

Interactive comment on “Food consumption patterns and their effect on water requirement inChina” by J. Liu and H. H. G. Savenije

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The authors wish to thank the reviewer for his constructive and inspiring comments. The sequence of our response follows the points made in the review comments:

1. Future scenarios: We completely agree with the reviewer. We thank the reviewer for his inspiring comments not only because he pointed out the shortcomings of the scenario analysis, but also because he shared his opinions with us regarding the possible ways to improve the analysis.

The reviewer is right. A number of assumptions (e.g. effect of technological innovation on VWC from Shi and Lu; annual growth rate of per capita water requirement for animal products) are not consistent. The results based on the inconsistent and too simplified assumptions are not convincing. We will re-design the scenarios and rewrite the future

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scenario section. Major changes in the revised version will include the following:

- a) The growth trend of food consumption will be calculated for each food item;
- b) Effects of technological changes on VWC of each food item will be analyzed based on the changes in crop yield;
- c) Both CWRP and TWRP will be included in Fig. 4. In addition to the above changes, we will discuss the limitations of the scenario analysis in the conclusion section.

2. Conclusion: We will add the major findings in the Conclusion section. In addition, we will discuss the limitations of this research in the conclusion section.

3. Abstract: We will change the sentence into "An additional amount of water ranging between 358 and 470 km³ y⁻¹ will be required in 2030 compared to the TWRP in 2003".

4. Final sentence: The final sentence will be left out from the current version. Instead, another sentence will be added to the revised manuscript as follows: "We conclude that the effect of food consumption patterns on water requirement is substantial in the recent past and in the near future."

5. Two definitions of VWC: The reviewer is right. The VWC based on the first definition is not "virtually" used water if considering its literal meaning. In this paper, we keep using VWC, but in the mean time, we will clarify that the term of VWC used in this paper is equivalent to the "water footprint" in Hoekstra and Chapagain (2007).

[Hoekstra, A.Y. and Chapagain, A.K.: Water footprints of nations: water use by people as a function of their consumption pattern. *Water Resources Management*, 21(1), 35-48, 2007.]

6. More explanation about the source of difference between 480 and 680: The low subsistence level is determined by using the lower limits of food consumption for various food groups in SI Figure 5, while the high subsistence level is determined by using the upper limits. We will explain more about the source of difference in the revised version.

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7. Additional explanation to the caption of Figure 1. The sentence, "CWRF is calculated based on VWC values of various food items for the year around 2000." will be added to the caption of Figure 1.

8. Numbers in abstract: We will address this comment by:

a) improving the scenario analysis

b) presenting a range of additional water requirement in 2030 instead of only mentioning one number.

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