

Concepts towards a novel integrated assessment methodology of urban water reuse

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Received 24 March 2009; Accepted 31 August 2009

ABSTRACT

Traditional supplies of large volumes of water and wastewater disposal technologies have offered a linear solution, thus intensifying environmental stress. In addition, provision of urban infrastructure especially any major augmentations are often the impractical or economically prohibitive. Urban water cycle should be viewed as an interactive and coordinated approach involving: available water resources; appropriate treatment technology producing fit for purpose water quality, and ascertaining long term balance between environmental, social and economic issues. Implementation of integrated water reuse scheme requires major paradigm shift within a number of technical (science, technology and knowledge) and non-technical (socio-cultural, economic, environment) dimensions. There are number of questions that arise from this scenario: How to make decisions regarding selection, design, implementation and operation of any recycling scheme? What knowledge is necessary to improve decision-making process? How to assess and compare performance of the scheme? What are the parameters for uniform evaluation process? The aim of this paper is to introduce a new concept for integrated assessment methodology that can be applied for urban water reuse schemes. The conceptual assessment methodology relies on decision that treatment technology represents a leading theme and is supported by selection of socio-economic and environmental factors, thus enabling holistic evaluation and quantification of the outcomes.

Keywords: Urban water reuse; Integrated assessment framework and methodology

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