

## ***Interactive comment on “From rapid visual survey to multi-hazard risk prioritisation and numerical fragility of school buildings in Banda Aceh, Indonesia” by Roberto Gentile and Carmine Galasso***

**Anonymous Referee #1**

Received and published: 23 January 2019

I feel that this manuscript needs to improve their structure, connection between sections (especially the last section on fragility functions), add some explanations and proper references. General comments 1. I think the authors should better show uniqueness of their rapid survey form, i.e. how their new rapid survey form differs to other rapid survey forms, easier/faster to fill?, can be used for various purposes, etc. 2. Is INSPIRE developed mainly for earthquake and tsunami or applicable to other hazards? If the later, more explanations are needed as only examples on earthquake and tsunami were demonstrated. 3. The newest PTVA is PTVA4 that calibrated their

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vulnerability based on comments and questionnaire results from experts in this field. Why don't you use the newest one? Reference: Dall'Osso, F., Dominey-Howes, D., Tarbotton, C., Summerhayes, S., and Withycombe, G.: Revision and improvement of the PTVA-3 model for assessing tsunami building vulnerability using “international expert judgment”: introducing the PTVA-4 model, *Nat. Hazards*, 83, 1229–1256, 2016. Izquierdo, T., Fritis, E., and Abad, M.: Analysis and validation of the PTVA tsunami building vulnerability model using the 2015 Chile post-tsunami damage data in Coquimbo and La Serena cities, *Nat. Hazards Earth Syst. Sci.*, 18, 1703–1716, 2018. Alternatively, you can also use or compare with previously developed tsunami fragility functions of RC buildings. Reference: Suppasri, A., Charvet, I., Imai, K. and Imamura, F. (2015) Fragility curves based on data from the 2011 Great East Japan tsunami in Ishinomaki city with discussion of parameters influencing building damage, *Earthquake Spectra*, 31 (2), 841–868.

Specific comments 1. P2 L3: Needs reference 2. Introduction section shall be rearranged for better readability. For example, grouping the literature reviews to RC building, school building and structure of INSPIRE. At present, explanations of methods and objectives are mixed up, please rearrange and make it clear (page 3). 3. P9 L1-2: Calibrate the baseline score to what? Why DS3 is used? 4. P10 Table 3: How these weight factors obtained? If from HAZUS, how certain these values can be applied globally? 5. P12 Section 3.3: If there are three hazards or more, how equation 7 and Fig. 3 will be? And how to avoid such double count of subsequent damage? 6. P14 L31: Needs reference 7. P15 and/or P19: I think you should give more explanations about tsunami hazard in your study area in the past/future. How the flow depth of the 2004 Indian Ocean tsunami used in INSPIRE. I am not sure if they have measured flow depth in all buildings in your study if so, the flow depths are from model simulation? 8. P20 Fig. 8 There should be some discussions that point out importance of considering multi-hazard scenarios. For example, buildings that became higher risk when tsunami is considered and comments on how the developed map can be used for disaster planning. 8. P16 Fig. 5: Add photo taken dates 9. P21 Section 4.3: I feel

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that this section is not related to others otherwise, it should be used to compare with analysis results of other previous sections. What was the purpose of this section? Why didnt the authors use their own developed fragility functions instead of HAZUS?

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Interactive comment on Nat. Hazards Earth Syst. Sci. Discuss., <https://doi.org/10.5194/nhess-2018-397>, 2019.