Interactive comment on “From Tsunami Risk Assessment to Disaster Risk Reduction. The case of Oman” by Ignacio Aguirre Ayerbe et al.

Anonymous Referee #1

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Main comments - How can you evaluate that your goal was succeed for tsunami DRR even if there is no actual tsunami event to test? Of course, I agreed if your goal is to develop some tools or frameworks for DRR and to say that the country will be more prepared. Otherwise, please give some examples (may be in other countries?) to support that in what way, what you have achieved in this project can reduce tsunami risk in the future. - Risk communication is also very important. Good quality of DRR countermeasures will be meaningless if they were failed in transferring to people at risk. Also, I could see that you mentioned about education, but I think it should be explained more on how the people at risk will be properly/correctly educated and have high capacity enough to receive risk information from the government, etc.

Specific comments Title: I feel that the title is rather general and should be modified to
be more attractive

Abstract: I feel that the main results of your study did not appear in the abstract. I would also write about the recommended countermeasures, recommendation for DRR in Oman here.

18, 145-155 Shoji, G. and Nakamura, T.: Damage assessment of road bridges subjected to the 2011 Tohoku Pacific earthquake tsunami, Journal of Disaster Research, 12, 79–89, 2017. Suppasri, A., Latcharote, P., Bricker, J. D., Leelawat, N., Hayashi, A., Yamashita, K., Makinoshima, F., Roeber, V. and Imamura, F. (2016) Improvement of tsunami countermeasures based on lessons from the 2011 great east japan earthquake and tsunami -Situation after five years-, Coastal Engineering Journal, 58 (4), 1640011. Suppasri, A., Muhari, A., Futami, T., Imamura, F. and Shuto, N. (2014) Loss functions of small marine vessels based on surveyed data and numerical simulation of the 2011 Great East Japan tsunami, Journal of Waterway, Port, Coastal and Ocean Engineering-ASCE, 140 (5), 04014018. Methodology - You may write section name 2.1, 2.2., 2.3... in Fig. 1. 2.1: Please give a reference that other source of tsunamis such as landslide or volcanic eruption can be neglected. - Page 5 line 129: “Okada model” should be properly cited giving the year and put in the reference - Please also tell readers about your computational grid size. Although the simulation was done by your previous study but the grid size is important to understand the resolution of your study. - Please give some comments if the tsunami sources in your study the same or different to other previous studies. - Page 5 line 145: “drag level” sounds wired to me. I would prefer “drag force” or “hydrodynamic force”. Please check and consider. 2.2: I feel that you just mentioned about your risk variables but not on how the hazard and risk will be linked. Few sentences in lines 146-150 is probably rather fit to this section as they explain the linkage between hazard and vulnerability. However, another question about these references is how can you directly applied their proposed vulnerability functions to Oman. For example, building strength in Oman may different to other countries. - Table 1: I think age and gender are also important as they are directly related to the evacuation speed. Did you used different kinds of vulnerability functions for different kinds of buildings/infrastructures? 2.3 Fig. 4: I can see that you used flow depth and drag force as your hazard index. What if both give different results? Low flow depth with high velocity will have high drag force, therefore, you will have lower hazard level when using flow depth but higher hazard level when using drag C3
force. - What is the meaning of “assigned score”, how it is assigned and how it was applied to different human and infrastructure index? - There should be some explanations about the hazard-vulnerability table, not just only shown in Fig. 4. 2.4: What is RRM? - Fig. 5: “exposure assessment” have never mentioned before or in any places in your paper but shown in this figure. Please explain in your main text. - In Fig. 2 you show disaster cycle, but you only focused on prevention and preparation in your study. How emergency response and recovery included in your study or will be considered in the future? - I can see only section 2.4.1 but no 2.4.2. - Page 10 line 278: How the recommended measures were determined? In what way they were decided that priority to be recommend? Were they determined by hazard reduction performance, economic cost, B/C, impact to environment, etc? Results: Fig. 9: How can local people get an access to information like in Fig. 9? - 3.3 Page 18 Lines 395-396: How the knowledge can be transferred? Any example? - Page 18 Line 405: How can you make sure that it will not be just a manual which people will never read? How this manual will be used for various practical actions such as evacuation drills, etc? Page 18 Line 411: In what way the warning message can be disseminated to local people or how they can access? Conclusions: I suggest reorganizing like this 1) the new method used in this study, 2) recommendations to government or local people in Oman and 3) Global applications/limitations of this study - The Sendai Framework have never appeared in the main text but suddenly mentioned here. If you want to keep this sentence, please also mention in your introduction or methodology on the linkage between your work and the Sendai Framework.