

Interactive comment on “Brief communication: Roads and landslides in Nepal: How development affects risk” by Brian G. McAdoo et al.

Brian G. McAdoo et al.

brian.mcadoo@yale-nus.edu.sg

Received and published: 16 May 2018

While we have responded to these comments in the earlier version of this submission, it was decided that the updated paper should be a full submission rather than a Brief Communication. The comments below reflect both the initial submission and the updated version.

Both RC1 and RC2 raised questions about the Open Street Map data. In response to RC2, the OSM data is remarkably comprehensive- we ground trothed it using both recent Google Earth imagery as well as field observations. For RC1's question about are they footpaths or bulldozed roads- this is an excellent question, and all we can state is that they are all roads/path large enough to be seen on satellite, hence we assume

C1

will have a more significant effect on the physical landscape than smaller, less well-travelled paths. Our Nepali colleagues have since confirmed that these are the roads that are capable of supporting some kind of vehicle. (Now, anyone who has been to Nepal is right to question this!)

RC2 questions the 100 m distance as being considerably wider than the road plus the likely zone of influence on each side. We think it is a bit beyond the scope of this short paper to delve into the details of specific slides, but we can assure RC2 that the zone of landsliding can extend hundreds of meters past the road itself- runout zones of debris mobilised during rainfall failures can be kilometres, and retrogressive failures can extend far upslopes. In fact, we were quite surprised to see how more of the EQ landslides didn't intersect roads!

We were hoping to see that magical peak of landslide occurrence at a certain distance from a road, however the data were not cooperative. As this paper is an attempt to look at the risk of landslides to exposed communities, not just understanding the physical hazard that the landslides represent, we feel it necessary to frame the results in the context of how attempts to make communities less vulnerable (economically, socially and physically) by constructing roads is actually making them more vulnerable as far as exposure to landslides hazard is concerned. We will leave it to the social scientists to sort out if the relative gains achieved by constructing roads (along with the associated landslides) exceed the losses of property and life that comes every monsoon season. Therefore, we would like to keep the analysis, recognising a shift from hazard focus to a more nuanced and complex treatment of the associated risk.

We agree with the reviewers and the editor that the conclusions did not match the majority of the paper. We have tried to rectify this with more analysis of the data presented while sticking with our goal to highlight how the hazard and the risk to communities are tied together. Here, communities are affecting the hazard, and vice-versa.

2017-461, 2018.

C3