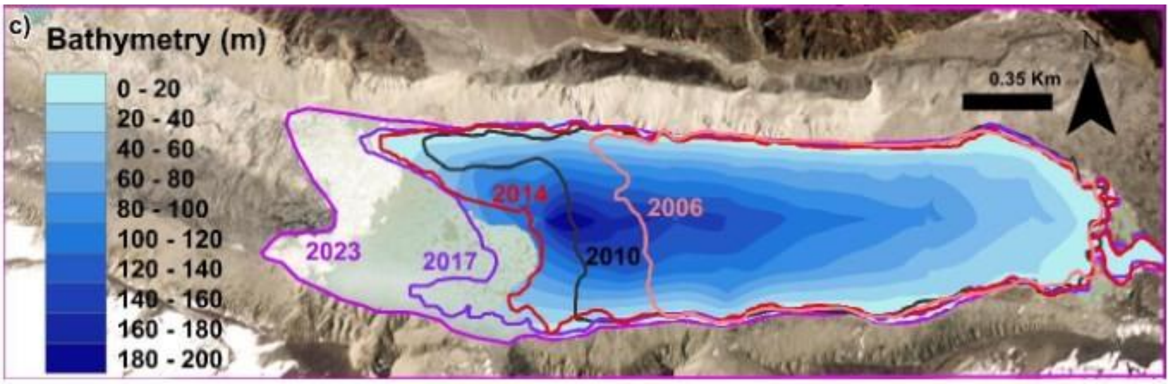
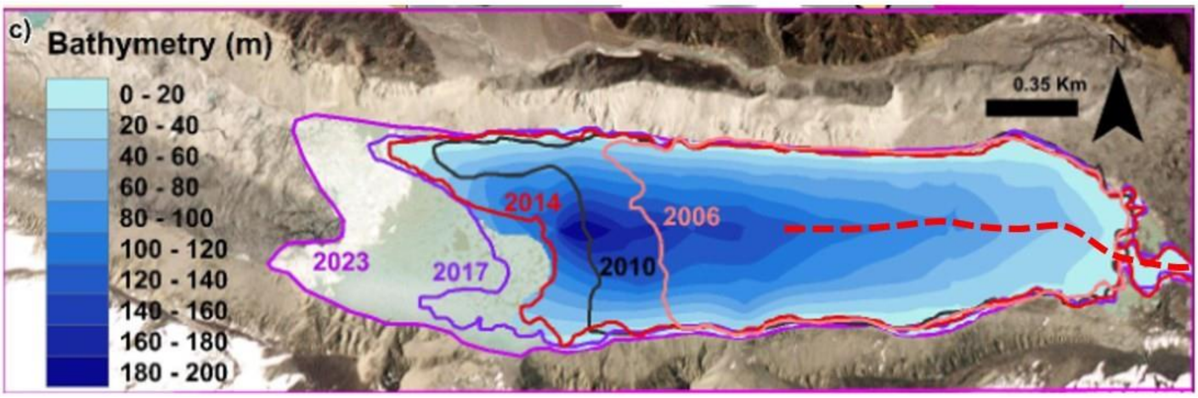
** Please find our point-by-point response highlighted in blue to the reviewer's comments.

Response to Referee #1: Adam Emmer

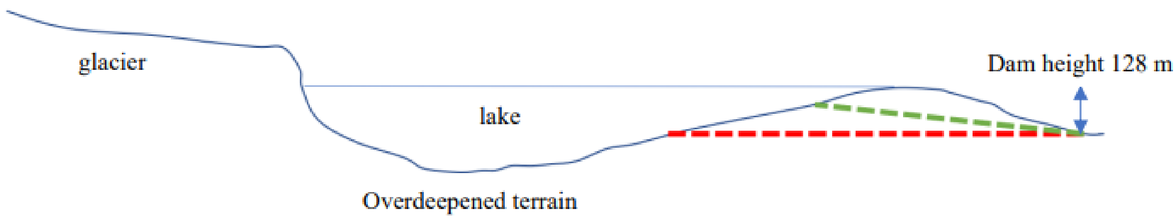
The authors reflected on my comment regarding dam geometry and introduced a characteristic named “dam depth” (“dam height” may be more suitable). However, it is not appropriate to consider that dam height is identical to maximum breach depth. The worst moraine dam breaches reported in the literature are up to several tens of meters deep, however, the authors consider > 100 m for most of the lakes, resulting in the overestimation of what is called the worst case scenario. Here I use the example of Lower Barun lake to illustrate why: The authors estimated the dam height of this lake 128 m (from the toe to the crest) and consider this value the maximum breach depth. Now let’s have a look at the lake bathymetry from Gantayat et al. (2024; https://doi.org/10.1016/j.scitotenv.2024.175028):



