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Hydrology and Earth System Sciences
Discussions

Interactive comment on "Investigating the environmental response to water harvesting structures: A field study in Tanzania" *by* Jessica A. Eisma and Venkatesh M. Merwade

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Dear Giulio Castelli,

Thank you for your comment on the manuscript.

In response, we have returned to the literature to provide stronger justification for the statement that 50% of sand dams are essentially non-functioning. de Trincheria et al. (2018) support the statement made by Viducich (2015) and further state that the estimate of 50% non-functioning sand dams may be conservative. de Trincheria et al. (2018) develop this conclusion based on their study of 30 sand dams in southeastern

Kenya and knowledge of hydrology, geology, and construction practices. We would also like to note that the estimate seems reasonable based on our personal experience with sand dams in Tanzania and interactions with the local communities. To support the claim, de Trincheria et al. (2018) will be added as a citation to the relevant sentence, and the following will be added to the reference list:

de Trincheria, J., Filho Leal, W., Otterpohl, R.: Towards a universal optimization of the performance of sand storage dams in arid and semi-arid areas by systematically minimizing vulnerability to siltation: A case study in Makueni, Kenya, Int. J. Sediment Res., 33, 221-233, doi:10.1016/j.ijsrc.2018.05.002, 2018.

Considering your comment, we would also like to state that there is a great deal of uncertainty in large-scale estimates associated with sand dams. For example, various sources have estimated that there are anywhere from 1500-3000 sand dams in Kenya alone (de Trincheria et al., 2015; de Trincheria et al., 2018; Viducich, 2015). There are few published studies on sand dams, so much of the large-scale information comes from somewhat unsubstantiated claims and estimates. This, in part, motivates our desire to increase the body of knowledge surrounding sand dams.

Best regards, Jessica Eisma and Dr. Venkatesh Merwade

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