

***Interactive comment on* “Brief communication:
Strengthening coherence between climate change
adaptation and disaster risk reduction through
policies, methods and practices in Europe” by
Jaroslav Mysiak et al.**

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Reviewer’s comment: The authors present a brief communication related to the “coherence between CC adaptation and DRR through policies, methods and practices in Europe” based on the recently published EEA report (European Environment Agency, 2017). While the overall aim of this brief communication is not doubted, it remains a bit open to me (1) what the aim of this manuscript should be apart from advertising the original EEA report, and (2) to what extent the European research landscape is comprehensively mirrored by the authors. As such, most of the cited references

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are EC and EEA reports and policy briefs, in contrast, sources other than these are widely neglected (such as e.g., OECD). As such, a brief communication in NHESS could take a wider or more focused point of view than the present one; at the moment the manuscript reads more in the way of an extended abstract of the original report. Consequently, lots of the statements made are not underpinned by references, and if they repeatedly refer to EEA reports again.

Authors' response: Thank you for your insightful comments and suggestions. Our manuscript was devised as a brief communication that summarises the process and outcomes of a comprehensive review of policies, methods and practices that characterise the intersection of disaster risk reduction (DRR) and climate change adaptation (CCA) (EEA, 2017). As for the (choice and number of) references included in our manuscript, the NHESS allows for only a limited (up to 20) references in brief communications. In the manuscript we have included references that best underpinned the our arguments and propositions. The full EEA report contains many more references to peer-reviewed sources that support our analysis and conclusions.

Reviewer's comment: The title should in my opinion focus a bit more on the content, which is not "Europe" but the Netherlands, Spain, France, the UK and Switzerland (why this selection?). As such, the manuscript shows good examples (or best practice) of CC adaptation and DRR strategies in European countries, but the focus on some countries means in turn that other examples and good practices are missing. Moreover, the examples shown in Table 1 are also a result of the respective legal regulations in the countries reported. To give an example, the multi-level risk governance reported from Switzerland is a result of the constitution of the Swiss Federation, and not as such the result of specific arrangements in DRR or CC adaptation, and cannot be similarly put to other governmental contexts such as the French one, where decisions are made by definition in a more centralized manner.

Authors' response: Our review covered all member and cooperating counties of the European Environment Agency (EEA). The process of drafting the EEA report involved

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a survey among the European Environment Information and Observation Network (EIONET, www.eionet.europa.eu) countries and an expert workshop that engaged academic experts, policy advisers and policymakers closely involved in designing and implementing CCA and/or DRR policies and plans. We collected many contributions as for which examples of good practice to include in the report, and have chosen those that met our criteria. Our choices have been positively evaluated by external reviewers (including the representatives of the EIONET countries) and members of an advisory steering group that we established for this purpose. We are aware of the fact that the CCA and DRR practices are shaped by and/or reflect legislative and regulatory environments in any given country. Critical reviews like ours but also those conducted by others including OECD, EC and UNISDR serve as examples of practice that might be followed in other contexts, within the given limits.

Reviewer's comment: In the Introduction section the authors refer to initiatives other than those of EEA, such as those from EC JRC, ETC/CCA, DG Climate Action etc. On the international level, the UN Office for DRR and the Sendai Framework are particularly mentioned. Here, it would be good to also include some challenges behind such European and international actions, as recently shown by Wymann von Dach (2017) or Zimmermann and Keller (2015) with respect to CC adaptation and DRR for European mountain regions, or OECD (2017).

Authors' response: The Sendai Framework for Disaster Risk Reduction is a commitment to a transformative change in how natural and human-made risks are dealt with (Mysiak et al., 2016; van der Vegt et al., 2015; Wahlström, 2015). SFDRR made substantial reduction of disaster losses a top priority of international efforts. To assess the progress toward this end, DRR community will have to substantially improve the practice of damage and loss assessment, including those damage and losses that may only materialize as the human-induced climate change further unfolds. For years, the United Nations Office for Disaster Risk Reduction (UNISDR) and the international community have worked to improve our knowledge of risks and to promote a culture of

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evidence- and evidence-based DRR. We agree that the Sendai Framework does not solve all challenges. For example, management of increasingly interconnected risks necessitates a new policy approach that takes into account complex networks and flows of goods and services, people and capital. The new approach needs to address interconnected pathways through which ‘risks can accumulate, propagate and culminate in a much greater scale of effects’ (OECD, 2011). However, a critical analysis of the Framework itself is beyond the scope of our manuscript.