I draw 128 m deep breach as dashed red line:



Such a breach (here I draw a profile) would have to be > 2,500 m long while its slope would have to be 0° at the same time (dashed red line):



Both these assumptions are unrealistic. In reality, the inclination of the breach channel will be > 0° (schematically represented by dashed green line). And this makes a huge difference. Further, since the lake occupies overdeepened depression, it is unlikely that the dam is even erodible to such depth (bedrock is likely at certain depth or the erosion would stop because of too low slope inclination of the channel).

Therefore, I argue that max. breach depths, flood volumes as well as peak discharges of all lakes with assumed breach depths > 100 m (and resulting flood extents downstream) are overestimated rather than "worst case".
I'm convinced that this issue should be addressed (or at least acknowledged) before the study is accepted for publication. Thank you.
Response: We sincerely appreciate Dr Emmer's valuable feedback. We agree with Dr Emmer's perspective that, for certain lakes, a complete dam breach may be unrealistic due to factors such as the inclination of the breach channel and the specific lithology, composition, and structural characteristics of the dam. Accurately depicting the most severe plausible scenario for each lake requires detailed dam information, and in situ investigations remain the most reliable approach to estimate potential breach sizes. However, obtaining such precise information for all 21 lakes may exceed the scope of this study. Accordingly, we acknowledge this limitation in the manuscript and have added discussion in lines 458-470, including the clarification: "It is recognized that for certain lakes, a complete (100%) breach may be improbable and represents only a theoretical worst-case scenario. In practical terms, the most severe realistic scenario should consider the unique lithology, composition, and structural characteristics of each moraine dam". Additionally, we have reviewed the manuscript to ensure consistency, replacing terms such as "the worst situation" with "theoretical worst situation/scenarios, i.e., a complete breach of dam height". Beyond the 100% breach scenario, we evaluated breaches at 10%, 30%, and 50% of dam height in section 4.3.1, aiming to provide a comparative perspective for each lake and offer more practical insights. 'Dam depth' has been revised to 'dam height' throughout the manuscript.
Lines 458 – 470: We evaluate GLOF scenarios involving breaches of 10%, 30%, 50%, and 100% of dam heights. It is recognized that for certain lakes, a complete (100%) breach may be improbable and represents only a theoretical worst-case scenario. In practical terms, the most severe realistic scenario should consider the unique lithology, composition, and structural characteristics of each moraine dam; however, conducting such detailed filed investigation to gather this information across multiple lakes at a large scale remains challenging. For large-scale GLOF risk assessments, Zhang et al. (2023) applied an empirical relationship between lake volume and flood volume, derived from historical GLOFs, to estimate flood volumes, capping the maximum flood volume at 20×10^6 m^3 due to limited data on large glacial lakes. Fujita et al. (2013) estimated potential flood volume by analysing the depression angle from lake shorelines using DEM data, noting that potential flood volume is helpful for preliminarily identifying and prioritising lakes for further investigation but does not directly quantify GLOF risk. As no straightforward and reliable method currently exists for accurately predicting flood volumes across multiple lakes, we analysed scenarios assuming breaches at 10%, 30%, 50%, and 100% of dam heights for consistency. When interpreting these impact results, the inherent limitations in predicting flood volume and the realistic likelihood of each scenario should be carefully considered.

Response to Referee #2

Dear authors, Thanks for carefully responding and addressing my comments. The paper was further improved in last revision and I don't have further concerns except for some language/technical issues. I put some examples below and suggest the authors to go through the paper again.

Response: Thank you to the reviewer for the continued support in helping us improve the manuscript. We have thoroughly reviewed the paper to enhance clarity and fluency, remove unnecessary information, and correct inaccuracies in expression.

Line 16: is it necessary to keep 'derived from previous research'?

Response: We have removed 'derived from previous research'.

Lines 26-28: I suggest to rewrite the last two sentences to better summarize the results. Then the coordinates can be removed from the abstract.

