

Significance of treated wastewater in facing consequences of climate change in arid regions

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Abstract

Being a problem threatening the planet and its ecosystems, the climate change has been considered for a long time as a disturbing topic impacting water resources in Jordan. Jordan is expected for instance to be highly vulnerable to climate change consequences given its unbalanced distribution between water resources availability and existing demands. Thus, action on adaptation to climate impacts is urgently needed to cope with the negative consequences of climate change. Adaptation to global change must include prudent management of treated wastewater as a renewable resource, especially in regions lacking groundwater or where groundwater is already over exploited.

This paper highlights the expected negative effects of climate change on the already scarce water sources and to motivate researchers and decision makers to take precautionary measures and find alternatives to keep the level of water supplies at the limits required for different consumption sectors in terms of quantity and quality. The paper will focus on assessing the potential for wastewater recycling as an adaptation measure to cope with water scarcity in Jordan and to consider wastewater as integral part of the national water budget to solve environmental problems. The paper also identified a research topic designed to help the nation progress in making the most appropriate use of the resource, namely for agricultural irrigation. Wastewater is a promising alternative to fill the shortage in water resources, especially due to climate changes, and to preserve the valuable fresh water to give priority to securing drinking water for the population from these resources and at the same time raise the efficiency of the use of available resources.

Jordan has more than 36 wastewater treatment plants distributed throughout the country and producing about 386,000 CM/day of reclaimed water. According to the reports of water quality control programs, more than 85 percent of this water is of a quality that is completely identical to the quality suitable for irrigation of field crops and forest trees according to the requirements of Jordanian Standard No. 893/2006.

Keywords: climate change effects on water resources, adaptation on climate change, treated wastewater recycling, arid and semi-arid regions, Jordan.