

Between global risk reduction goals, scientific-technical capabilities and realities: a modular approach for multi-risk assessment

I thank the authors for their efforts to address my previous comments. Their responses have raised a few further queries/comments from me, which I think should be addressed before the manuscript can be published:

1. Novelty: The authors have improved the framing of the novelty of the proposed framework in terms of its practical relevance and user-centered design. But I think this framing should also be captured in the title of the manuscript, which is currently lacking any reference to user-centeredness.
2. While I appreciate the efforts of the authors to re-structure the introduction to improve its readability, it is still not clear to me why Section 1.3 deserves to be standalone, when its main aim seems identical to that of Section 1.1, i.e., providing motivation for risk management. If the authors insist on keeping it separate, then I believe its title needs to be modified given that it no longer discusses local impacts.
3. Line 240 (approximately): Some of the re-defined stakeholder categories appear to overlap. I am not sure what the difference between an institution operating a DRM information system and one that works “in DRM contexts” would be. Perhaps providing some examples as well as a rationale for the categories defined would be beneficial. Table 2 is helpful for the former, but does not come until much later in the text (it is also not clear to me whether the stakeholders listed in this table were those from the Peru case study or external to that process).
4. Line 274: If conditional probabilities of hazards are not considered, how do you ensure that the multi-risk “stories represent *realistic* multi-risk situations”, as stated in line 265? (By the way, it does not seem at least entirely correct to state that conditional probabilities of hazards are not considered, given that the size of the tsunami in the case study is related to the magnitude of the considered earthquake).
5. Line 482: “we account for uncertainties with regard to the historic earthquake from 1746 which serves as basis for the simulation, by covering a range of magnitudes with simulations”.. I am not sure I follow this statement. Does the word “magnitudes” used here refer to the earthquakes? If that is the case, I thought only one magnitude is considered (rather than multiple), given that the authors state in line 463 that the scenario is “a single event”.
6. I think the results of the Ecuador application need to be elaborated more, explaining more specifically how the transferability to another region was tested. In particular, it would be relevant to explain how stakeholders were involved in that application and what challenges arose (e.g., around the design of the interface, any modifications that were suggested for the workflow). Furthermore, the authors state that “we can report that we could successfully adapt the approach for another case study in the coastal area of Greater Valparaiso, Chile” but provide no evidence to support this statement (it is not even clear what hazards are considered for this additional case study), which is not acceptable. The statement should either be removed or the case study described in sufficient detail to support the claims made about it.
7. It is surprising that the risk metrics output from the tool are not designed in collaboration with stakeholders, given their importance to the decision-making processes that the tool strives to facilitate. Furthermore, the metrics used are rather narrow in scope; repair costs may not fairly capture the effects of hazards on low-income populations, for instance (e.g., see <https://www.nature.com/articles/s41893->

[020-0508-7](#)). I think the narrow range of metrics used and the lack of stakeholder involvement in their design might be considered a notable limitation of the framework and an aspect that should be improved in future work. I therefore believe it warrants some discussion in the conclusions.

Some minor technical comments:

1. Line 30: I think the phrase “tool through an iterative participative approach” was more a more appropriate description than the term “method”
2. Line 405: There are two sentences here that both state the demonstrator light version provides three different modes. Also, there is a typo in the statement: “comparison of two different scenarios within one multi-risk story two..” (same typo exists in line 529)
3. Line 568: please specify what you mean by “users”
4. Line 628: “totally likelihood” does not make sense .. rephrase using something along the lines of “proportion who are totally likely to use the tool”
5. Line 656: this sentence does not read correctly. I think you should rephrase the start of it along the lines of: “In this paper, we presented one (of many possible) approach(es) to multi-risk analysis that can make a practical contribution to...”
6. Figure 8: “right ride” is a typo in the caption