

Engaging citizens in the quest for a sustainable world: the prospects for interactive models and games in the era of post-modern and complexity science

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Participatory modeling: A way to promote collaborative learning in multilevel governance

In the last decades the science-policy interface has become more important and more complex too. At the same time, novel ways to extend or reframe the economic and environmental theories and models upon which policy recommendations are, or should be, based have become available and are increasingly used. However, these methods and applications under the heading of Complex System Science, in particular, are still fragmented. Interactive simulation and games are being used already for decades in environmental decision support. They emphasize the role of interactive modelling and participatory decision making about (un)sustainable resource management, often in a highly local context. Thus, they attempt to link the scientific understanding of the (resource) system with the complex processes of human perception, evaluation and decision making.

One of the challenges ahead is to link the relatively recent insights in (social-ecological) system dynamics – such as the (lack of) resilience – with these participatory methods. I will give an overview of some of the insights from complex system science with respect to managing social-ecological systems (SES). Next, I will present some experiences with using interactive SES-related models and games, including a recent one played via the Internet. I will also briefly introduce the worldview-approach developed to frame the problem and solution space. Finally, I will indicate ways in which such approaches may be expanded and used to engage citizens in issues of sustainable development and adaptive governance on the interface between science and policy. This will direly be needed in view of the new and global challenges facing the world.