

## Treated Wastewater as NON-CONVENTIONAL WATER RESOURCES, NCWR, and its potential role in Water Management in Lebanon

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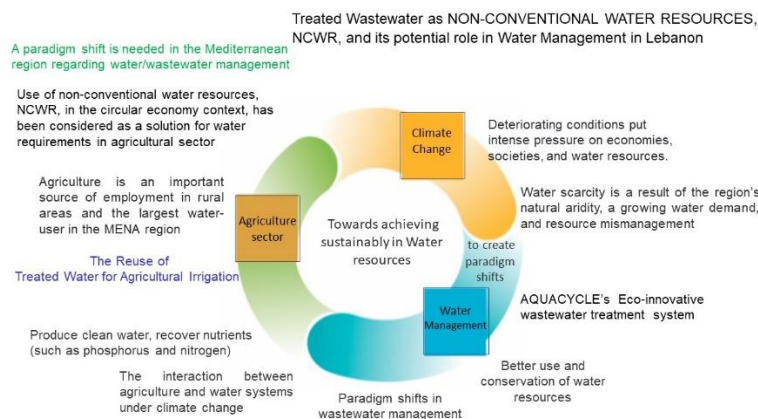
### Abstract

The Middle East and North Africa (MENA) region is the most water scarce region in the world. The deterioration of climate conditions in recent years put intense pressure on water, agriculture and terrestrial systems. Water scarcity and drought in the region are the result of increasing water demand and mismanagement of resources. Indeed, wastewater reuse is an important aspect of water resource management, ensuring reliable alternative water resources, reducing environmental pollution and achieving a more sustainable form of development. The implementation of decentralized treatment systems (APOC) using nature-based solutions and the use of non-conventional water resources for irrigation could be a solution for water stress especially in the Mediterranean region

This paper focuses on wastewater reuse as the best strategy for integrated water management in MENA region. The presentation will be structured around 3 pillars:

- 1) Impact of climate change on the water cycle in Mediterranean region and study the implications for agriculture
- 2) Innovate with wastewater for a sustainable water resource in the Mediterranean region. Wastewater treatment to optimize treatment technologies and offer sustainable solutions, wastewater can be safely managed as an effective investment in agriculture and ecosystems.
- 3) The use of treated domestic wastewater for farming irrigation using WebGIS as a tool to draw up action plans for the reuse of treated wastewater. Due to rising water use in recent years, especially in agricultural sector and increasing pressure on freshwater resources in water deficit regions, using of non-conventional water resources has been considered as a solution for water requirements in agricultural sector. Finally, some recommendations will be discussed to increased adoption of NCWR and WDM in Lebanon

Keywords: Impacts of climate change, droughts, water scarcity, wastewater reuse, irrigation, non-conventional water resources, MENA Region, Lebanon.



Graphical Abstract