

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

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

1. Aggregated nature of the whole analysis: In this paper, we analyze the effect of food consumption patterns on water requirement in an aggregated way for China. It is well known that water scarcity is often a regional problem. Hence, a more detailed regional analysis is useful to compare water requirements with local water resources. However this kind of analysis is limited by data availability. First, regional consumption data for detailed food items are generally lacking. Second, VWC often differs in various locations even for the same food item due to different climatic conditions, soil parameters, and agriculture management, but data on VWC are generally not available at sub-national levels for most food items. We will mention the reasons why we

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conducted our study only at national level in the conclusion section.

2. Flow of information: The reviewer is correct. We will address the comments as follows:

a) We will use content-related titles in the revised version (e.g. 2. Concept, method and data sources; 3. Water requirement for food);

b) We will move Section 3.1 (Virtual water content and energy water productivity) and 3.2 (Historical food consumption patterns) to Section 2. In the revised manuscript, all the data obtained from literature will be mentioned in Section 2, while the results of this study will be presented in Section 3;

c) We will move the description of the regions used for comparison to Section 3.3 (Comparison with other regions);

d) We will move the description of the scenario development to Section 3.4 (CWRF and TWRF in the future);

e) We will add a summary of the major findings in the conclusion section. In addition, we will mention the limitations of this research;

f) Some quoted data and cited references will be reorganized.

3. Subjective scenarios: We agree with the reviewer. The current scenario analysis is quite subjective, and not convincing. We will improve the scenario analysis by taking the following two aspects into consideration:

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.

Although the scenario analysis will be significantly improved in the revised version, the analysis is still far from perfect, and many factors influencing the future food con-

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sumption and VWC are not taken into account. We will mention the limitations of the scenario analysis in the conclusion section.

4. Add more tables and figures: Another table indicating food consumption patterns of China over time will be added. Per capita water requirement for food (CWRF) will be added to Figure 4.

Minor issues

1. Table 1: The data sources will be added. All the data are China-specific, except for the VWC of fish and seafood, which is not available in the literature on China.

2. Historical food consumption patterns: The table will be moved from SI to the main text.

3. More detail in the three scenarios: A more detailed description about how we develop the scenarios will be added in the revised version.

Interactive comment on Hydrol. Earth Syst. Sci. Discuss., 5, 27, 2008.

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