

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.

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Thank you for allowing me to review this paper. I found the paper is of good quality and comes from the results of intensive research conducted in the Mekong and 3S river regions. The paper is useful for both policy/decision makers and researchers to have comprehensive understanding over the development issues in the Mekong river system and their consequences on Tonle Sap Great Lake in Cambodia. The Tonle Sap Lake plays very important role for economy and culture of Cambodian people. Any impacts that may be caused by the upstream development activities have significantly adverse impacts on the Tonle Sap Great Lake. Generally, I support the paper. However, I have

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some comments and questions as shown in the following:

1. Page 2179, line 27: The mean annual discharge in the Mekong at Kratie in Cambodia is 475 Km³ or 14,500 m³ per second. What is the measurement or conversion unit you applied here?
2. Page 2180, line 25: “Despite generating a large amount of electricity, hydrological alternations caused by these mainstream dams are expected to be low compared to other projects around the basin”. Why do you state like this? From your statement, it means that it is most likely to encourage the governments of Mekong countries to build as many dams on the Mekong mainstream as they can. If it holds true, what is the value of Mekong 1995 agreement, and why was MRC needed to establish? For what purpose? I would like you to analyse your statement as it almost downgrades every effort and resource that the four Mekong countries and world community have made so far for the sustainable development and conservation of Mekong river.
3. Page 2183, 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. I see that in your method and analysis you included the scenario of hydropower development in upper Mekong (Page 2185, line 6, dams in China). Please clarify your article objective.
4. I believe that the alteration of Tonle Sap Lake hydrology isn’t only caused by the development of hydropower dams, but also by other factors such as irrigation, climate change, and changes in land use/forest cover, e. g. large scale economic land concessions that are being developed in 3S river basin, especially in Cambodia. How do you consider these factors in your analysis?
5. Page 2184, line 6: Please explain the reason why you used the daily river discharge in Kratie town, why not in Stung Treng where the confluence of 3S river is located? It would provide better estimation of daily discharge of 3S rivers than at Kratie.
6. Page 2184, line 20: There is an inconsistency in your method. At this page, you mention that “a total of four scenarios” and at page 2183, line 14; you said “once these two scenarios were analyzed separately...”. Please clarify this.
7. Page 2191, line 28: I see that there are large biases to mention only Lower Sesan 2 dam, but what about the existing negative impacts to riverine communities in Cambodia caused by the hydropower

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dams in Vietnam, for instance, Yali fall dam seriously suffering Cambodian people as well as biodiversity on the river. What can you say about this?

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