

Interactive comment on “Low-hanging fruits in large-scale fluvial landscaping measures: trade-offs between flood hazard, costs, stakeholders and biodiversity” by Menno W. Straatsma et al.

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R2: The article is interesting but far from the goal that the authors promise in the preface. The automatic decision-making system is not adequately displayed or analyzed. In any case, the article is interesting, I suggest that the preface be adapted to the content.

Reply: We are relieved for R2's judgement that our article is interesting. R2 also suggests to change the introduction to lower the expectations of an 'automatic decision-

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making system'. In the introduction, we stated:

“To the best of our knowledge, none of the DSSs for fluvial flooding listed by Newman et al. (2017) contained an option for the automatic creation of measures at the spatial scale of the river reach. Coupling a DSS with automated measures could have additional value in the exploratory phase of planning new measures to provide all stakeholders with the efficiency of measures with respect to flood hazard reduction, costs, and biodiversity.”

We changed these sentences to:

“To the best of our knowledge, none of the DSSs for fluvial flooding listed by Newman et al. (2017) enabled the semi-automatic planning of measures at the spatial scale of the river reach. A semi-automatic system was presented by Straatsma et al. (2018), who used a rule-based system for positioning and parameterization of measures. Coupling a DSS with semi-automated planning of mitigation measures could have additional value in the exploratory planning phase to provide all stakeholders with the efficiency of measures with respect to flood hazard reduction, costs, and biodiversity.”

This wording shows that our method is not fully automatic; the rules for positioning still need to be provided. Note that the major objective as presented in the next section of the introduction has not been altered.

Straatsma, M.W. and Kleinhans, M.G., 2018. Flood hazard reduction from automatically applied landscaping measures in RiverScape, a Python package coupled to a two-dimensional flow model. *Environmental Modelling & Software*, 101: 102-116.

R2: Although the article presents an extensive substance, which, due to insufficient space, is superficially treated. I suggest that the authors reorganize the article and devote themselves to a more specific topic of their choice. It is possible to process only stakeholders' questions.

The point of this paper is not one specific topic, for which publications exist, but the

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novel combination thereof in a quantitative evaluation of trade-offs. Our paper presents the results of an interdisciplinary study that includes geocomputation, hydrodynamics, ecology, cost estimation, which are driven by insights from social sciences on stakeholder preferences. It is true that any of these aspects could be focussed on individually and treat them in more detail. In fact many of these details are studied by colleagues and presented in specialized journals. We treat the various components superficially to limit the word count of the article, but we refer to other publications for more details for the ecological modeling, hydrodynamic modelling, and intervention positioning and parameterization. We highlighted the stakeholders in the main objective to: "Our objectives were to (1) quantify multi-faceted trade-offs between landscaping measures to adapt a large delta distributary to sea level rise and increased river discharge while honouring ecological value and societal stakes, and (2) include government complexity by positioning the measures in areas owned by the two largest stakeholders versus all stakeholders based on a priori preferences." The discussion was adjusted accordingly with the first two sections representing these two objectives and their take home message.

R2: A minor error, on page 2e, is referred to in Figure 3e, and should be 2e.

Reply: this was corrected.

R2: I fully agree with first referee.

Reply: See AC1 for details on for the first referee.

See supplement at R1 for the revised version

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