

## ***Interactive comment on “Values in water management” by Erik Mostert***

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First of all, I would like to thank the anonymous reviewers for their reviews. Since the reviewers made similar comments, I will discuss their comments together.

1. The reviews made clear that the character of the article has not been explained well. Reviewer 1 wondered under what category the article was submitted, while reviewer 2 read the article as claiming to provide a “comprehensive theory” of values in water management. The article was submitted as a research article and it claims to develop a theory that is “more comprehensive” than VBN theory. The aim of this theory is to inform future socio-hydrological research. I will specify that the theory should help explain not only individual action, but also collective action, and should account for changes in values. Existing theories and approaches (not only VBN theory) do this only partially, e.g. they focus on individual action or on abstract social structures or treat

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values as given. The solution is to use and integrate (elements from) these theories to develop something more comprehensive.

2. Reviewer 2 points out that the article is not an exhaustive review of the theories of values and norms and would like to see an exploration of other theories than VBN. As discussed, the aim is not to provide an exhaustive literature review, but the article is definitely based on literature study. Some theories mentioned by reviewer 2 have already been included, but using alternative formulations. For example, “warm glow” is not mentioned, but the “positive feelings” that observing values gives are. Similarly, “altruism” is not mentioned, but pro-social values (p. 4), solidarity, and community (p. 5) are. Other theories, such as the theory of double loop learning, do mention values, but are not very specific about them. Meanwhile, I have done some additional reading on the Theory of Planned Behaviour, and this will result in some additions to the theory.

3. Reviewer 1 could not detect a theory at all in the paper. This theory is presented in sections 2 and 3, which discuss different types of values, their possible causes, and their possible effects. I plan to merge these two sections into a new section, titled “A general theory of values in water management.” Moreover, I plan to extend the discussion on the relation between individual and social values and between ideal and actual values. The theory will be summarised in a new figure.

4. Admittedly, the theory in its present form cannot be tested quantitatively. It is too complex for this, includes too many constructs, and does not discuss measures for these constructs. I will add a short discussion of how this theory can still inform future socio-hydrological research:

a. For future qualitative research, the different elements of the theory (types of values, causes) can function as so-called “sensitising concepts” that offer guidance and suggest directions along which to look.

b. For future qualitative research simpler theories and models will be needed with necessarily a more limited field of application, e.g. models on water scarcity in a sub-

sistence economy or flooding versus nature protection in affluent democracies. For this the general theory can provide building blocks.

5. The second aim of the article will be mentioned explicitly: to provide an overview of methods for actually measuring values, quantitatively or qualitatively. Such an overview does not yet exist.

6. Reviewer 1 recommends embellishing the overview with some real examples from published socio-hydrological studies. For some methods references to published examples have already been included, but they will be included for all methods. The references will not be limited to the socio-hydrological literature as this is still limited in size. I had missed the article by Leong, but as it is not a very clear example of the use of, in this case, Q methodology, I will not include it.

7. Reviewer 2 read the article as suggesting that the socio-hydrology and water management community is totally unaware of empirical frameworks based on values and norm and have never used social surveys before. This is of course not correct. I will check again the WRR special issues and the RANAS framework and health belief models and include relevant examples of the use of surveys and interviews at the appropriate places.

8. Reviewer 2 moreover suggests highlighting the contemporary issues arising from value system, such as path dependency and lock-ins. As I state in the introduction and the abstract, values are crucial for understanding how individuals, groups, organisations and whole societies interact with their water systems. Hence, they are important for all water management issues. Throughout the article I give examples of issues, e.g. in section 2 the construction of reservoirs, water laws, polder systems, upstream-downstream relations, the maintenance of flood defences, and environmental taxes and subsidies. Path dependency and lock-ins are not mentioned as such, but it is mentioned that institutions and water management infrastructure have significant staying power and can exert an influence long after the values on which they were once

based have changed.

9. Many comments of reviewer 1 refer to the “tutorial style” of presentation. I will check where the article may come across as too instructional or pedagogic and make the necessary changes.

10. One more change I am planning to make is to broaden the discussion on discourse analysis to content analysis generally, of which discourse analysis is just one form, and expand a bit on computer assisted content analysis.

11. Last but not least, I am considering to change the term “social value” into “cultural value.” In the literature “social value” is sometimes used to refer to the individual values of (significant) others, and this is not exactly what I meant.

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