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## Companion modeling for multi-level water management

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### Session: Participatory Modelling

#### Key Message

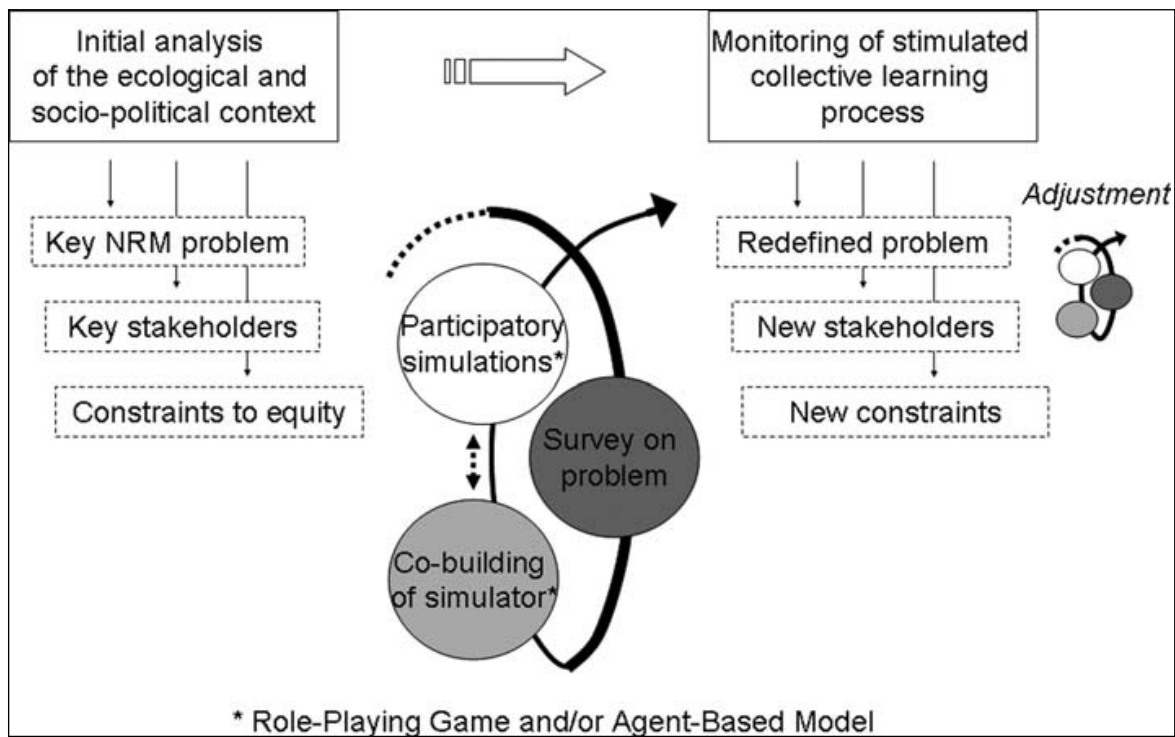
The Companion Modeling approach is an interesting approach to bring into discussion the multi-level interactions between biophysical dynamics and social dynamics in water management. This type of approach can contribute to the building and/or consolidation of consultation or decision making arenas when implemented as part of IWRM.

## Summary

In natural resources governance, it is now largely accepted that scales are social and political constructs that are constantly evolving. Such a conceptualization of resources governance based on fluid cross-scale interactions raises therefore the question of how to integrate socio-economic and ecosystem dynamics in a coherent framework for adaptive management and decision making process.

We propose to use a participatory and simulation approach based on social and biophysical simulation to improve the understanding of the interaction dynamics of the complex environmental and social system of catchment management in Africa. The models developed include both a simplified representation of relevant ecosystem dynamics and of social interactions with the resources. By facilitating interactions between different levels of stakeholders and policy-makers, we want to

strengthen the collective decision-making process of stakeholders dealing with risk and uncertainty. The approach will be tested both in the Volta and Limpopo basins with emphasis on the multilevel interactions to manage the water resources between different users and stakeholders. A comparative analysis in both basins will allow for understanding the role of small scale infrastructure management in semi arid system resilience. The challenges will be to account for the management of small scale infrastructure within the territorial management unit of the resources. It is expected that the approach will contribute to the building and/or consolidation of the related discussion/consultation bodies through social and transformative learning.



EXAMPLE OF THE MAIN PHASES AND DYNAMICS OF A COMPANION MODELING IMPLEMENTED IN NAN (THAILAND) (BARNAUD ET AL., 2008)