

# ***Interactive comment on “Towards systematic planning of small-scale hydrological intervention-based research” by K. E. R. Pramana and M. W. Ertsen***

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In this text, we will respond to both reviewers 1 and 2, whom we thank for sharing their thoughts and concerns with us. We are happy to see that both reviewers agree that the topic we discuss is worthy. Both reviewers have indicated that we need to incorporate further improvements in the text, which we will obviously do, using their valuable and detailed suggestions – including additional useful references and our reasoning below.

Where the reviewers disagree on is whether the argument we develop is sound enough. Reviewer 1 concludes that our arguments are now “well structured” and “well grounded in the literature”. Reviewer 2 appears to disagree with that statement completely and suggests that we need to write another paper. It will be no surprise to anyone that we

tend to agree more with reviewer 1 on this topic. We do have some good reasons to do, as we discuss below.

Reviewer 2 starts with claiming that we focus “on the potential for people to disrupt installations of instruments/sensors” and considers this as “highly negative, narrow and frankly inappropriate”. We do indeed mention disruptions, but we think we are doing so in a slightly more sophisticated way than simple disruption. Actually, we do criticize the narrow view of “theft and vandalism” on page 4 and mention curiosity or disagreement there as well. Furthermore, our Vietnam case clearly shows that we understand why stakeholders decide to join certain interventions or not, by discussing the different motivations and clear actions of stakeholders, and the way our project dealt with that.

We think the Vietnam case is actually a very good example of a project that in close cooperation with the local stakeholders managed the complexity of intervention-based research. Finally, theft and/or vandalism are difficult terms to use as long as motivations are not known – and we do not use them as such for that reason – but we did experience in Vietnam and Kenya disappearance of measuring devices. So, we disagree with the reviewer that we are negative and inappropriate about human interventions.

Reviewer 2 appears to have different expectations about our paper than we have. We did not intend to write how research “can be designed in response to the concerns and perceptions of a wide range of human stakeholders and agents” nor to discuss the “notion of use-inspired science”. This is not because we disagree with the idea of reviewer 2 that “needs of local communities” are important, but we did not take that as central topic. Others have done so, as indicated by the reviewer and by our own references as well. We do take up the issue of designing hydrological research “with stakeholders and local human agents in mind”, but in another way than reviewer 2 seems to desire.

Based on our statement that human intervention usually results in lower data availabil-

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ity, we conclude that hydrological research should be designed with stakeholders and local human agents in mind, but we do so with a focus on the hydrological research itself. We would agree with reviewer 2 that is a more narrow focus than the reviewer deals with, but that does not make our focus irrelevant. We discuss how hydrological researchers, who usually do not have a background in participatory theories and are responsible for useful and relevant hydrological data gathering, can improve their studies by preparing in a different way. We would argue that even in projects with stakeholder involvement as the reviewer would like to see, surprise will be a part of the hydrological work – as we have seen indeed in Vietnam.

In order to make this argument, we do think we need our material on the three hydrological studies, the details of the different responses of stakeholders, and the focus on costs and benefits in terms of data. We do not focus on those costs and benefits because that would be the only valuable focus in projects in general, but simply because in the type of projects we discuss, research budgets are limited, but everyone does still expect useful hydrological results.

We would be the last one to suggest that our paper offers the final word on the topic, but we maintain that our focus on how hydrologists should plan ahead for surprise and can do so by using a cost-benefit approach is useful, that we did discuss these and other issues in an appropriate way, and that our agreement with reviewer 1 makes sense. We will obviously use the comments of both reviewers to improve our paper in case we are allowed to do so, and include some of our text above to make our reasoning appear even stronger.

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