

## ***Interactive comment on “Linking critical infrastructure resilience to social vulnerability through minimum supply concepts: review of gaps and development of an integrative framework” by Matthias Garschagen and Simone Sandholz***

### **Anonymous Referee #1**

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General comments This is an interesting topic that explores a challenging topic. With some re-structuring and a more distinct argument made for exploring the role of ‘minimum supply’ concepts in DRR, the paper would be much stronger. As it stands, I found it a little difficult to follow the argument’s narrative, so I remain to be convinced that there is an issue worthy of further detailed explanation – that is, is there a role for minimum supply (conceptually or technically) beyond that which appears to already be set out in many of the policy documents examined. It is unclear to me whether the

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argument has been made that it is reasonable or even technically feasible to expect minimum supply to the broad array of stakeholders/community members mentioned in the paper? In my view, the paper would be stronger were it to make that case, and then testing that idea against current literature and practice to explore issues of feasibility, justice, etc. Moreover, I found the scope of the literature and policy review a little hazy. Is the literature review global – and in which disciplinary fields – and the same re the policy review. And is the German case then situated within these, or was the literature review global and the policies examined only EU? Figure 1 only helps a little to clarify this, and it would be better to be clearly explained in the method. The paper does not yet do what its title suggests. Perhaps the title might be something more like, “is there a role for min supply concept in better linking CI and social vulnerability”? Finally, the paper sets out to provide a framework, but I could not find it.

Specific comments Pg1 Line 11 – unclear why they should be Line 13 – are the “remaining gaps in management” to be informed by an understanding of social vulnerability

Pg 2 Footnote on line 7 – why not draw on this to establish the argument for the connection? Line 13 – impacts ‘may’ have not necessarily ‘will’ Line 22 – what’s the difference between normative and political questions, and where are these explored in the paper? Line 24 – how does/should CI failure feature in DRR plans/ Line 24 – define ‘disastrous effects’ This paragraph raises the question – what is technically feasible? Is min supply to all houses all the time reasonable? Would it provide a perverse incentive for a lack of preparedness?

Pg 3 Line 1 – ‘caused ridicules’?? Was ridiculed? By whom? Such claims require evidence/references Line 3 – why is the nexus problematic? Isn’t the paper arguing for their connection? Line 5 – practical/political – these are two very different things. Line 6 – what is meant by ‘most relevant communities of practice’? (disciplines or industry? Just because CoPs have a particular definition in my world)

Pg 3 Method Line 16 – is a structured review the same as a systematic review? And

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is the description of Scopus necessary? Figure 1 didn't really help me – sorry. What about papers that addressed 2/3 of the topics? Line 30 – what 'other sources'? Line 31 - "with over 4,500 pages (irrelevant)... to literature" could be deleted

Pg 4 Line 1- this is where the scope and context of the review becomes quite unclear. "in terms of legislative documents, a regional focus"... It would be useful to have this all set out earlier; that this focus is situated within the broader review Lines 7 – 9 could be deleted and replaced with "All documents were analysed through content analysis using MaxQDA software to code for:" Line 10 – what about different combinations of interactions? Between all three, between two. Eg is the concept of minimum supply explored mostly in document relating to CI. Line 18-19 – rapidly rising and growing significance mean virtually the same thing Line 28 – is unclear

Pg 5 Line 19 – 'share a non-technocratic perspective that addresses societal demands' What does this mean? Line 20 – "regarding these three topics" – separately or combined? Line 30 – Should it be? Is there actually an issue here? Line 31 – "most" – it's unclear whether this refers to the global context or the German case, or the EU.

Pg 6 Line 14 – then should these be in the analysis? If the structure of the review was clearer, this might make sense Line 18 – "Lacking policies and unclear responsibilities" – in relation to what and where? Lines 20 + suggest an international study Line 29 – I'm unclear as to what is 'socio-ecological' about CI? (!) Nor is the remainder of the sentence a SES perspective -perhaps you mean a 'systems' perspective?

Pg 7 The 2nd paragraph – Where does all this apply? In the German case or across the globe. Again, some clarity is needed here. Line 21 – "both bodies of documents" – German policy or the wider global context? Line 21 – 'links between infrastructure and humanitarian communities on minimum standards' (of what?) Is it the role of such organisations to outline how the minimum standards are met? (standards being quite diff to minimum supply).

Pg 8 Line 1- the example is a healthcare one. It doesn't really help explain the opening

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line of the paragraph. Line 6 – both bodies of documents – the literature and policy? Line 18 – "A few research papers address the relationship..." etc. My response to this is, so what? The argument that there is a valid reasoning behind the argument for a link is tucked away in the paper. In some ways, impacts on minimum supply (current standards) are an 'indirect' implication of climate change impacts. If all 'secondary' impacts were made primary, there'd be a mess of plans. So clarity around the argument for the link is needed.

Line 31 – "the place of residence matters" ... this is about exposure and there are tomes of literature on the topic across the DRR and human geography literature – it may be worth drawing on some of these to support the point.

Pg 9 Line 1 - rural dwellers more vulnerable considering related CI access" – what does this mean? There is assumption the reader understands your point. Line 9 – "community preparedness in Hurricane Katrina" – so?

Line 17 – "how far their emergency supply" – do you mean Germany's? Line 19-20 – Where? In the literature? In the global policy?

Section 4 The point of this first paragraph needs strengthening – it really sets the context of the paper. Perhaps it should be earlier/first? Eg CI and social vulnerability – the literature suggests issues of minimum supply require analysis, so this study explores how the concept is currently treated and what can be learned from current practice (and other fields).

Pg 10 Section 5 I think the order is wrong in the first sentence, no? Line 7 – define "scientific knowledge" Line 13 – "This is not an easy" ...this is an issue for most, if not all, vulnerability assessments – and I don't really understand the point about actors not being able to "draw on experiences with respective reference scenarios"??? However, I would encourage the authors to examine the community-based DRR, community-based adaptation, and community-based NRM literature for a counter argument. Line 17 – what is "fine-gridded differentiation"? Suggest the authors look at papers such

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as ‘We are all vulnerable’ by J Handmer, and the ‘Hazards of Indicators’ by J Barnett. Line 19 – “ most infrastructure is designed for larger system entities” – this returns us to the need for an solid argument as to why it should be anything more than that. Lines 20-25 – there’s a need to clarify whether the authors are arguing for or against this? Line 26 – “questions at the science-policy interface” – where did this come from? If it’s a key discussion point then it need exploration in the findings. It’s really unclear to me how this is a science-policy issue when the argument (drawing on the literature or even ‘expert’ opinion) is not made.

Pg 11 Line5 – “socio-spatial patterns of vulnerability” – does this presume they are static? Line 7 – “these aspects need to be tackled and resolved”. I wrote, Why? Where’s the case for it? This was the fundamental struggle I had with the paper. It may be there, but it’s tucked away.

Finally, where’s the conceptual framework?

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