

Abstract

Stakeholder Involvement and Complex Decision Making: A Case Study into the Design and Implementation of a GIS for Supporting Local Water Resource Management

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While public agencies increasingly emphasize the importance of stakeholder involvement in environmental and natural resource decision making, planners and public officials struggle to find ways to effectively and fairly involve the public in decisions that are legally and technically complex. One approach to addressing this problem is the development of geographic information systems (GIS) capable of supporting stakeholder analysis and understanding of complex decision situations. However, the benefit of such technologies is limited in part by stakeholders' perceptions of the relevancy of the GIS to the decision situation, as well as their perception of the credibility of the data within the system. This thesis reports on a case study about the development of a GIS-based surface water model for supporting local water resource management in the Thousand Springs Area of southern Idaho. During the development process, Idaho Department of Water Resources (IDWR), the agency responsible for the model, conducted a public outreach process that seeks to build stakeholder familiarity and comfort with the model. I used a combination of research methods, including interviews, surveys, and public meeting observation, in order to construct an understanding of how stakeholders assess the relevancy and credibility of IDWR efforts to support the water management process with the use of a surface water model. My analysis suggests that there are a number of significant factors, including stakeholder perceptions of the relevancy, accuracy, and bias of model output, the degree of deliberation about, and involvement in, the model development process, trust in IDWR and the decision process, attitudes towards information gathering and sharing, and the design and use of the website that provides the public with access to the model. I make a number of recommendations for ways in which IDWR can alter the public outreach process, the design of the model, and project website that might improve stakeholders' assessments of the relevancy and credibility of the model and modeling project. The primary recommendation is for a shift in emphasis from *stakeholder outreach* to *stakeholder involvement*. This entails engaging the participation of stakeholders throughout the model development process, beginning with identification of the problem and modeling objectives. I conclude by discussing the benefits of the methodology used in this study for examining stakeholder perceptions of information technology within the broader social and institutional context, and describing what I perceive to be the most promising areas for future research on this topic.