

Comments and Changes

Dear referees, dear editors,

this document is the point-by-point reply to the comments made by both referees

Referee 1		
No	Comment by referee	Comment and changes author
1	Please clarify whether retreat, relocation and resettlement are synonyms or define different approaches. If they are considered as synonyms please make use of only one of these terms. Otherwise, please explain the differences.	<p>We clarified the use of the terms by defining managed retreat as well as relocation and resettlement in chapter 2.1. In this chapter, we expressed that retreat in this study is understood as the scientific and conceptual strategy while resettlement and relocation are the practical components – mostly used interchangeably. We also newly stated that in the Philippine context, the term resettlement is mostly used (inserted in chapter 1 – introduction).</p> <p>Following this, we changed and streamlined our wording. Now we only speak of managed retreat as strategy and resettlement as the practical activity. We deleted the term relocation in most instances and use resettlement instead.</p>
2	A fundamental question is whether the relatively small selection of 3 or 7 case studies for in- and off-city resettlement is sufficient to draw general conclusions about the advantages and disadvantages of the two strategies such as " The second major insight of the assessment is that post-relocation conditions only slightly vary between the two resettlement types"	<p>In our initial reply to the comment, we argued in a detailed manner why we think that the survey provides a comprehensive picture of the settlement types and particularly also the In-City settlements. Nevertheless, we modified the wording to convey a more nuanced perspective to: "Based on the obtained data in the selected case study sites, the second major insight of our assessment is that post-resettlement conditions only slightly vary between the analysed two resettlement categories."</p> <p>Further: We added the new section “3.5. Limitations” where we acknowledge limitations of a household survey such as the sampling size and settlement selection.</p>
3	It is surprising that access to services of general interest (health care, education, culture etc.) was not considered as enabling factor. I can be assumed that in-city resttlement areas perform much better because of their proximity to infrastructure clusters	<p>In our initial reply to the comment, we explained that we did consider access to services of general interest as an enabling factor. We named this enabling factor “Access to basic amenities” respectively “Availability of basic services”. This enabling factor is explained in chapter 4.3.5.</p> <p>We hope to satisfy the comment with this reference to the respective chapter.</p>

4	<p>The policy recommendations are rather generic. One would like to see more specific recommendations regarding the possible need for amendments to existing legislation and policies for resettlement in the Philippines</p>	<p>The final section on “Conclusion and policy implications” was totally restructured and rewritten. A focus is now on providing a conclusion and some specific recommendations including potential entry points for legislative or policy amendments.</p> <p>However, it we also wish to mention that the major research objective was “evaluating and scrutinizing the suitability of retreat as an adaptation strategy and providing insights into the living conditions of resettled communities”. Further, the two concrete research tasks were named: 1) Assess success and 2) Contrast In-City with Off-City settlements. Although the final section is named “Conclusion and recommendations”, a research with this scope might not be in the position of providing detailed and fully comprehensive policy or legislative recommendations. This would go beyond what the study promised.</p>
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Referee 2

No	Comment by referee	Comment and changes author
1	<p>Introduction: It is not clear what the national water code (1979), based on the danger areas identified, is about. It is mentioned that it does not include flood probability and vulnerability, but what does it include for defining flood risk zones? And how the new settlement locations are identified? Do people know about the flood probability, vulnerability, and exposure of new areas before their relocations?</p>	<p>We changed the wording in the introduction to: “One concern arises in this context, namely that there is no clarity and consensus on the definition and declaration of danger areas (Republic of the Philippines, 2022). In most cases, they refer only to the national water code from 1976 that defines no-build zones as a buffer of three meters around waterbodies in urban areas. Thus, danger areas are not necessarily areas with a distinct flood probability or taking vulnerable and sensitive elements into account.”</p> <p>Further modifications and a detailed discussion of the danger area declaration and respective laws in the Philippines seem not appropriate in the introduction to us. But we also now mention in section 6 (“Conclusion and policy implications”) the need of establishing a new risk-informed danger area legislation.</p> <p>In addition to the changes made in the text, the following elaborations might further provide information to your questions: The water code does not define flood risk zones. Instead, the Code prescribes easements or buffers, among others, between water bodies and various land uses (3 meters for urban areas, 20 m for agriculture, and 40 m for forest use) to protect</p>

