

Review of: "Revitalizing Key Conditions and Integrated Watershed Management Approach to Sustain Water Availability and Agriculture in Semi-Arid Regions"

Sukhmani Mantel¹

¹ Rhodes University

Potential competing interests: No potential competing interests to declare.

This is an interesting article discussing how water availability for agriculture in semi-arid regions can be progressed. I found the article to be an interesting read, but I have various issues with the paper, that I recommend the author should remedy.

1. **MISSING REFERENCES IN REFERENCE LIST:** Various references in text are missing in the reference list e.g. Elaine et al. 2013; Binyam and Desale (2015); Suhas et al. 2011; Gebremedhin et al., 2019. The reason for some of these being missing, I believe, is because the author of this paper has used the first name of the authors instead of their last name. I found this to be the case for Suhas et al. 2011 which should be Wani et al 2011. This is a careless mistake and makes it difficult for reviewers to locate the article. I had to search, find the article and then figure out that this was an issue in how it had been cited. Another similar case is for Daniel 2020 which I discovered is Negasa 2020 in the reference list. There are various others.

2. **STATEMENTS WITHOUT SUPPORTING REFERENCES :** Some of author's statements that should be referenced, are not referenced. Examples given below:

a) "The implementation of integrated watershed management (IWSM) has been perceived as the best approach to prevent and rehabilitate watersheds and ensure the preservation, conservation, and sustainability of all land resources for improving the living conditions of the people throughout a watershed." (page 2)

The use of the word "perceived" without any references makes me question how valid this statement is.

b) "These regions are characterized by a commonly dropping trend of water sources (water table, spring, and river flow), leading to water scarcity and competition for water between agriculture and other multiple uses in the face of more frequent extreme weather predictions and greater aridity resulting from climate change." (page 3)

This dropping trend in water resources is stated as a fact, but no references are provided to support this statement.

c) "In dealing with agropastoralism and dryland problems, positive changes have been noticed following increased exchanges and closer collaboration through increased interaction between pastoralists and farmers."

No supporting references provided for these positive changes noticed.

These are just three examples, and it is recommended that the author look through the paper more thoroughly.

3. INAPPROPRIATE AND INSUFFICIENT REFERENCING: Some references are used over and over again. Two examples that are referenced over 25-30 times each in the manuscript are Koohafkan and Stewart (2008, an FAO report), Suhas et al. (a CRC book which should be correctly referenced as Wani et al., 2011). These are broad encompassing references, and continually referring to them gives the impression that the author has not taken the time to refer to the original references referenced in these books or reports. In fact, Wani et al. is an edited book with each chapter having distinct authors. Thus, referring to the full book is inappropriate and the author should correct this and refer to the specific chapters. For example, referencing the Suhas/Wani et al. book in the following statement is inappropriate and instead the original study needs to be referred to: "Investments in soil fertility improvements of rainfed farms increased rainwater productivity and crop yields by 70 to 120% when both micronutrients and adequate nitrogen and phosphorus were applied (Suhas et al., 2011)."

Another example of insufficient referencing: although climate change is mentioned 5 or 6 times in the paper, there is no mention of IPCC reports, particularly SRCCL report (An IPCC Special Report on climate change, desertification, land degradation, sustainable land management, food security, and greenhouse gas fluxes in terrestrial ecosystems) which I would suggest is directly relevant to the manuscript's subject.

The reference list for the article is a mere 17 references (assuming it is complete) and only one reference is from 2020 and beyond, and over half the references before 2015. This suggests that there could be additional publications that have not been reviewed by the author.

4. OVERSIGHT AREAS IN REVIEW: I believe the author did well in highlighting the issues impeding IWSM, particularly highlighting the lack of participation Including disregard of indigenous knowledge. This is an important area that I would have liked the author to address more under the Key Conditions section. The author notes the *Establishment of a watershed-based scientific (research) and technology (innovation) platform* as Key Condition 4, and it would have been appropriate to mention the need for inclusion of indigenous knowledge.