

***Interactive comment on “Modelling the impact of prescribed global warming on water resources of headwater catchments of the Irrawaddy River and their implications for Loktak Lake, northeast India” by C. R. Singh et al.***

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The authors project impacts of climate change on the hydrological and partially on the ecological conditions of Loktak Lake. This aspect of research is an important addition to the current knowledgebase on climate change and hydrological assessments of the

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wetlands in general and Loktak Lake in particular. The paper therefore serves an important purpose in supporting lake management, and would be important use to the ongoing water allocation decision making processes, underway for the wetland. Some of the key observations and recommendations are:

1. Reference to lake area may be made with respect to lake levels. A short description of the inflow and outflow regimes of the lake as well its hydrological regimes would enhance readability. In particular , description of the lake bathymetric configurations would help the reader appreciate the degradation of phumdi in KLNP. Regimes should also describe the lake in the context of overall wetland complex, of which Loktak Lake forms a part.
2. Given the fact that all the major inflowing rivers within the basin have been regulated, it is unclear whether the modelling exercises represent the regulated river regimes or predict the unregulated condition.
3. Section 5 – 2804 : Reference should be made to the phumdi in KLNP, as not all phumdi have degraded as a result of hydrological changes.
4. Reference to uncertainties in the models examined would help appreciate the levels of uncertainties in the projected lake hydrological and ecological outcomes. Reference may be made while discussing the results. Reference could also be made to the fact that the GCM in general have issues of scale and resolution when applied to the northeastern Himalayan region.
5. There are several sensitivities that may influence the projected outcomes on the lake ecosystem. For example , increase in hydrological regulation in the upstream reaches of the basin might pose a major influence on the downstream flows. Similarly, the proposed downstream project may be influenced by the levels of outflow from Loktak. Overall, such sensitivities should be referred to in the discussion section.

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