		<p>water resources. Only structures relating to navigation, flood management, fisheries, water-dependent utilities, and other installations are allowed in these zones. Residential structures and similar developments are prohibited, which the Supreme Court used in its 2008 decision that directed national agencies and LGUs to rehabilitate the Manila Bay and major river systems and bring the water quality up to code.</p> <p>The following year, the devastation brought by Typhoon Ketsana (Ondoy) in Metro Manila and neighboring provinces added to the government's resolve to urgently clear waterways and launch a massive resettlement program for the National Capital Region, which the government dubbed as Oplan Likas in 2011.</p> <p>The government, thus, invoked both the requisite easements in the Water Code and the Urban Development and Housing Act of 1992 (Sections 28 and 29), providing for the humane and participatory resettlement of informal settlers from danger zones in the interest of public safety and protection. The Housing Act defines danger zones as "esteros (creeks), railroad tracks, garbage dumps, riverbanks, shorelines, waterways, and other public places such as sidewalks, roads, parks, and playgrounds." This definition is obviously lacking concrete flood probability or vulnerability and therewith very vague. There are further possibilities by the Department of Environment and Natural Resources (DENR) to define flood risk zones, however also these procedures are lacking a consistent approach and were not the justification for the massive relocation activities happening in the last decades.</p> <p>The consideration of flood risk and other hazards in selecting housing sites has been part of the housing standards¹ developed by the Housing Ministry as early as 1982. This selection parameter remains in force to date. The 2008 guidelines, for instance, explicitly describe the physical suitability of a potential socialized housing site to have</p>
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¹ **Implementing Rules for Batas Pambansa 220:** An Act Authorizing The Ministry Of Human Settlements To Establish And Promulgate Different Levels Of Standards And Technical Requirements For Economic And Socialized Housing Projects In Urban And Rural Areas From Those Provided Under Presidential Decrees Numbered Nine Hundred Fifty-Seven, Twelve Hundred Sixteen, Ten Hundred Ninety-Six And Eleven Hundred Eighty-Five

		<p>"... characteristics assuring healthful, safe and environmentally sound community life. It shall be stable enough to accommodate the foundation load without excessive site works. Critical areas (e.g., areas subject to flooding, landslides, and stress) must be avoided."</p> <p>Further, NHA guidelines exist since 2015 for site selection and site suitability of resettlement sites. They require site selection outside potential hazard prone and protected areas. However, no clear legislative backing or standardised tools are named.</p> <p>The research team assumes that the concerned government agencies selected the resettlement sites based on available hazard and risk information and that they involved the concerned communities in the process. Thus, we presume communities trusted the government's assurance of a safer settlement.</p>
2	<p>Figure 1: This figure is confusing: a circular graph, particularly with the arrow connecting the outcome to the start, indicates an iterative process. However, the data collection and analysis process from phases 1 to 3 was a one-off process. The way it is presented in Figure 1 implies that the entire process has been repeated. A linear graph can better explain the process of this study.</p> <p>Figure 1: If the whole process is connected, with each step building upon the findings of the preceding one, this should be shown by directed arrows indicating the direction of input and output. The type of data transferred between steps can also be shown in these areas, e.g., 'enabling factors for resilient retreat'.</p> <p>Figure 1 and methodology: I do not understand how the factors identified in the FGD, which is the second step, were already included in the household survey and were then evaluated in phase</p>	<p>The figure was changed. The new figure is not circular anymore, therewith not implying a repeated process.</p> <p>We added information for every different analysis phases which data or findings served as input and what the output of each analysis phase was. We hope that this new figure can resolve the confusion and makes it more easily understandable which data was gathered by which method (survey and FGDs) and how the analysis phases subsequently analysed the data.</p> <p>The enabling factors identified in the FGD were not included in the household survey. They are an output of the FGD respective the following analysis phase. The FGDs were conducted after</p>

