Response to RC2

- General Comments

Dear Authors,

Thank you for this very interesting and timely manuscript. The paper addresses an important and still underexplored gap in the multi-hazard and multi-risk literature, an area that is rapidly expanding. I believe this work represents a valuable contribution and has the potential to become an influential reference in the field.

My main overarching suggestion is to strengthen and clarify the paper's focus on consecutive disaster recovery. While I provide a detailed set of comments below, these are intended to be constructive rather than discouraging. On the contrary, I believe the authors have conducted a valuable and insightful study, and that further clarification and refinement would significantly enhance its impact and readability.

We would like to thank the reviewer for the thorough review and constructive feedback. We greatly appreciate the encouraging words and the recognition of the manuscript's relevance. Based on the detailed comments provided by the reviewer, we have carefully reassessed the manuscript and propose several substantial revisions, as well as smaller changes, that, together, will help to refine the framing, scope, clarity, and conceptual contribution of the paper. Overarching adjustments are outlined below, with individual comments addressed in more detail under the respective points.

I. *We agree that the manuscript would benefit from a more explicit and consistent focus on consecutive disasters, avoiding references to more general recurrent disaster contexts. We will therefore revise the manuscript to strengthen the consecutive-disaster focus throughout, removing or reframing examples that assume completed recovery between events and establishing a clear framing from the start. We will take specific care to reevaluate the sections explicitly highlighted by the reviewer.*
II. *After reassessing the conceptual focus of the paper, based on the reviewers feedback, we recognise that the main value of the paper lies in illustrating the complexity of recovery processes in the context of consecutive disasters, and in showing how recovery can be affected in many different ways within and across societal domains, spatial and temporal scales. The paper therefore is best understood as a perspective, conceptual contribution.*

    In this context, we chose to frame our manuscript around the tipping point framework of Spaiser et al. (2024), as we recognised the tipping point literature and framing to be relevant in the context of consecutive disasters specifically. The tipping literature was intended to be a conceptual lens to reflect on the possibility that recovery under consecutive disasters may not return to a pre-disaster state and may instead lead to alternative system trajectories. We see how the strong framing around the tipping-point framework has created the suggestion of more quantitative and concrete statements regarding a definition of the identification of tipping thresholds within each subsystem, which tipping points are common, etc.

that cannot be provided using the illustrative examples presented in Chapters 2 through 5.

Therefore, more in line with the intended purpose of the empirical examples, we will move away from the Spaiser et al. (2024) framework and present the different societal systems as a cross-section of society that illustrates how consecutive disasters can fundamentally increase the complexity of the recovery process across spatial and temporal scales, with potentially interrelated consequences across societal domains. We will also clarify that these domains do not represent an exhaustive coverage and that additional (societal) domains could be considered.

III. *Related to this, we propose to revise and restructure Chapters 6-7 into a single reflection chapter that provides a clear conceptual synthesis of recovery complexity in the context of consecutive disasters. Rather than focusing on recommendations, the revised chapter will explicitly reflect on how recovery, consecutiveness and outcomes are shaped by system definition and analytical choices. This chapter will be structured around three interrelated reflection points that we will outline below.*

Reflection point 1: System definition

- *This reflection point will address how system definition (i.e., the choice of indicators, societal subsystems, spatial and temporal scales, and the interconnections considered) directly shapes how recovery is defined, how consecutiveness is interpreted, and what recovery outcomes are observed.*
- *We will reflect on how recovery may appear complete in some subsystems (e.g., physical reconstruction) while remaining incomplete in others (e.g., mental health, governance capacity, or financial buffers), thereby affecting whether subsequent events are classified as consecutive. We will further discuss how incorporating spatial, sectoral, and functional interconnections can reveal forms of consecutiveness that are missed when recovery is assessed for a system or region in isolation. Finally, we will reflect on practical challenges in defining recovery timescales and event boundaries in contexts of prolonged or incomplete recovery, highlighting limitations of existing definitions of consecutiveness and the need for transparent system boundary choices tailored to the research question.*

Reflection point 2: Recovery trajectories and "the recovered state"

- *This reflection point will integrate the conceptual reflections that were originally embedded in Chapter 6, focusing on the non-linearity in recovery trajectories under consecutive disasters, tipping points, and the definition of "the recovered state".*
- *We will discuss how consecutive disasters can increase the likelihood of non-linear responses and the occurrence of threshold effects leading to complex recovery trajectories . Such complex trajectories potentially pushing systems toward alternative, new, or harder to reverse states, a process which may be conceptualized as tipping. Specifically, in this context, recovery does not necessarily imply a return to pre-disaster conditions. We will therefore reflect on how the definition of a "recovered state" is inherently system-dependent, and should encompass non-linear and complex responses, as well as alternative system states. Additionally, we will discuss*

how what constitutes recovery may differ substantially across systems, such as physical assets, financial systems, governance structures, or social well-being.

