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Hydrology and Earth System Sciences Discussions

Interactive comment on "An assessment of land use change impacts on the water resources of the Mula and Mutha Rivers catchment upstream of Pune, India" *by* P. D. Wagner et al.

Anonymous Referee #2

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General comments: Paper titled "An assessment of land use change impacts on the water resources of the Mula and Mutha rivers catchment upstream of Pune, India" by Wagner et al. is reviewed. This paper addressed impact of land use change on water resources availability and temporal variability in selected Upper Bhima catchment (upstream of Pune city). Adopted methodology and modeling protocol is well defined. Authors have done good review work on the given subject and also for the study area. In my opinion the paper over all bring good set of information.

In addition some of the issues are required to be addressed: 1. Information regarding inter-basin transfer need to be included about the study area. One of the important

reservoir (Mulshi) located at up-stream part of the catchment divert water outside the catchment for power generation (also known as west-ward diversion). This is not included in the paper at the moment. As paper is looking temporal and spatial variability of inflows, adding this information would add further value. How the water availability at Mulshi changed over the period and trade-offs between agriculture vs power. 2. It would be good to show all the major reservoirs (including Ujjani) of Upper Bhima catchment in one of the figure. As authors have mentioned about Ujjani reservoir in discussion part. Water availability of the Ujjani reservoir is dependent on upstream water uses and release from different dams. 3. You could also cite Garg and colleagues work for this study area describing catchment hydrology using SWAT (Spatial mapping of agricultural water productivity using the SWAT model in Upper Bhima catchment, India by Garg et al., 2012, Published in Irrigation and drainage 61(1): 60-79). 4. Figure 4: Changes in ET is shown in terms of Percentage. Probably it will be good to show it in terms of absolute values. Similarly Figure 5, water yield also could be converted in term of absolute amount (in mm terms).

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