

Policy Review: Jordan

The Role of Water Productivity in Water and Agricultural Policies in Jordan

Jordan is the second most water scarce country on earth (Jouhari, 2018). Water availability conditions will become even less favorable in the future due to population growth, increased refugee influxes and climate change. Agriculture is the largest water user in the country, with a decreased percentage of official water use over the last years, accounting for 64% in 2007 and 51.7% for 2017 (Jouhari, 2018).

Agriculture and related industries is an important economic sector that contribute around 25-27% on Jordan's GDP, employing 29% of the labor force (Groot et al., 2018; Talozzi et al., 2015). Agricultural production is concentrated in the Jordan Valley and the Highlands. In the Jordan Valley mainly vegetables are produced year-round. The Valley, due to its fertile soils, favorable climate for production throughout the year and high availability of surface and wastewater, is given priority for agricultural development over the Highlands. The Highlands consist of two main systems; the rainfed areas where staple crops are produced and the irrigated areas that mostly fruit trees and vegetables are cultivated with groundwater. Groundwater use in the Highlands is often unregulated. Official policies have reported that 225 Mm³ of unregulated groundwater was used in agriculture (Ministry of Water and Irrigation, 2016). Considering this estimation for the unregulated groundwater use, agriculture uses 60-70% of total water uses in Jordan. Despite high water prices and sanctions, unregulated groundwater extraction have resulted in the lowering of the groundwater table in many aquifers (Molle et al., 2017), compromising the water availability for domestic purposes.

Jordan is aware of the increasing water scarcity, the increased sectoral competition and that further interventions are required in all sectors. The National Water Strategy 2016-2025 adopts the concept of economic water productivity to define sectoral priorities. Domestic sector and industrial sector, with high economic water productivity, have priority over the agricultural sector (Water Demand Management Policy). One of the main targets of Jordan is to reduce the use of groundwater which takes place in the irrigated Highlands (Groundwater Sustainability Policy). Through a set of policies, Jordan prioritizes the use of treated wastewater (TWW) when possible and especially in agriculture (Water Substitution and Re-use Policy), aspires to maximize the use of surface water in all sectors (Surface Water Utilization Policy) and assigns priority of using TWW, surface and desalinated water over groundwater (Water Reallocation Policy). Lastly, Jordan aims at increasing water use efficiency in agriculture (efficient systems, water harvest, water pricing) to reduce losses (Water Demand Management Policy).

Official Jordanian water policies aspire to increase the total water supply from 992 Mm³ in 2015 to 1,459 Mm³ in 2025 to meet the increased demand. This increase is planned to take place through surface water, groundwater, treated wastewater re-use and desalination. Desalination water, an effective addition in Jordan's water budget, is almost entirely going to domestic supply, with 20 Mm³ out of 165 Mm³ going to agriculture. Agriculture is planned to receive the treated wastewater. However, treated wastewater reuse inflates the total water budget and results in re-allocation from potential groundwater recharge and environmental flows. This is expected to further reduce the groundwater resources. Moreover, unregulated groundwater use is not included in these figures, indicating that groundwater availability is further reduced.

Agricultural water use is aspired to be capped at 700 m³. The agricultural water use for 2014, including officially estimated unregulated groundwater, amounted to 722.5 m³. As such, ambitions for capping agricultural water use require a 3% decrease of water use. The challenging aspect of this target regards the quality of treated wastewater used in agriculture. Due to salinity in treated wastewater, lower yields under the same water use might be obtained, reducing the economic productivity of agriculture and thus the target to increase agriculture's share in GDP by 0.5% by 2025. Increasing agriculture's economic output under reduced yield is only possible through higher economic productivity and thus, through production of higher value crops or investments in the supply chain.

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