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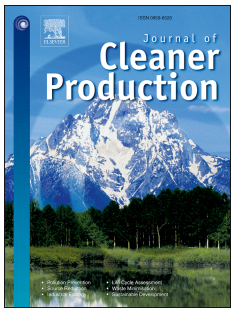

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Life Cycle-Based Decision Support Tool for Selection of Wastewater Treatment Alternatives

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Abstract:

We report the development and application of a user-friendly, scenario-based decision support tool (TechSelect 1.0). The objective of the study focuses on implementation of the 'scenario-based' multiple attributes decision-making (MADM) approach recently proposed by Kalbar *et al.* (2012a). The tool incorporates multiple scenarios to deal with complex decision-making situations typically encountered in urban, suburban and rural areas. The scenario-based decision-making implemented through the tool reduces complexity in the selection of the appropriate wastewater treatment technology. It also uses a life cycle sustainability assessment framework for assessing technologies from environmental (life cycle assessment), economic (life cycle costing) and social (various sustainability indicators) perspectives. In addition, a user-friendly computational platform has been provided for the convenience of end users and stakeholders. The tool has been tested and validated on two real-life case studies pertaining to the problem of decision-making under complex situations.

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