	<p>3. Is it that the predefined factors identified and included in the HH survey are only ranked (but not identified) in the FGDs? In this case, how is Phase 3 built upon the finding of phase 2? Please elaborate a bit more on the relationships between the three phases and why the analysis needed to be done in separate phases.</p>	<p>the household survey – the household survey was the first applied method of data gathering.</p> <p>Why was there the need to separate the analysis in three phases and to use this multi-stage approach? Basically, that structure is an outcome of the work in progress of the whole research process and project proceeding. The first applied method of the whole research was the household survey. Then, after the first analysis of the household data, it became clear that this survey needs to be accompanied by a qualitative validation in form of the two FGDs. In these FGDs, the participants were asked – among other questions - what factors and which elements are relevant to them for achieving community resiliency in the context of resettlement. In the analysis of these FGD results, we explicitly investigated on this question and distilled the factors the community named and ranked. We found these factors very interesting as they constitute community defined elements and not externally defined ones. We further, found it worth using these factors as a framework for analysing the household survey data and answering if resettlement is improving resilience. Accordingly, we used these factors as framework or categories for analysing the household data gathered in our survey</p>
3	<p>The overarching survey questions need to be presented, particularly because the survey and FGD questions are not attached as SM.</p>	<p>The different thematic areas of the questionnaire are now mentioned as following in chapter 3.3.:</p> <ol style="list-style-type: none"> 1. Resettlement and mobility profile (Basic questions) 2. Livelihood (Physical, Financial, Human, Social, Natural Capital) 3. Settlement (Hazard profile, Material and design, Planning and comfort) 4. Process (Self-organization, Co-production and participation, Long-term prospect, Governance and trust) 5. Respondent household profile <p>We hope this is sufficient. If wished and needed, we might further upload the questionnaire and the guiding question of the FGD as supplementary material, at least we can provide them on request.</p>
4	<p>Line 218: Mai should be May</p>	<p>Was changed</p>
5	<p>While graphs are shown for all questions, explaining the content</p>	<p>We were not entirely certain if we understand your comment correctly. Based on our</p>

	of the graphs in the text is redundant.	understanding of the comment, we carefully reviewed the graphs and their related explanations in the text. Upon consideration, we believe that retaining the short explanations in the text is the most appropriate approach. The majority of the text’s explanations focus on comparing all settlements before and after resettlement. Subsequently, the graphs compare data between In-City and Off-City settlements, offering additional information. We feel that the brief explanations accompanying the graphs are crucial for readers to understand the graphs and their contextual relevance. However, we are open to further discussion and would be willing to consider alternative approaches if necessary. Thank you again for your input, and we appreciate your understanding.
6	Table 2: why an aggregated response on the previous settlement is presented instead of separate in-city and off-city responses to allow for comparison with the current settlement?	The row “overall” was deleted in table 2.
7	Limitations: the on-site facilities and services of the new settlements are not included in the analysis. For example, availability or access to basic services might be related to the already available basic services in the new sites rather than their distance from the city. In addition, the period of time since the relocations is also important in what people think about social cohesion or even experiencing flood and there might be a difference between those who moved recently and a long time ago. These kinds of limitations can be acknowledged in the paper.	We added the new section “3.5.Limitations” where we acknowledge limitations including the issues you raised.
8	Future study: More granular analysis of relationships among factors and demographic characteristics of the population (age, gender, income, etc.)	More granular analysis is exactly what is intended to be done in following research work. The dataset is very rich and can deliver more insights, allowing testing different hypothesis and investigate relationships.