- *We will also address that while recovery can, in principle, create opportunities for positive transformation, consecutive disasters often inhibit such change by shifting attention and resources from long-term development to short-term response. These reflections highlight why simplified or static recovery assessments are inadequate in consecutive-disaster contexts and motivate the need for more dynamic recovery and risk assessment approaches.*

Point 3: Conceptualization of "disasters"

- *This reflection point will address conceptual ambiguities surrounding what constitutes a disaster versus an impact or contextual/vulnerability factors, and how this becomes more difficult to separate when adopting an all-hazard, consecutive disaster perspective.*

Rather than prescribing a single definition or framing, all of these reflections highlight the need for transparency and reflexivity in analytical framing, recognizing that multiple valid interpretations may exist depending on the research question.

IV. Lastly, we will address the reviewers observations regarding unclarity of some of the terminology used within the paper.

1) *As described, we will provide more consistent use and framing around the provided definition for consecutive disasters.*
2) *We will add a clear definition of critical systems and services early in the paper, making sure that these definitions are then applied consistently throughout the manuscript.*
3) *At the start of the paper, we will add a section clarifying how economic shocks, health crises and political instability are conceptualised in relation to the concept of "disaster." Following the all-hazards approach adopted in the UNDRR Hazard Information Profiles (HIPs), phenomena such as political and economic instability can be classified as societal hazards, while infectious diseases are classified as biological hazards. Disasters can then result from the interaction of any hazard type with exposure and vulnerability ($H \times E \times V$). In principle, therefore, large-scale health crises, financial shocks or political crises may constitute disasters in their own right.*

   At the same time, we recognize that in much of the disaster risk reduction literature, the term "disaster" is commonly used to refer primarily to events triggered by natural hazards (e.g., meteorological, climatological or geological hazards). To discuss the interaction between natural-hazard-induced disasters in this more traditional sense and health, economic or political crises

in a consistent and transparent manner, we will use the term "disaster" in this paper primarily to refer to natural-hazard-induced disasters, while explicitly referring to economic crises, political crises and health crises as distinct phenomena. This while acknowledging that these phenomena can, under an all-hazards perspective, constitute disasters in their own right and may therefore create consecutive-disaster dynamics when their impacts overlap with those of natural-hazard-induced events.

4) *We will also add a clarifying statement regarding the definition of "societal recovery" in the introduction, explaining that the addition of the word "societal" meant to limit the scope to human systems, which also clarifies the question as to why ecosystem recovery was not included in the review.*
5) *We will add some lines on how the "recovered state" can be defined or conceptualised within each of the different societal domains, yet we do not aim to provide one binding definition for this (as is addressed in reflection point 2).*

We believe these changes, made based on the reviewers' elaborate feedback, will result in a more coherent manuscript with a clearer conceptual contribution.

Introduction

The introduction opens with a real-world example, and the manuscript as a whole makes extensive and effective use of empirical illustrations. Given this, I would suggest that the introduction focus less on additional examples and instead prioritize clearly framing the problem, introducing key definitions, and establishing the conceptual focus of the paper.

We thank the reviewer for this suggestion and agree that it would be better to take out the empirical example from the introduction, to instead prioritize a clear framing and scope of the paper, introduction of definitions, and clarification of the conceptual focus as outlined in the overarching response.

In particular, the scope of the paper would benefit from greater clarification. For example, in line 74 the authors state: "Even when recovery is completed between events, decisions made during the recovery process… can fundamentally shape a society's resilience to subsequent events." At this point, it is unclear whether the paper focuses specifically on consecutive disaster recovery, recovery processes more generally, or whether the concept of "consecutive disaster" itself still requires clearer definition. I encourage the authors to explicitly clarify this distinction early in the paper.

We agree with the reviewer that the statement in line 74 is not sufficiently specific for consecutive disasters. As outlined in revision I, we will refine the manuscript to limit its focus more strictly to consecutive events, following the original definition provided in the first version of the manuscript.

Following this, the subsystems proposed by Spaiser et al. (2024) are introduced, and a systemic definition is developed. However, the rationale behind adopting and adapting this

framework remains unclear. I recommend explaining in greater detail why this particular framework was selected, how it relates to other existing approaches, and how the authors arrived at the proposed system definition.

