

Abstract

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Spatial And Temporal Representation Of Environmental Policy Outcomes Using Geo-Computation: A Case Study In Victoria, Australia

Track: Environment Solutions

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Cost-benefit analysis (CBA) has been used in many countries as an important tool for evaluating public policies. In most cases CBA uses Kaldor-Hicks theory, which assumes that all the entities in the analysis should be considered equal when distributing benefits and costs. However, for environmental policy evaluations, and especially for cases where a policy is directly affecting a community or ecosystem with a high degree of vulnerability, the Kaldor-Hicks theory may not be in concordance with principals of equity and sustainability. In order to incorporate these two concepts in the Cost-Benefit Analysis, a new approach to presentation of environmental indicators for decision-making is proposed. The use of spatio-temporal environmental and social indicators provides the decision-maker with a broader picture of positive and negative impacts of the policy by considering entities in the analysis in a differential form, according to their location in the space-time. A geo-computational (GC) system, which is composed by a space-time model and a geographic information systems (GIS), was created and designed to generate new representations of environmental policy outcomes. The indicators and computer-based system have been tested in a water resources case study with long-term impacts over a large area of south-eastern Australia.

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