Tools supporting environmental management and policy - epistemic and practical limitations

Patrick A. Wäger

Technology and Society Lab, Empa, St. Gallen, Switzerland; patrick.waeger@empa.ch

Integrated, computer-based models are intended to handle complex issues. However, in policy-making and environmental management, their application is not always successful if compared to claims made about their usefulness. This raises some questions that could be discussed within the Workshop W6 'Developing tools to support environmental management and policy' of iEMSs 2006:

Which are typical user expectations towards computer-based models designed to support policy-making and environmental management? Are such models seen as epistemic tools helping to gain *knowledge about* the structure of complex socio-environmental issues (through modeling), or are they practical tools allowing to *learn how* systems react on specific interventions (through simulation experiments)?

What are the reasons for the gaps between expectations and usefulness? Are they of a more epistemic nature, i.e. do they result from difficulties in *understanding* the issue(s) of concern, e.g because

- socio-environmental issues are in itself too complex or 'epistemologically distant' to be adequately understood, in particular if dynamic aspects are to be considered;

- the relevant knowledge(s) and data have been gained within different scientific disciplines and are too heterogeneous or incomplete to allow an adequate picture of the issue(s);

- the modeling approach is not accessible / not transparent enough for non-specialists?

Or are they more of a practical nature, insofar as they do not support *real-world like experiences* through simulation experiments, e.g. because

- the computer-based model fails to provide an adequate, real-world-like simulation environment for the policy-makers and environmental managers that improves their problem-solving capacity?

Which are then realistic expectations towards computer-based models supporting policy-making and environmental management? And what are the necessary preconditions for a successful application of such models?