

Thanks for revising the manuscript. The two reviewers have evaluated your revisions and although they both agree that the manuscript has improved significantly, they also still have doubts about the methods, their robustness, their purpose, the intended audience, and the presentation of the results. They specifically question how your analysis is specific for drought.

One of the reviewers suggested a third reviewer, but I do not want to delay the process further, therefore I have done a review of the manuscript myself. I agree with the points made by the reviewers, especially about the paper not being specific to drought. For example, in Sect. 3.2 you did not include any reference to drought literature, when you discuss how that aspect of the framework is relevant for droughts (l.231-233).

In the introduction you state that: “Drought occurrences and impacts are generally considered hydrological extreme phenomena and, thus, are conceptualised and modelled with a hydrological process approach” (l. 36-38) I don’t agree with this statement. Most drought impact studies focus more on the social, economic, health-related, or political consequences of drought. And I feel that you are mixing two different things. One: that disasters are not natural and social aspects need to be included in drought impact analysis, and two: that more transdisciplinarity and co-creation is needed. I think the former is well recognised in drought impact research and there are a lot of examples. The latter I feel is done, but not mentioned as such. The literature that you mention in this paper mostly discusses the former and not the latter (for example lines 137-146), which is not in line with the main aim of your paper.

These different angles also become clear in Sect. 4, where you write: “This framework directly addresses three critical aspects, which are currently overlooked in hydrological approaches to drought impact assessment: the underrepresentation of socio-political factors, the exclusion of local knowledge, and the insufficient attention given to the politics of knowledge production.” (l.401-403). Here again you assume that drought impact assessment is always based on hydrological approaches. This is not the case. Therefore, the first two points you made here are not valid. “Traditional drought assessments often fail to consider the socio-political contexts that influence vulnerability and impacts.” (l.404) and “Moreover, many drought impact assessment studies overlook the knowledge and experiences of local communities, leading to assessments that are disconnected from the perception and expectations of those impacted.” (l.411-412) There is no justification of these statement or references to drought literature. The same holds for the conclusions.

In the introduction and methods you state that: “Given the limited literature on transdisciplinary approaches specifically focused on drought ...” (l. 97-98) and “Due to the limited literature available in the socio-hydrology field, specifically related to drought, ...” (l.118-119) I don’t agree that there is not enough literature on socio-hydrological aspects of drought and its impacts. Maybe you need to look beyond Global North publications or go back in time. Key drought researchers like Wilhite, already discussed how drought is interwoven with social processes in the 1970s and 1980s, for example Wilhite & Glantz (1985). Scholars in Africa focus on societal drought impacts and include aspects of transdisciplinary research by design, by building their work on interviews and surveys and by engaging with local experts. For example, Mpandeli et al. (2015) included personal communication of experts.

What keywords did you use for the literature search? Only starting from a few papers and then using snowballing is strongly limiting your reach. There are many drought impact / vulnerability / risk studies that have been developed (partly) based on stakeholder input, but these do not often mention the words co-creation or transdisciplinarity. You need to include also a few key

drought papers and also snowball from there and see if you can add more specific drought-related examples. I also agree with one of the reviewers that maybe your paper should in hindsight be classified as perspective paper, rather than review paper. I will suggest this change to the editorial board, but also want to hear your opinion.

I think you can still make the argument that drought impact research needs more co-creation and transdisciplinarity, but you cannot do this without reviewing the drought impact literature itself. I would be happy to publish a paper in which you first review the drought impact literature (or at minimum, summarise the excellent drought impact reviews that already exist) and then discuss what needs to be changed (based on the other research fields that you have studied and examples from drought studies that have implemented this or examples from drought studies showing how it can be implemented). For example, in Sect. 3.1, you would need to discuss which stakeholders would be specifically important for drought impact studies (beyond the generic category of “marginalised groups”, l.191-198), based on drought literature.

Also, in Sect. 3.3 you argue that “there is no single, universally accepted definition of drought (Krueger and Alba, 2022)” (l.273-274). This is actually precisely related to the fact that drought often is defined from the impacts instead of from the hazard. Because the impacts of drought are so diverse, also the hazards that lead to these impacts are diverse and therefore there is no universal definition. This has already been argued by Wilhite & Glantz (1985), Lloyd-Hughes (2014), AghaKouchak et al. (2021) and many others. This needs to be considered a pro instead of a con. So, in Sect. 3.3 you need to review and discuss the body of literature that investigates and discusses how “drought may be experienced and conceptualised” (l.282).

Finally, in Sect. 5, the challenges are formulated very broadly, but also here you should discuss how this is relevant specifically for drought (by citing drought literature that discusses these challenges).

In summary, I think your paper has value and the drought community can learn from the literature you bring in, but it can only be of value if you build on the drought research that is already out there and make the recommendations specific to the drought field. So, please address the points I mentioned here and the points made by the two reviewers as much as you can in a revised version. I will then evaluate this new version.

Textual comment: l.130: SÂcience

References:

- AghaKouchak, A., Mirchi, A., Madani, K., Di Baldassarre, G., Nazemi, A., Alborzi, A., ... & Wanders, N. (2021). Anthropogenic drought: Definition, challenges, and opportunities.
- Lloyd-Hughes, B. (2014). The impracticality of a universal drought definition. *Theoretical and applied climatology*, 117, 607-611.
- Mpandeli, S., Nesamvuni, E., & Maponya, P. (2015). Adapting to the impacts of drought by smallholder farmers in Sekhukhune District in Limpopo Province, South Africa. *Journal of Agricultural Science*, 7(2), 115.
- Wilhite & Glantz (1985). Understanding the Drought Phenomenon: The Role of Definitions.