

Interactive comment on “Balancing ecosystem services with energy and food security – assessing trade-offs for reservoir operation and irrigation investment in Kenya’s Tana basin” by A. P. Hurford and J. J. Harou

Anonymous Referee #2

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The paper made a good perspective on the multi-objectives trade off in reservoir hydropower system by using a visual trade-off analysis. The methods and ideas in this paper showed great values to many-objective trade off research and sustainable water resources management. Meantime, the manuscript needs minor revisions in some issues before it is accepted for publication. Specific comments:

1) At line 10 and line 16 of page1344, we can figure out two possible innovations in this study, the first is the coupling of “water resources management model” with

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“multi-criteria search algorithm”. The second one is “visual analytic plots”. However, in introduction section, no statement about the coupling model has appeared except for the advantages of MOEAs at line 16 of page 1346, and you just emphasized the benefits of visual trade-off analysis at line 1 of page 1347. This will confuse the readers that whether the coupling model is an innovations point you want to declare or it’s just a inter-process. And though in section 3.2.1, you introduced the implement of the linking model, however, in latter sections, especially in discussion and conclusions sections, no more discussion about the benefits of simulation-optimization interactions has been mentioned. I think it is better to make detail statement if you want to highlight the first possible innovation point.

2) I suppose the you might want to emphasize the advantages of “visual analytic plots”, however at line 21 of page 1353: “We use visual analytics (Keim et al., 2008) to interactively explore the trade-offs between competing objectives, and add analytical and non-optimised information to the trade-off surface to highlight information about the results.”, the visual analytics is referenced from another literature, it’s not very clear that if you made some progression or just apply it to this study. It’s better to make a more clear statement.

3) At line 3 of page1348: “This wetland has specific requirements for flow variability which amounts to a major demand for water”, the meaning of it is not quite clear, I suggest you to express it more clearly and accurately.

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