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Including policy and management in socio-hydrology models: initial conceptualizations

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Socio-hydrology studies the interactions in coupled human-water systems. So far, the use of dynamic models that capture the direct feedback between societal and hydrological systems has been dominant. What has not yet been included with any particular emphasis, is the policy or management layer, which is a central element in for instance integrated water resources management (IWRM) or adaptive delta management (ADM). Studying the direct interactions between human-water systems generates knowledges that eventually helps influence these interactions in ways that may ensure better outcomes – for society and for the health and sustainability of water systems. This influence sometimes occurs through spontaneous emergence, uncoordinated by societal agents – private sector, citizens, consumers, water users. However, the term 'management' in IWRM and ADM also implies an additional coordinated attempt through various public actors.

This contribution is a call to include the policy and management dimension more prominently into the research focus of the socio-hydrology field, and offers first conceptual variables that should be considered in attempts to include this policy or management layer in socio-hydrology models. This is done by drawing on existing frameworks to study policy processes throughout both planning and implementation phases. These include frameworks such as the advocacy coalition framework, collective learning and policy arrangements, which all emphasis longer-term dynamics and feedbacks between actor coalitions in strategic planning and implementation processes. A case about longter-term dynamics in the management of the Haringvliet in the Netherlands is used to illustrate the paper.