

Interactive comment on “Modelling water provision as an ecosystem service in a large East African river basin” by B. Notter et al.

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The paper of Notter describes a model based study with the aim to value the ecosystem services of the water in the Pangani basin considering the different water uses. The paper provides a lot of technical information on how a SWAT model has been set up, including modifications to the source code. The paper further analysis the availability of the water for the different water users.

1) It is not clear to me what is so substantially different from an integrated water resources management approach that analyzing the demand demand and supply among the different water users. The paper computes the availability in time and space, but does not discuss the cost/value of the water, ie the economical value when the water

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is used. In my opinion, this is a substantial part of assessing the ecosystem services. In the conclusion it is mentioned that the valuation by users is important, but I am missing this valuation in this paper. Maybe the title could be adjusted. 2) The scientific contributions need to be highlighted more. 3) Many details on the model setup are discussed, but important informations are missing that would help to evaluate the use of these models. Eg the overall mass balance of the different hydrological components is not provided, neither the values of the obtained calibrations. The latter can be added easily to the table. Spatially distributed parameters can be presented by their change to default value or by the range over the basin. 4) Rchr_deep parameter of 0.75 is extremely high. If indeed such large volumes of water are drained from the basin through deep groundwater flow, it should at least be stated where these waters are going to, and/or reference to hydrological studies that confirm this phenomenon should be made. 5) In general the paper is clearly written. Some minor notes I made: - often capitals are used in a non-consistent way (eg Basin, sub-District) - 'the' sometimes missing (eg the Pangani basin, the highest - p 8009 line 17) - explain Ward area. what is the meaning of ward, page 8003 - provide reference (or source) for the lcd estimates. 50 lcd for cattle seems high for me, considering they only need water for drinking. -remove 'which' on p8008, first line - For example line 16 p 8009, no capital needed

In summary, this looks like an interesting SWAT applications where some limitation/data problems of using SWAT have been overcome that might be of use for other SWAT applications within or without Eastern Africa. Nevertheless, I would need more information on the actual SWAT model in terms of parameters and hydrological mass balances, including a critical discussion of these, especially for the deep aquifer losses, in order to do a proper evaluation of the model.

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