

Participatory Modeling and Analysis for Sustainable Forest Management: Overview of Soft System Dynamics Models and Applications

Gil A. Mendoza

Department of Natural Resources and Environmental Sciences

University of Illinois

Urbana, Illinois

Summary

Participatory approaches to natural resource management and development are widely accepted as the most effective instruments for achieving sustainable resource management particularly in the developing nations. This lecture presents an overview of soft system dynamics methods under a participatory modeling framework that is consistent with participatory approaches to assessing sustainable forest management. Three general types of soft system dynamics models are described: cognitive mapping, qualitative system dynamics, and fuzzy cognitive mapping. The three models entail different information requirements, knowledge base, and varying degrees of complexity. The models can be developed and used as stand-alone resource management tools. Or, depending on the level of complexity and the availability of information about the resource management system in question, they can be integrated or combined together to constitute a more robust and flexible planning framework. The models are applied to a three case studies. Experiences and lessons learned from these selected set of applications are described.