INAUGURAL LECTURE

WELCOME TO TOMAS EKVALL'S INAUGURAL LECTURE //

MAKING USE OF MODELS IN ENVIRONMENTAL AND ENERGY SYSTEMS ANALYSIS

OCT 13 | 13:00-14:30 | HC3

ABSTRACT // Environmental systems analysis aims at reducing negative environmental impacts, including resource depletion. To be effective our methods, models and procedures should be feasible, accurate, intelligible, inspiring, and difficult to misuse.

Our models are simplified representations that retain at least some aspects of the real systems. A more complex computer model can account for more aspects of reality, but this comes at the cost of reduced transparency and increased risk for significant errors. To be intelligible and accurate, a model should ideally include little but the aspects relevant to respond to the research question at hand. Hence, we need a variety of methods and computer models to be able to respond to a wide range of research questions.

Our models cannot be validated through comparisons with reality, but only through comparisons with mental models, i.e., the understanding we have in our minds about how things are related. If the results contradict our mental models we sometimes adjust methods or input data to get results that we find more useful. On the other hand, the computer models we create and use also affect the mental models in a learning process. Modelling is progress towards an educated opinion rather than an objective truth.

Methodological choices can be discussed in terms of feasibility, accuracy, etc., but model results still often depend heavily on subjective choices of methods and input data. If we make these choices ourselves, we become activists using the models to convey our opinion. If we, instead, leave the choices to actors who will use the results in decision-making, we become tools in the decision process. There are pros and cons to an environmental systems analyst taking the role of an activist or a tool in the decision process, but in the end the choice of role is also subjective.

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