

## ***Interactive comment on “Dams on Mekong tributaries as significant contributors of hydrological alterations to the Tonle Sap Floodplain in Cambodia” by M. E. Arias et al.***

**M. E. Arias et al.**

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We would like to thank the 2nd reviewer for the comments provided. Responses for each of these are presented below.

1. Page 2178, line 8: “The main objective of this study focused on the impact assessment of hydropower development in tributaries of lower Mekong that may alter the hydrology of Tonle Sap Lake.” It is little unclear for me. Since the study has considered the impact of definite future scenarios as well, it will be good to modify in a way that will account all scenarios used in this study.

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Response: we agree with this observation, which is similar to another one made by the first reviewer. We have modified the statement of objective to “The main objective of this study is to quantify how proposed hydropower dams in the tributaries of the lower Mekong together with definite infrastructure development through the basin would alter the hydrology of the Tonle Sap floodplain”

2. Page 2187, line 23-26: Water level fall rate for the BL (median of 3.2 cm d<sup>-1</sup>, range 3.0–3.6 cm d<sup>-1</sup>) was also significantly different from DF (median of 2.8 cm d<sup>-1</sup>, range 2.7–3.4 cm d<sup>-1</sup>) and 3S (median of 2.9 cm d<sup>-1</sup>, range 2.7–3.4 cm d<sup>-1</sup>; Fig. 4b). The citation of figure given for this statement should be Fig 4c instead of Fig 4b. Please check and modify it.

Response: The citation to the figure has now been changed from 4b to 4c as pointed out.

3. Page 2189, line 2: The citation Fig. 4c is incorrect in the statement “In contrast, maximum annual water level from BL (median of 8.58 m, range of 7.42–9.67 m) was not found to be significantly different from either development scenarios (Fig. 4c).” Please check it. Please address the comments 2 and 3 as possible.

Response: The citation was changed from Fig. 4c to Fig. 4b as pointed out.

4. “As Ty et al. (2012) pointed out for one of the 3S rivers (Srepok), these other factors could also cause alterations, particularly as a decrease in water availability during the dry season. This trend is opposite to the effects of hydropower in the 3S reported by Piman et al. (2013a),: :”Is there any other similar/dissimilar discussion or interpretation for other two rivers of 3S basin, namely Sesan and Sekong Rivers. It will be interesting to see the impact of other factors on those two rivers as well.

Response: A detailed study of multipurpose use of dams in the Sesan was just published in July. The study highlights that the withdrawal of water for irrigation during the dry season had minor implications for river flows in comparison to dam operations

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(Räsänen et al. 2014). This reference and a brief description of its findings have been added. As far as we are aware, however, very little has been published on those other factors of change (climate, land use, irrigation) specifically for the Sekong.

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Interactive comment on Hydrol. Earth Syst. Sci. Discuss., 11, 2177, 2014.

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