



## **Ex-ante impact assessment of reservoir construction projects for different stakeholders using Agent-Based Modelling**

Chakaphon Singto, Luuk Fleskens, Jeroen Vos, and Gert Jan Hofstede  
wageningen, soil physics and land development, Netherlands (chakaphon.singto@wur.nl)

Reservoir construction projects are frequently met with fierce opposition. As a consequence environmental and social impact assessments are usually mandatory to mitigate potential negative impacts. Stakeholder perspectives are often only implicit in such assessments, and medium-term effects of mitigating actions could be more systematically assessed using scenario analyses. In this paper, we therefore design and apply an ex-ante Agent-Based Modelling (ABM) build on stakeholder information to assess the impact of a reservoir construction project in southern Thailand. ABM combines stakeholders knowledge to a single platform for policy-makers in a clear understanding of benefits and impacts on the socio-economic study in a river basin. Moreover, the models can contribute acknowledgment of both positive and negative impacts. In a case study for which the model was tested, the results predict that overall farmers would have more farm income if the dam would be built. However, the compensation for a replacement to affected farmers may not be inadequate. The ABM can be applied in a project planning and it helps to find suggestions for the interventions to reduce negative impacts and foster more benefits in a sustainable water resources project.