

Interactive comment on “Assessing downstream flood impacts due to a potential GLOF from Imja Lake in Nepal” by M. A. Somos-Valenzuela et al.

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Received and published: 20 January 2015

Imja Glacier Lake (Imja Glacial Lake; Imja Tsho) is one of the most studied glacial lakes in the Himalaya. Its detailed pictures in terms of development history, morphological transformation, bathymetry and geophysical structure of ‘dead-ice’ moraine (frontal ice covered with debris) have been presented by many previous studies since the 1980s (e.g., Somos-Valenzuela et al., 2013, 2014). Nevertheless, papers on flood estimation from Imja are extremely limited (Bajracharya et al., 2007; ICIMOD, 2011). The present paper prepared by Somos-Valenzuela and his colleagues, therefore, is highly welcome. The paper proposes that a 3-m reduction of the lake level (UNDP, 2013) is not sufficient, and at least 10-m reduction (preferably 20-m reduction) is necessary. This concrete

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recommendation is the first one that can lead to implementing several future measures.

This research is also a good example of ‘Future Earth’ type research projects. In Future Earth, a 10-year research platform under the International Geosphere-Biosphere Programme (IGBP) and International Human Dimension Programme (IHDP), addressing solving environmental issues is expected through strong collaboration with scientists, local communities, policy makers and other stakeholders.

Specific comments

Page 13022, lines 16-18: In the expected outcome, the authors state that this is the first attempt to quantify the impact . . . in downstream villages. This is true but this particular study examines only two villages among many others.

For readers who are not familiar to local situations, it would be nice if the authors provide some geographical information on Dingboche and especially Phakding: their locations, relative height from the current river course to the arable land and houses with representative cross-sectional profiles of the villages or with photographs.

Also for such readers, it would be nice if they state that Lukhla, a gateway to the Everest trekking area, can be excluded because of its high location from the current riverbed, so that discussion on the section between the lakeside and Phakding is appropriate.

Figures 4 and 8 would result in a great impact to the local residents when they access the figures. The impact could be too much for some of them. It will be extremely important for the authors to make an action to find an opportunity to explain about the results to the locals to avoid creating unnecessary ‘mental hazards’ at the earliest convenience, which, I do hope, the authors can understand because they are the persons who are leading the High Mountain Glacial Watershed Program (HMGWP) and the High Mountains Adaptation Partnership Program. This study can be a good example that is addressing a role of science that communicates with the locals. It is suggested that this aspect is added in a few lines in an adequate place such as a postscript.

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The order of citations in the whole text is not consistent: some are in alphabetical order, and the others are chronological.

Caption of Figure 2: Between 'Dingboche' and 'under', add '(cross section shown in Fig. 4)'.

References

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Interactive comment on *Hydrol. Earth Syst. Sci. Discuss.*, 11, 13019, 2014.