Response: Six anonymous lakes (located at 85°37'51" E, 28°09'44" N; 87°44'59" E, 27°48'57" N; 86°55'41" E, 27°51'00" N; 86°51'29" E, 27°41'13" N; 86°55'01" E, 27°49'55" N; 87°56'05" N, 27°47'26" E) have the potential to impact more than 200 buildings. Moreover, anonymous lake (located at 85°37'51" E, 28°09'44" N) have the potential to inundate existing hydropower facilities. → Rewrite to 'One anonymous lake in the Trishuli River Basin, two anonymous lakes in the Tamor River Basin, and three anonymous lakes in the Dudh River Basin have the potential to impact more than 200 buildings. Moreover, the anonymous lake in the Trishuli River Basin has the potential to inundate existing hydropower facilities.'

Line 56: change 'has' to 'have'.

Response: It has been changed.

Fig. 3: I don't see the need to keep panel (a) as: (i) it still contains lake classification, and (ii) the lake indices have been shown in fig. 2.

Response: We have removed panel (a) and now display six panels below in Fig. 2.

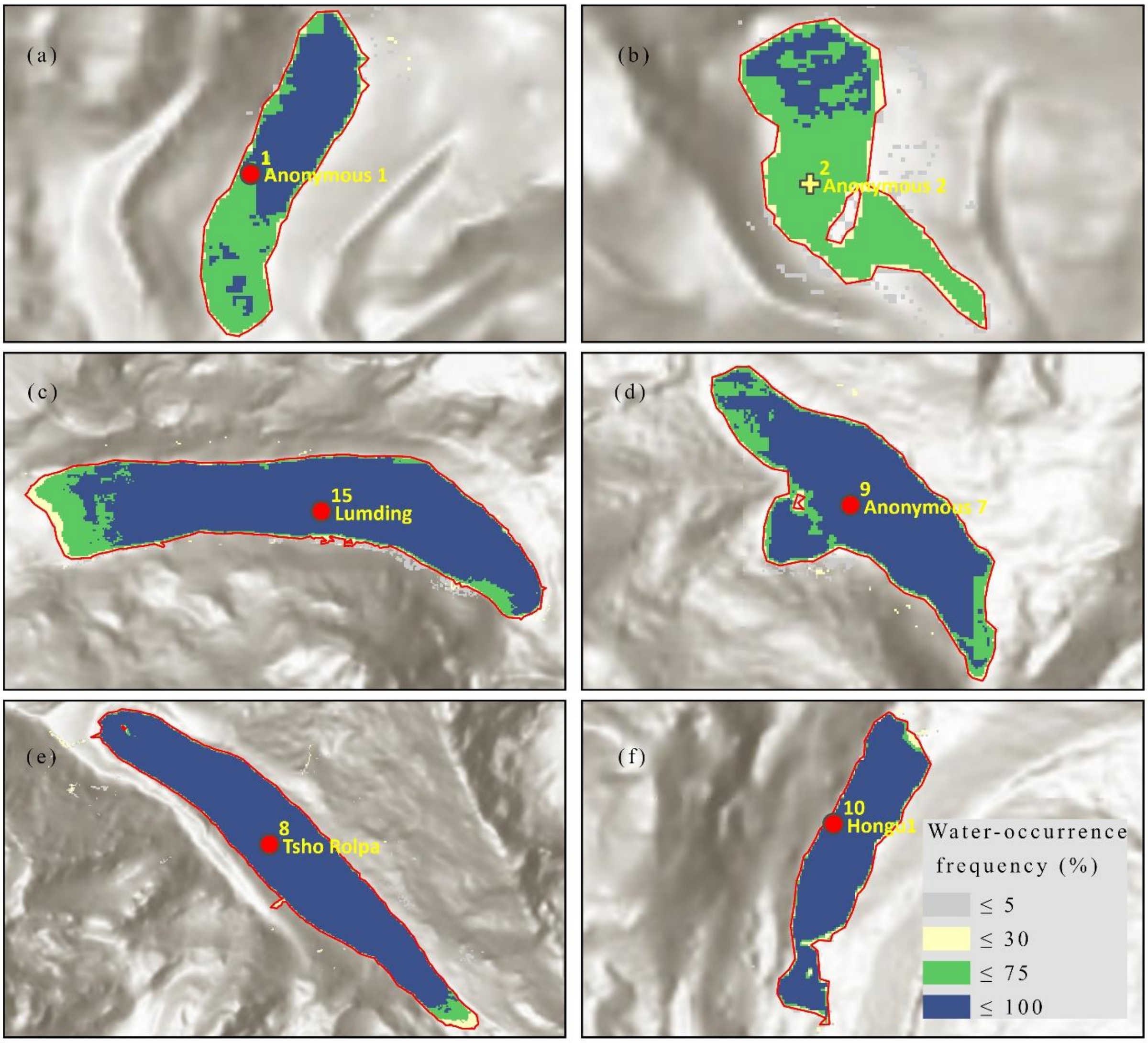


Fig. 8: Scales are needed for all the panels.

