locations to support livelihoods through potable water supply, sanitation services, food production, and environmental system requirements. In the absence of these conditions, countries or individuals become water insecure. Jordan faces an acute need to achieve water security, contending with a complex landscape of rapid population growth which exacerbated by refugee influxes, scarce natural resources, and the compounded impacts of climate change, regional political instability and conflicts. Despite previous decades demonstrating the sector's resilience to absorb external shocks, sustainable water security remains a critical challenge that need further measures to maintain. Jordan's water crisis is amplified by the lack of viable, low-cost solutions; the high cost of water production necessitates the implementation of numerous, integrated procedures and programs to mitigate the severity of these challenges.

Given water's essential role in economic activities, scarcity directly affects economic output through diminished precious water resources and heightened demand, undermining the ability to meet the needs of diverse sectors. This situation threatens the sustainability of irrigated agricultural areas and associated economic activities. According to the World Bank about 75% of the economic activities in scarce water countries could be impacted by water shortages, in comparison to 25% worldwide. Such constraints limit job creation and may exacerbate poverty, while highlighting water's pivotal role in poverty alleviation and socio-economic development. Currently Jordan's water sector pillars are groundwater aquifers, reuse of treated wastewater and desalination of salty water. With conventional national water supply alternatives exhausted, the focus has shifted to remaining groundwater reserves, especially deep groundwater aquifers, together with the desalination of brackish groundwater and seawater from the Gulf of Aqaba. The latter is a central component of the ongoing National Carrier Conveyance Project, which aims to transport desalinated water to the Northern Governorates. Groundwater extraction is vital to meeting Jordan's water demands, contributing approximately 57% to the national water budget and supplying 74% of domestic and drinking water needs. Preserving this strategic resource from depletion, salinization, and unauthorized extraction and illegal drilling of wells is fundamental, as only limited reserves remain to sustain future potable water supply. As reliance on deep groundwater becomes increasingly inevitable, there is a pressing need to boost capacity building of groundwater experts and institutions, whose numbers and roles have declined in recent years. Developing and training a new generation of experts is crucial for the effective and sustainable management of this complex field, requiring interdisciplinary skills and long-term capacity building.

In parallel, the advancement of desalination technology also presents significant capacity building requirements. As national expertise in water treatment technologies remains limited, Jordan must establish integrated programs to attract, train, and qualify professionals to accommodate filed requirements. These experts are necessary to manage the operational complexities and environmental impacts of desalination plants and develop sound and sustainable solutions to associated challenges.

Achieving water security and sustainability hinges on the comprehensive management of water and environmental resources, access to water and sanitation services, enhanced demand management, the adoption of sustainable and practical supply solutions including wastewater reuse, public health services, and robust responses to climate change. Realizing these objectives requires substantial investment in developing, attracting, and training technical expertise, alongside financial and institutional support. Collaboration among concerned official parties, donors, professional associations, and the private sector is indispensable to strengthening the water sector, affirming its status as a strategic and sovereign priority for Jordan.