We thank the reviewer for pointing out this ambiguity. As outlined in revision II, we have reconsidered the role of the Spaiser et al. (2024) framework in the manuscript. While it was initially introduced because we considered tipping-point theory conceptually relevant to recovery under consecutive disasters, we recognize that its inclusion as an organizing structure was not sufficiently justified and may have created expectations that extend beyond the conceptual and illustrative contribution of this work.

We will therefore move away from this framework and instead present the selected societal domains as a cross-section of societally relevant subsystems, in line with the examples' intended purpose, which was to illustrate how consecutive disasters add complexity to recovery processes across interconnected societal domains.

Additionally, the introduction refers to "health crises" alongside "disasters." It would be helpful to clarify whether health crises are conceptualized as disasters within the framework of this paper, or whether they are treated as distinct phenomena.

We thank the reviewer for raising this point As outlined in revision IV, we will add a section to the introduction to address this conceptualisation explicitly. In the HIPS, infectious diseases like cholera and tuberculosis are conceptualised as biological hazards, which means that a large disease outbreak can be conceptualised as a disaster.

At the same time, we emphasize that such classifications are not always clear-cut, particularly in the context of consecutive disasters. Health crises, political instability, and economic shocks may be framed as independent disasters, as impacts resulting from prior disasters, or as contextual conditions or vulnerability factors shaping subsequent recovery trajectories. We will address these blurred boundaries in reflection point 3 of the new reflection chapter.

Regarding Figure 1, since uncertainty in recovery outcomes is a central theme of the paper, it is unclear why uncertainty is not visually represented in the recovery phase following the first event. As currently presented, the figure seems to associate uncertainty only with the recovery from the second event.

We suggest adjusting figure 1 and/or its caption to address the concerns about the additional dimensions of recovery that are currently not visually represented. While we initially chose to limit the visual representation of uncertainty to the second recovery phase, as this is what the paper focuses on specifically, we will clarify either visually or through text that the recovery uncertainty is also relevant to the initial recovery process.

Additionally, we will add a fifth grey box to represent additional societal, or non-human systems, as we show only a cross-section of possible domains that can be included. This will help clarify to the readers that the chosen domains are non-exhaustive.

Between lines 90 and 100, the authors introduce the concept of societal recovery. It would be beneficial to clearly define this term and explain how it differs from "recovery" more generally.

We thank the reviewer for this helpful suggestion. As outlined in revision IV, we will explicitly explain in the introduction that the term “societal” is added before recovery simply to delimit the scope of the paper to various recovery processes within human systems, as similar dynamics are relevant in non-human systems as well but outside the scope of this paper.

Furthermore, I recommend clarifying the criteria and process used for selecting the recovery events and cases discussed in the paper. Although the authors note that this is not a systematic review, a more transparent methodological explanation would add rigor and clarity.

We agree with the reviewer that it would be good to clarify our methodological approach. The initial pathways were identified based on expert input through multiple rounds of discussion among the authors, all of whom have research experience relevant to the topic. These preliminary pathways were subsequently refined through iterative rounds of targeted literature searches and collective discussion. As new insights emerged from the literature, additional iterations were undertaken, leading to the final set of illustrative pathways. We will describe this expert-driven and literature-informed iterative process more explicitly in the revised manuscript to enhance methodological clarity.

Finally, briefly outlining the key issues addressed in each section at the end of the introduction with their related section numbers could greatly improve readability and guide the reader through the manuscript.

We thank the referee for this suggestion and will add a brief description of each section at the of the introduction that will help the reader to navigate the dense content of our manuscript.

- Impacts within Human Settlements

In the opening of this section, human settlements and critical systems are defined; however, health is not included among the listed critical systems unlike in section 2.3. This omission raises questions and should be either justified or clarified.

We thank the reviewer for noting this point. As outlined in revision IV, we will introduce a clearer and more consistent definition of “critical systems” early in the manuscript, including how these systems relate to the concept of “critical services” and to the societal domains analysed in the paper. In this context, healthcare systems (e.g., hospitals) and WASH infrastructure are recognised as critical systems that are relevant both within the human settlements domain and for human health.

While the list of critical systems at the start of Section 2 was not intended to be exhaustive, we agree that the omission of healthcare systems may create unnecessary confusion, particularly as human health is explicitly treated as a societal domain in the paper. We will therefore revise the opening of the human settlements section to explicitly include healthcare systems among the relevant critical systems, thereby clarifying how these concepts are integrated and interconnected across domains.

