

## ***Interactive comment on “An assessment of domestic rice distribution for transboundary water-food management in Japan through virtual water trade” by Sang-Hyun Lee et al.***

### **Anonymous Referee #2**

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The article makes an assessment of the Japanese domestic distribution of rice and the virtual water trade that is linked to that distribution. Firstly the distribution of rice is estimated using the gravity model, after that the VWT is estimated by combining the distribution data with water withdrawals in the different prefectures. The study concludes that a lot of water is being transported (through rice) from Japan's northern regions to its southern regions and therefore it is important to consider the link between food and water in trans-boundary water management.

I'm not convinced that this methodology and conclusion justify publication in HESS, mainly because (1) the methodologies are not novel and (2) the study and its conclu-

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sions do not have an international scope.

Besides these issues, there are also some more technical issues I would like to point out. (1) The water withdrawals figures are provided by the local ministry. The distribution numbers however are completely based on the gravity model, without any form of validation. Therefore it remains a bit unclear whether or not the presented numbers are valid. Especially since the gravity model depends on an empirical parameter ( $\alpha$ ), which the authors set to 2. Explaining this choice could help increase readers' confidence. (2) Another issue is the absence of the influence of foreign exports to/from Japan, since 10% of the domestic consumptions originate abroad. Discussing what the effect of this might be on the results would help.

- Technical Corrections:

Line 30: Please define self-sufficiency. I'm assuming it is something like "rice consumed/rice produced", but it would be good to specify that.

Line 53: Change "...also be to related water management..." to "...also be related to water management".

Paragraph starting on Line 53: break this paragraph into three shorter ones.

Line 109: Give a reference for this claim.

Line 130: Alpha is defined twice.

Line 139: Definition here of AE and RI is different from the ones on line 129.

Line 181: Table 1 should be Table 2.

Line 182: The number here does not add up to the numbers in table 2, should be 51.5.

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Interactive comment on Hydrol. Earth Syst. Sci. Discuss., <https://doi.org/10.5194/hess-2019-284>, 2019.