

## Circular economy in the water sector – potential for reuse in countries with water scarcity

### Summary

This thesis evaluates the concept of circular economy (CE) in the water sector, in terms of the potential for reuse of wastewater in countries with water scarcity. Recent studies show that CE in the water sector has been gaining rapid attention due to the imbalance in water resources and the large-scale linear approach that prevails in this sector. However, monitoring of CE implementation strategies remains unclear, with a lack of consensus on a framework and measures to assess CE implementation, as well as the need to develop sector-specific indicators to promote their adoption on a larger scale.

The main objective of the thesis is to propose a framework model, based on CE principles in the water and wastewater sector, with an emphasis on aspects of governance structures and also on case studies, in countries that have successfully implemented large-scale wastewater reuse projects.

The thesis has three research vectors: 1) the importance of implementing the CE approach in the reuse of wastewater. There is a wide spectrum of possible actions in a closed loop, through better management of both water and other raw materials (eg phosphorus) that are present in the wastewater environment; 2) international analysis and comparison of successful models in the field of large-scale wastewater reuse; 3) model circular economy framework in the water and wastewater sector, which is best suited to water-scarce countries. in countries that have successfully implemented large-scale wastewater reuse projects.

### Keywords

Circular economy, wastewater, reuse, recycling, water scarcity.



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