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September 17, 2014

Dr. Dieter Gerten
Potsdam Institute for Climate Impact Research
Telegrafenberg A62
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Germany

Dear Dr. Dieter Gerten:

Please find attached the revised manuscript titled “Socio-hydrologic Modeling to Understand and Mediate the Competition for Water between Agricultural Development and Environmental Health: Murrumbidgee River Basin, Australia“.

In our revision we followed your recommendations. We constructed a list of changes that were applied to the manuscript.

We would like to thank you for your constructive comments that have contributed to further improvement of our manuscript.

Please do not hesitate to contact me if you have any questions regarding the manuscript.

Sincerely,

Tim van Emmerik, M.Sc.
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REVISIONS

1. **Fig. 7 (and others): the labels a), b) etc. are not shown in some figures, please add this information, otherwise readers are confused.**

Done, Fig. 6-10 have been relabelled.

2. **Please consider whether Figs. 6 & 7 can be merged so that readers can directly see to what extent the observed(?) and simulated curves are in line with each other – if the agreement / simulation quality is something you'd like to highlight with these figures. In some cases (irrigation area and use after ca. 1990) they don't match well, which should be explained - I may have overlooked such an explanation though.**

Done, Figs. 6 and 7 have been merged. The results and the (dis)similarities between observations and modelling results are (briefly) discussed. It is also mentioned that indeed the irrigated area is not the most precise result and should be improved further. However, in our paper we try to mainly focus on how this modelling approach can be used to explain the dynamics.

3. **Fig. 11: Explain abbreviations “W” and “ πd ” in the lower right plot (d).**

Done, the abbreviations have been explained in the plot.

4. **Two reviewers raised general concerns on the type of modelling used here, which are not directly addressed in the revision. I leave it to the authors whether they'd like to refer to the open discussion of the former manuscript version (in HESSD) for once, where they provide a balanced discussion of this issue.**

The modelling approach is discussed in Section 2 of the paper. We also address the concerns about sensitivity and stability of socio-hydrologic models in the results & discussion and the conclusions, based on the discussion with the referees.