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Hydrology and Earth System Sciences
Discussions

Interactive comment on "Socio-hydrology: conceptualising human-flood interactions" *by* G. Di Baldassarre et al.

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We would like to thankfully acknowledge Referee #2 for her/his positive comments about our scientific effort and for providing valuable comments that will contribute to improve our paper. This document reports our response to all comments.

1) In the first comment, the Referee points to the fact that in our paper (although there are some references to the scientific literature) our assumptions are not always sufficiently justified. As mentioned in the response to Reviewer #1, we recognize that the current version of the manuscript only quotes a number of previous studies, without providing an explicit discussion of the scientific evidence supporting our hypotheses. We will therefore revise our paper and follow the suggestions of the Referee to provide

a better justification of our assumptions by referring to a number of case studies and to the most recent scientific literature.

2) The second point of the Referee is about one of the parameters of the Hydrology equation. The Referee is right. Indeed, "resilience is a highly multidimensional construct that contains social, economic, infrastructural, institutional, community and environmental components". Thus, we agree with her/his suggestion and the revised paper will refer to the parameter alpha_H only as representative of the role of floodplain topography in affecting the relationships between flood levels and relative damage. 3) The third comment is about the use of the terms "society" and “politics” for the equations of the dynamic two-way model. The Referee is right in stating that the two equations are a simpliïňĄed schematization of the social and political systems. However, as stated in our current paper, our "conceptualisation unavoidably neglects some potentially significant aspects related to the heterogeneity of human societies..." Our paper also stated that "we focus on the interactions and feedback mechanisms between these components. Thus, each component is described by a simple equation..."

We are aware that each equation can be made much more complex, but our goal is not too describe all the details of the political or social processes. Rather, we focus on the interactions and feedbacks between these different processes and aim to explore the resulting long-term dynamics. Thus, we think that a coherent conceptualization requires the same level of simplification for the description of all the five types of processes. Anyhow, we fully agree with the Referee that the complexity of social and political systems could be better described. The revised paper will include a critical discussion of the complexity of the processes neglected in our conceptualisation and justify our focus on a set of specific social and political processes influencing human adjustments to floods.

4) The last point of the Referee is about the possibility of adding a term that addresses levee augmentation and/or repair in the “Technology” equation. As mentioned above, we aim to focus on the interplay between the different processes and, therefore, we

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prefer to keep using parsimonious equations. In the current set of equations, maintenance is indirectly represented by the levee construction costs after decay. However, following the Referee's suggestion, the revised manuscript will mention the possibility to include such an additional term to account for augmentation and/or repair of flood protection structures.

Interactive comment on Hydrol. Earth Syst. Sci. Discuss., 10, 4515, 2013.