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RESOURCE

A system dynamics model for supporting decision-makers in irrigation water management

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Description / Abstract

Water management is a controversial environmental policy issue, due to the heterogeneity of interests associated with a shared resource and the increasing level of conflict among water uses and users. Nowadays, there is a cumulative interest in enhancing multi-stakeholder decision-making processes, overtaking binding mercantile business, in water management domain. This requires the development of dynamic decision-aiding tools able to integrate the different problem frames held by the decision makers, to clarify the differences, to support the creation of collaborative decision-making processes and to provide shared platforms of interactions. In literature, these issues are faced by concepts such as Ostrom's action arena and Ostanello-Tsoukiàs' interaction space (IS). The analysis of the interactions structure and of the different problem framing involved are fundamental premises for a successful debate for the management of a common-pool resource. Specifically, the present paper suggests a dynamic evolution of the IS, highlighting its criticalities. It develops an alternative perspective on the problem, using a System Dynamics Model (SDM), exploring how different actions can influence the decision-making processes of various stakeholders involved in the IS. The SDM has been implemented in a multi-stakeholders decision-making situation in order to support water management and groundwater protection in the agricultural systems in the Capitanata area (Apulia region, Southern Italy).

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