I also suggest shortening the sentence in lines 105–107 for clarity and readability.

We thank the reviewer for this suggestion and will revise the sentence in lines 105-107.

In the first pathway, the authors discuss increased exposure and vulnerability through displacement and relocation. However, the connection between this argument and the discussion in lines 114–117 is not entirely clear and could be strengthened.

We appreciate this suggestion and will strengthen our argumentation in this section.

In lines 139–144, the manuscript refers to the lack of critical services such as WASH infrastructure. Here, it would be useful to clarify whether health-related impacts are considered disasters in their own right, and whether this example is intended to illustrate a consecutive disaster. If WASH is considered part of the health subsystem, human settlement subsystem, or both, this should be explicitly stated.

We thank the reviewer for this important clarification request. As outlined in revision IV.2, we will introduce a clearer definition of critical systems and their relation to the societal domains discussed in the paper. In this context, WASH infrastructure will be defined as a critical system that is of relevance both within the human settlements and human health domains.

Regarding the conceptualisation of health-related impacts as potential disasters and whether the example intends to illustrate a consecutive disaster, we will revisit the text to ensure consistency with the definitions of disasters as we will introduce as outlined in revision IV.3. Following this conceptualisation and the hazard definitions as provided in the HIPS, we believe that a lack of access to critical services is not to be considered a hazard, but rather a vulnerability factor, increasing the vulnerability to biological hazards such as cholera. An outbreak resulting from this interaction (between the presence of a hazard and heightened vulnerability, for an exposed population) could, within the conceptualisation as defined in IV.3 then be considered a disaster (in the manuscript explicitly referred to as health emergency, to distinguish from natural-hazard caused disasters). We will revise the paragraph accordingly to make explicit that in this case absence of WASH services is conceptualised as a vulnerability driver within the recovery process, while a subsequent disease outbreak may constitute a consecutive disaster. As we discuss also in the reflection chapter we believe that conceptualisations like this are not set in stone and can be done differently depending on your research goal, but we agree that given the purpose, scale, and boundaries of the system of the study it is important that provided definitions are coherent.

In Section 2.3, healthcare is identified as a critical system. This highlights the importance of clearly defining what constitutes a “critical system” and how these systems relate to the societal subsystems introduced earlier. Such clarification would also help explain why food systems are treated as critical systems rather than as considering ecosystems as critical system or why the issue of the food is not addressed economy societal subsystem section.

As outlined in revision IV.2, we will introduce an explicit definition of critical systems early in the paper. In the revised manuscript, critical systems will be defined as functional systems that provide essential services necessary for the maintenance of societal functioning and well-being (critical services such as healthcare, WASH, food, energy, transport). These systems are not conceptualised as separate societal subsystems, but rather as cross-cutting infrastructures that are essential for the functioning of different societal domains.

The critical systems discussed in the manuscript are not an exhaustive list, but rather serve as illustrative examples that help demonstrate how disruptions to essential services can influence multiple societal domains simultaneously. Other systems may equally qualify as critical depending on the specific research context, scale, or hazard type under

consideration. While we address the issue of breadbasket failures in the economy social subsystem section, we will make sure to clarify the link to the food system.

With regard to the ecosystems mentioned by the reviewer, we will clarify that the scope of the paper is explicitly focusing on societal recovery within human systems. While ecosystems evidently constitute a network of critical systems in themselves for society, the study of their recovery processes in regards to consecutive events represents an entire distinct field of study. We will explicitly discuss this crucial complexity in the outlook of the paper.

In Section 2.4, it is unclear whether the focus is on resource shortages, unworkable environments, or response capacity. I suggest maintaining a clear focus on one dimension and addressing others in relevant subsections. For example, maybe resource depletion could be discussed more comprehensively within the economic system section.

We thank the reviewer for this suggestion and we will revisit this section to ensure a clear focus and logical structure for the discussed pathways.

The statement in lines 184–185 regarding emergency systems remaining functional also requires clarification. If emergency workers are unable to perform their duties, it is difficult to consider the system functional.

We thank the reviewer for this helpful observation and will revisit the relevant section, adding a more clear explanation of what we mean with system in this regard and ensuring a coherent reasoning in the section.

Sections 2.5 and 2.6 appear to address similar concepts related to “Build Back Better” and could potentially be merged to reduce redundancy.

