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## Reply on RC2

Benni Thiebes et al.

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Author comment on "Invited perspectives: Challenges and step changes for natural hazard – perspectives from the German Committee for Disaster Reduction (DKKV)" by Benni Thiebes et al., Nat. Hazards Earth Syst. Sci. Discuss.,  
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Dear reviewer 2,

Thank you for your constructive feedback on our manuscript.

We agree that our initial submission lacked concrete examples; this has already been addressed by reviewer 1. In our manuscript revision, we have tried to give more illustrative examples. Additionally, we have addressed your specific comments in the revision.

Best regards,

The authors

### **Line 15: How are students involved? Which are the DKKV activities they could participate in?**

Students and recent graduates can apply for a "Young Professional" membership at a significantly reduced annual fee. They can then join all activities of DKKV just like regular members. However, only three YP members can join the annual members' meeting and have a vote there.

We decided to omit these regulatory details in the manuscript as this refers to the statutes of DKKV as an association under German law (i.e. "eingetragener Verein") and does not extend on our activities in the field of disaster risk reduction.

### **Line 21: How is the public informed? Via a webpage, app or workshops? Some examples would help the reader to get a better understanding of the DKKV.**

We have added examples of our communication activities in the revised manuscript.

These include our website, but also flyers, public lectures, and workshops. Of course, we

have been doing that in a digital form during the pandemic.

At the end of the manuscript, we have added a short section on serious gaming; this has proven to be a very successful way of bringing people together and to facilitate the exchange of knowledge.

**Line 27: What is the aim of these research projects? (e.g. are they addressing the reduction of climate risk and other hazards?)**

We have added half a sentence at the end to describe some activities.

As an example, the serious game to which we refer to at the end of the manuscript was developed within the H2020-ESPRESSO project.

**Line 31 ff : What concrete risks are humanity facing? And why are the conditions more challenging?**

We have slightly changed the sentence (present tense instead of future tense in the first part).

“Humanity is increasingly facing multiple risks under more challenging conditions. The continuation of climate change and the ever more frequent occurrence of extreme, multi-hazard, and cascading events are interacting with increasingly complex and interconnected societies. Natural and technological hazards leading to economic and non-economic losses call for further research to assist policy makers and public administration with evidence-based, precautionary, and actionable information and advice.”

Thus, our argument is that the continuation of climate change and the more complex hazard situations interact with more connected and complex vulnerable societies. As both the hazards as well as the objects at risk are becoming more complex, we are convinced that this relates to a more challenging situation than in previous decades.

**Line 50: What data should be improved? Why is it not homogeneous? How should the data be homogenized? Please provide more information here.**

Data collection is currently being carried out by a multitude of local, regional, national international institutions from both science and administration. If such data are not harmonized to a certain degree (e.g. data formats, update frequencies, data collected), they hinder the application risk and impact assessments. These are however necessary to assess future impacts and losses and form the basis for risk-informed decision making.

We have changed the sentence in the revision to highlight the need for harmonization of data collection.

**Line 51: You are addressing simulations and assessments. Please provide a concrete example to make it more vivid and tangible to the reader.**

We have added some examples to the revised manuscript.

**Line: 69: What does “Build Back Better” mean in practice? Can you provide an example?**

After the occurrence of major extreme events, there is a tendency to aim at building back to the pre-event conditions. We have recently experienced this again after the German flood disaster in 2021. However, to reconstruct sustainably, future risks and their impacts must be known and be accounted for.

Thus, two major research projects to guide a sustainable reconstruction have been initiated after the flood events by the German Ministry of Research and Education.

We have extended the sentence on “build back better” in the revised manuscript.

**Line 71: Is there an example for an early warning system that you can suggest to the reader?**

There are many best-practices in relation to early warning systems; however, we do not think that there is one that addresses all parts of an early warning chain to a perfect degree, which would also be applicable to all hazards everywhere.

For the purpose of this article, we have added to recent changes in Germany: 1. Legal changes to allow the national government to provide coordination in regional and state-level disaster events, and 2. the upcoming implementation of cell broadcasting for public alerts.