



**RESOURCE**

# A review of water-related serious games to specify use in environmental Multi-Criteria Decision Analysis

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## Description / Abstract

Serious games and gamification are nowadays pervasive. They are used to communicate about science and sometimes to involve citizens in science (e.g. citizen science). Concurrently, environmental decision analysis is challenged by the high cognitive load of the decision-making process and the possible biases threatening the rationality assumptions. Difficult decision-making processes can result in incomplete preference construction, and are generally limited to few participants. We reviewed 43 serious games and gamified applications related to water. We covered the broad diversity of serious games, which could be explained by the still unsettled terminology in the research area of gamification and serious gaming. We discuss how existing games could benefit early steps of Multi-Criteria Decision Analysis (MCDA), including problem structuring, stakeholder analysis, defining objectives, and exploring alternatives. We argue that no existing game allows for preference elicitation; one of the most challenging steps of MCDA. We propose many research opportunities for behavioral operational research.

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## **Serious Games**

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