In line 198, the discussion refers to situations where recovery is completed, which may fall outside the paper’s stated focus on consecutive disasters. Some examples in Section 2.6 similarly refer to completed recovery and may introduce ambiguity.

We thank the reviewer for this helpful observation and for identifying instances where the discussion extends to recovery dynamics more generally, including cases where recovery is completed, rather than focusing explicitly on consecutive-disaster dynamics. In line with revision I, we will carefully reassess Sections 2.5 and 2.6 to determine whether their content aligns with the refined consecutive-disaster scope of the manuscript, reformulating or removing where necessary. Additionally, we will consider merging overlapping components to reduce redundancy.

- Health-Related Pathways

Section 3 presents four pathways, three of which focus on outbreaks, epidemics, and pandemics, and one on mental health impacts. In my view, these topics could be more effectively integrated into earlier sections. For example, health-related impacts could be framed as disasters shaping a consecutive disaster environment, with health systems treated consistently as critical systems. Changes in working environments due to outbreaks could also be discussed within Section 2.4.

Please consider this as a suggestion. In my view, this section could be structured differently and, rather than being framed around the health system, it could be presented with a stronger focus on human health as shown in figure 1. I recognize that this would require

substantial changes to the overall structure of the paper; however, I encourage the authors to reflect on this possibility and to consider alternative conceptual frameworks beyond the current organization around four societal subsystems. There is also an easy solution to partiality address this confusion: just change the title of the section to impact on the human health! and keep it consistent through the section.

We thank the reviewer for recognising the possibility of organising the sections in a different manner. We acknowledge some overlap between the pathways discussed in Section 2 and 3, particularly given the cross-cutting nature of health systems as critical systems. However, we argue for maintaining the current structure, as the section on human settlements primarily focuses on the physical and built environment (e.g., housing and critical infrastructure systems, which also includes health-related infrastructure such as hospitals). In contrast, Section 3 discusses human health in a broader sense, including not only disruptions to health-related critical systems, but also other health outcomes such as mental health effects.

We agree with the reviewer that health-related impacts can be conceptualised as disasters that shape a consecutive-disaster environment, and that health systems can be treated consistently as critical systems, as was addressed in earlier comments as well as the overarching response (IV.2 and IV.3).

At the same time, we recognise that the current title of the chapter may create confusion between “health systems” as critical systems and “human health” as a societal domain. To reduce ambiguity, we will revise the title of Section 3 to “Impacts on Human Health”, in line with the reviewers suggestion.

- Economic System

Section 4 is, in my opinion, one of the strongest parts of the paper. One aspect that could be further strengthened is a clearer definition of economic recovery. Specifically, what does it mean for an economic system to be considered “recovered”?

We thank the reviewer for posing this important question. We agree that it’s not inherently clear for each subsystem what it means for that system to be “recovered”, and that this ambiguity deserves an explicit reflection.

Simultaneously, we don’t consider it within the scope of this paper to formalize how recovery should be defined within each societal subsystem. As outlined in the overarching response, we will discuss the “recovered” state, and how this is also indicator and system-dependent, in reflection point 2 of the new reflection chapter.

To highlight this better in the paper we will add a brief remark at the beginning of each subsystem chapter that reflects on how recovery might be operationalised within that specific context. For economic recovery one could consider for instance sales for a store, financial reserves for a government, debt, GDP.

Section 4.4 raises important questions about the scale of analysis. I suggest explicitly incorporating scale into the definition of consecutive disasters, clarifying at which spatial and temporal scales events are considered consecutive.

We thank the reviewer for highlighting the importance of scale in defining consecutiveness. Similarly to the issue of defining the recovered state, we believe that it’s beyond the scope of

this paper to prescribe a specific definition. The intended contribution, rather, is to show how decisions in system definition and the analytical choices made directly affect recovery outcomes as well as your definition of consecutiveness. A reflection on scale specifically will be added to reflection point 1, as outlined in the overarching response.

In Section 4.5, the relevance to consecutive disaster recovery is less evident and may require further justification or reframing.

We thank the reviewer for this observation. In line with revision I, in which we sharpen the manuscript's focus on consecutive disaster recovery specifically, we will revisit Section 4.5 to ensure that its relevance to consecutive-disaster dynamics is made explicit. Where necessary, we will either strengthen the connection to incomplete recovery and subsequent events or reframe (or remove) elements that do not clearly align with the refined consecutive scope of the paper.

- Socio-Political System

A key issue in this section is whether political instability is conceptualized as a disaster. This point should be clarified explicitly. If political instability is considered a disaster, then it would be useful to apply a similar logic across other societal subsystems (e.g., economic instability as a disaster interacting with other hazards).

