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The Advantages of Using a Computer-Based Integrated Assessment to Promote Cooperative Behavior in Groundwater Management

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Author(s)

Oliver López Corona, Pablo Padilla, Octavio Pérez Maqueo, Oscar Escolero

ABSTRACT

The ultimate goal of environmental impact assessment is to guarantee that benefits generated by a development project will not cause highly negative effects on the environment or public health. The fulfillment of this goal depends on the willingness of proponents and society to cooperate. The information management, its accessibility to community and the educational level of participants are of great relevancy too. Cooperation is not always attainable due to conflicts between individual and community interests. Conflict leads to a variety of cooperative and non-cooperative responses, depending on the information available to the actors. In order to capture the tendency in which a community perceives the proposals, we introduced an information index. We prove that computer models have a direct impact on this information index. This computer-based approach, leads the EIA to the paradigm of adaptive environmental assessment and management. To implement this, a system based on artificial intelligence and game theory was used to resolve a study case of conflict in groundwater management.

KEYWORDS

Environmental Sociology; Environmental Management; Artificial Intelligence; Optimal Management; Game Theory

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