Reviewer’s comment: Similarly, it would be nice to see some definitions here (how do the authors of the EEA study define resilience, vulnerability, and risk?).

Authors’ response: The limited length of the NHESS brief communications does not make it possible to include complementary information such as definitions of basic concepts but these are explained in full depth in the EEA report that provided a background to our manuscript.

Reviewer’s comment: Moreover, some of the facts given are more platitudes than proven scientific facts – at least in the way they are presented here. To give another example, the authors state that “Along with climate change, growing population and wealth, developments in hazard-prone areas, and the deteriorated status of natural ecosystems [. . .] increasing exposure and vulnerability” can be observed. This is a tricky statement, and has recently been debated (by European scholars) in the scientific literature. The manuscript would surely gain in content and rationale power if we could see some examples here – there are lots of recent works from the UK, the Netherlands or Switzerland and Austria around (such as, for example, Jongman et al. (2014) or Fuchs et al. (2015), both even published in the target journal). This would additionally help to close the still existing gap between policy advice and sciences without narrowing the aims of the original report.

Authors’ response: Our statement that increased exposure and vulnerability, as well as observed climate change are responsible for upward trends in economic losses caused

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by weather and climate-related disasters is correct and in line with numerous empirical studies (including those of Jongman et al 2014 and Fuchs et al. 2015) and the IPCC AR5 conclusion. Long-term trends in economic disaster losses, adjusted for wealth and population increases, have not been unambiguously attributed to climate change, although climate change amplified hazard may also have played a role.

Reviewer's comment: Similarly, section 2 seems to be a bit too narrowly focused on the EC and EEA contexts (page 3, lines 9-21). Consequently, the text is missing some concrete details or particular arguments; sentences such as the "levels of vulnerability, which include sensitivity or susceptibility to harm and lack of capacity to cope and adapt, are changing as our societies are transformed in terms of demography, wealth, cohesion and use of technology. Notwithstanding the importance of the quality-assured, systematically collected and thorough records on impacts of natural hazards, the loss data systems in Europe are fragmented and inconsistent. Empirical and evidence-based risk analysis and assessment are a vital part of CCA and DRR efforts" are a good example, also here there have been made (not only recently) some efforts from the scientific side, spanning from publications such as those of Barredo (2007, 2009, 2010) or Paprotny et al. (2018) on the European scale to national reports from different European countries, all of which are worth being noted. Alternatively, the authors should clearly state at the very beginning that the focus of this manuscript is a selection of European countries and initiatives, with an emphasis on EEA activities.

Authors' response: Given the limited length of the brief communication, not all topics that we address in our manuscript could be explained in depth. In the full report (EEA, 2017) we have dedicated an entire chapter (4.2 4.2 Disaster loss data in the European Union) to review the existing data sources and describe the practical and methodological challenges associated with collecting and analysing disaster loss data. Except for the article by Paprotny et al. (2018) which was published only after the report was released, all references that you mention are included in our review.

Reviewer's comment: Finally, section 3 reads like a document of political decision mak-

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ers with (from a scientific perspective) lots of “common sense” statements, which is of course ok in a framework like the one of the original study, but it would not be amiss to be more specific in the “brief communication” to be published in a scientific journal such as NHESD.

Authors’ response: In our brief communication we have outlined practical opportunities to improve the coherence between CCA and DRR, building upon the extensive evidence collected and described in full depth in the EEA (2017). Our conclusions may not be exhaustive but they are rooted in an extensive review and consultation. Our findings have been devised as a contribution to the ongoing review of the EU Climate Adaptation Strategy and the EU Action Plan on SFDRR.

Reviewer’s comment: The topic itself is definitely worth being published in NHESD, and I would like to encourage the authors to undertake some revisions in the directions outlined above. As a result, I kindly would like to suggest to revise this piece of work in order to better show the relation to existing scientific works recently published (also in NHESD), and consequently to lessen the focus on EC and EEA initiatives (this can be gathered easily by the interested reader through the original version of the EEA report (European Environment Agency, 2017)).

Authors’ response: Thank you, we have revised the manuscript considering yours and the other reviewer’s suggestions.

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