We thank the reviewer for raising this important point. This concern is closely related to earlier comments regarding the conceptualisation of health crises and economic shocks as potential disasters. We will address this point as outlined in earlier comments as well as the overarching response (explicitly revision IV.3 and reflection point 2). We will ensure that the conceptualisation regarding these concepts is clarified and kept consistently throughout the paper.

I recommend revisiting page 18 with a strong focus on consecutive disaster recovery dynamics.

We thank the reviewer for this comment. This point closely relates to earlier remarks on the scope of the paper (Revision I) and our conceptualisation of disasters (Revision IV.3 and Reflection Point 2).

We will revisit page 18 to ensure a consistent framing, with a clearer focus on consecutive events and a transparent conceptualisation of political instability as outlined in the overarching response.

Additionally, the issue mentioned in line 474 would benefit from a concrete example.

We thank the reviewer for this suggestion and we will revisit this point and complement it with a concrete empirical example, consulting the referenced literature as well as additional relevant sources.

Finally, the term "socio-political system" may be too broad to capture the concepts discussed in this section. Alternative framings such as disaster risk governance, institutional capacity, or disaster risk management may be more precise.

We thank the reviewer for this observation, and we will consider alternative framings to better cover the content of this chapter.

Section 5.3, in particular, appears only loosely connected to consecutive disaster recovery dynamics. The ideas presented here may be more effectively integrated into the next sections like in section regarding the tipping point that leads to increase societal resilience.

We thank the reviewer for this observation. In line with revision I, we will narrow the scope of the main chapters more explicitly to consecutive disasters, excluding examples and pathways, such as the one in Section 5.3, that are only loosely connected to consecutive disasters.

Importantly, and in response both to this comment and to earlier remarks from RC1 regarding the limited discussion of positive examples, we have reassessed how we frame transformative change in the context of consecutive disasters. While disaster recovery may in principle create windows of opportunity for positive transformation, we recognise that the consecutiveness of disasters can itself act as an inhibitor of such change.

Therefore, we will use the examples described in section 5.3 to demonstrate that recovery processes have, in some contexts, created windows of opportunity for positive change. This will be integrated into reflection point 2, as outlined in the overarching response, where we also integrate former Section 6. Here we then critically reflect on how opportunities for positive transformation are affected by consecutive disasters.

Implications

Section 6 has the potential to be a core contribution of the paper; however, in its current form it reads more as a summary of previous sections. I encourage the authors to deepen the analytical discussion, particularly by strengthening the link between their findings and the framework proposed by Spaiser et al. (2024).

Specifically, clarifying what constitutes tipping points within each societal subsystem and what is meant by “system transformation” would greatly enhance the paper’s theoretical contribution. Examples discussed earlier in the paper, or new illustrative cases, could be used to demonstrate how societal resilience may be improved.

We appreciate the suggestions of the reviewer regarding Section 6. Based on the combined feedback from both reviewers, we have reassessed the role of the tipping point discussion as well as the role of the Spaiser et al. (2024) framework, as outlined in revision II and III.

As these revisions explain, we have decided to integrate the former Section 6 into the new reflection chapter (in reflection point 2). This aligns better with the original intention of the tipping-point framing, which was not to introduce a fully operationalised tipping-point framework. Rather, we use tipping dynamics as a conceptual lens, illustrating that recovery processes under consecutive disasters do not necessarily return to pre-disaster conditions but may instead lead to alternative system states.

Moveover, in light of the reviewers’ broader feedback regarding the scope and purpose of the paper and the observation of RC1 that the recommendations in Section 7 were insufficiently connected to Chapters 2 through 5, we have reconsidered the inclusion of policy-oriented recommendations. While we agree that providing suggestions on how to improve societal resilience is valuable, we recognise that particularly the policy-oriented recommendations previously included could not be directly and systematically derived from

the empirical and conceptual analysis presented in the manuscript. Additionally, as addressed in the previous reply as well as reflection point 2, we question if with the narrowed consecutive focus positive change within recovery is possible, recognising consecutiveness of disasters as an inhibitor of positive change.

Finally, in line 557 migration is described as a negative feedback loop. I would caution that migration is not necessarily negative and can also be understood as an adaptive strategy, particularly for populations facing adverse or uninhabitable conditions.

We thank the reviewer for this important point and agree that migration should not be framed as inherently negative. We will revise the respective section to clarify that migration can also function as an adaptive strategy.