

Interactive comment on “Socio-Hydrologic Modeling of the Dynamics of Cooperation in the Transboundary Lancang-Mekong River” by You Lu et al.

Anonymous Referee #2

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This paper presents a socio-hydrological model to analyze different levels of cooperation in the Mekong River basin. From two extremes scenarios – cooperative versus unilateral management – the negotiation space is determined and cooperation demands assessed. The topic is relevant to both scientists and policy makers working on the management of transboundary water resources. The paper is well organized and easy to follow.

In its present form, the paper is not ready for publication for the following reasons: (1) The literature review on the modeling and analysis of transboundary river basins is incomplete. I miss a description of the work done with multi-agent simulation models

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(MAS) or with decentralized hydro-economic models, see e.g. Teasley, 2011 JWRPM; Giuliani, 2013 WRR; Jeuland et al., 2014. Explaining the differences between the proposed socio-hydrological model and those alternatives would enhance the scope of the manuscript. Right now, the novelty of the proposed modeling approach is not clearly established. (2) The authors should focus on the Lexis-Nexis sentiment analysis and how it can be used to construct scenarios or to “calibrate” a model of a coupled human-natural system. In my opinion, this is where the novelty lies. Shifting the focus on the Lexis-Nexis sentiment analysis however requires major rewriting that may be beyond a simple revision but I am convinced that it would definitely appeal to a broader audience. In that case, the rather coarse socio-hydrological model (see below) would then be used to support the Lexis-Nexis sentiment analysis. (3) The description of the socio-hydrological model should be improved. It is not clear why reservoirs are aggregated. Nor do we know how results are disaggregated. Moreover, the allocation rules, including reservoir operating rules, are barely described even though they play a critical role in the cooperative management of the river basin. To what extent can the operating rules be adjusted to accommodate downstream water demands? Is hedging considered? In case of water shortages, how is rationing implemented between water users/economic sectors/countries?

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