User-driven design of decision support systems for polycentric environmental resources management

ABSTRACT

Open and decentralized technologies such as the Internet provide increasing opportunities to create knowledge and deliver computer-based decision support for multiple types of users across scales. However, environmental decision support systems/tools (henceforth EDSS) are often strongly science-driven and assuming single types of decision makers, and hence poorly suited for more decentralized and polycentric decision making contexts. In such contexts, EDSS need to be tailored to meet diverse user requirements to ensure that it provides useful (relevant), usable (intuitive), and exchangeable (institutionally unobstructed) information for decision support for different types of actors. To address these issues, we present a participatory framework for designing EDSS that emphasizes a more complete understanding of the decision making structures and iterative design of the user interface. We illustrate the application of the framework through a case study within the context of water-stressed upstream/downstream communities in Lima, Peru.

Keyword: Environmental decision support systems; Participatory research; Polycentric management; User-driven design