Response: Scales has been added in Fig. 8.

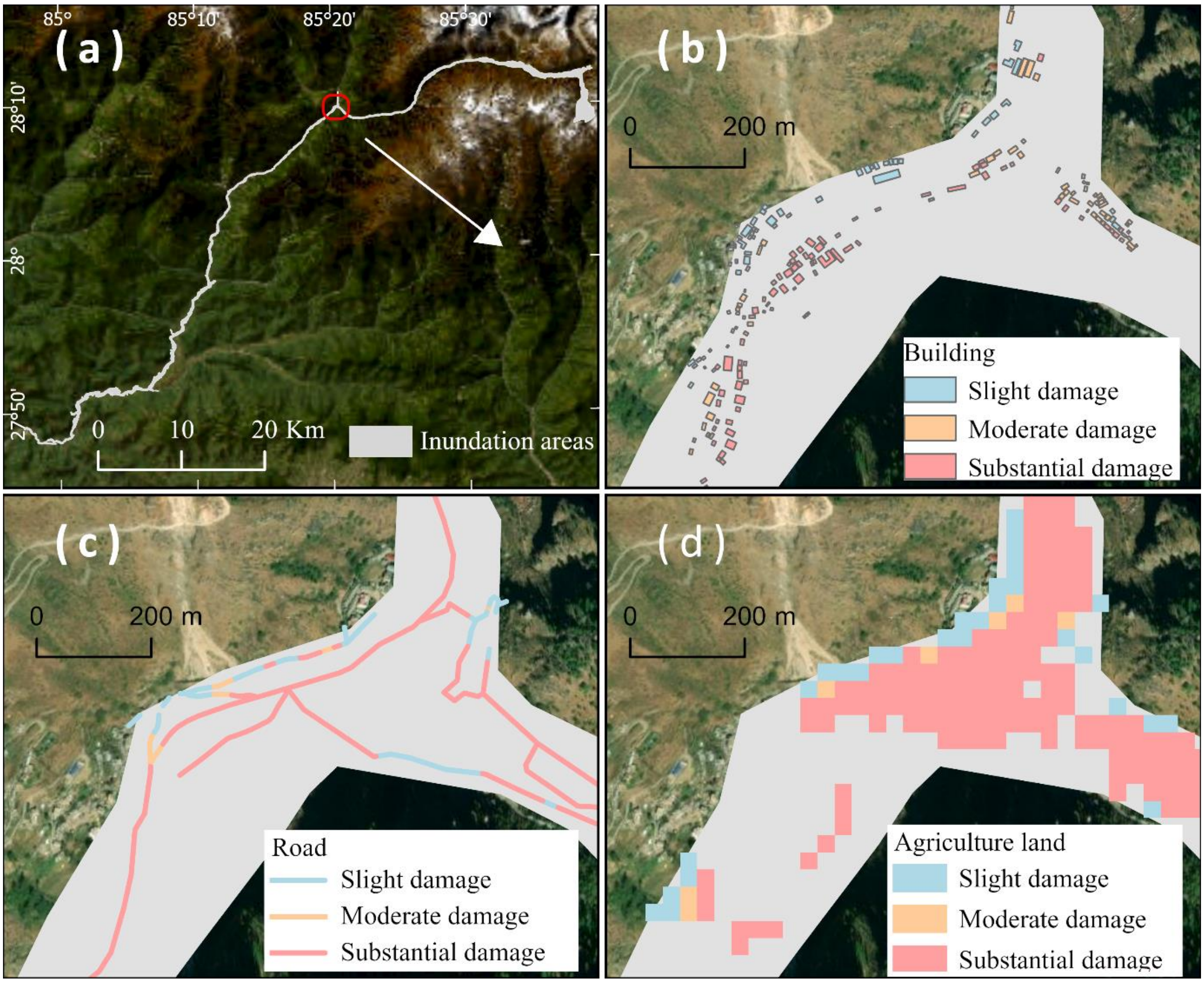


Table S1: what is the unit for capacity?

Response: The unit is megawatt (MW), which has been added to Table S1.