

EGU23-8379, updated on 03 Dec 2023

<https://doi.org/10.5194/egusphere-egu23-8379>

EGU General Assembly 2023

© Author(s) 2023. This work is distributed under the Creative Commons Attribution 4.0 License.



Systematic extraction of urban poor-centred multi-hazard impacts from DesInventar Sendai: a case study of Kathmandu Valley, Nepal

Harriet E. Thompson^{1,4}, Bruce D. Malamud^{1,5}, Faith E. Taylor¹, Joel C. Gill², Robert Šakić Trogrlić³, and Melanie J. Duncan⁴

¹Department of Geography, King's College London, London, UK (harriet.e.thompson@kcl.ac.uk)

²School of Earth and Environmental Sciences, Cardiff University, Cardiff, UK

³International Institute of Applied Systems Analysis, Laxenburg, Austria

⁴British Geological Survey, The Lyell Centre, Edinburgh, UK

⁵Institute of Hazard, Risk and Resilience (IHRR) and Department of Geography, Durham University, Durham, UK

Reporting of hazard impacts in international disaster databases predominantly focuses on single hazard events and their direct impacts. Moreover, impacts on the urban poor are often excluded from these databases despite the disproportionate burden experienced by these communities. Here we describe a systematic approach to extract multi-hazard impact information from DesInventar Sendai. The study focuses on urban poor-centred impacts, in this case impacts on slums and squatter settlements, of past multi-hazard events that have affected Kathmandu Valley, Nepal.

First, we identified the main primary natural hazards of study: earthquake, fire, flood, and landslide. These hazards represent four of the five main hazard types (the fifth being epidemic which is categorised as a biohazard and is therefore omitted from this study) that could occur in Nepal as defined in the Nepal Ministry of Home Affairs Disaster Report 2017. The choice of these hazard types was affirmed by seven scoping interviews conducted in October and November 2022 with Kathmandu-based stakeholders working in academia, NGOs and the private sector. We then searched DesInventar Sendai for Nepal case study examples of past hazard events. We selected the region as “central region” and the districts as those comprising the Kathmandu Valley (“Bhaktapur”, “Lalitpur” and “Kathmandu”).

We created a database of single hazard and multi-hazard events divided into the following categories: earthquake, fire, flood and landslide. The location was supplemented by quantitative (e.g., indirectly affected, missing) and qualitative (e.g., comments about the event) impacts. Where available, the cause(s) and description of cause(s) were listed and categorised by group to enable an assessment of whether the event was multi-hazard and had cascading impacts.

Our results illustrate which impacts are associated with different single and multi-hazard types within slums and squatter settlements in Kathmandu Valley. Reporting of hazard impacts in DesInventar Sendai are focused on quantitative direct impacts, such as fatalities and losses in \$USD, rather than indirect, intangible and/or qualitative descriptions of impacts which are limited

to brief comments. Recorded hazard events are often limited to single hazards, or simple multi-hazard events (e.g., primary hazard triggering secondary hazard). This is reflected in a lack of reporting of interconnected or cascading impacts. Equally as important is the missing or incomplete data, and what this suggests about bias within the Nepal region database.

Our ongoing research will compare these DesInventar Sendai results with secondary loss and damage datasets documenting earthquake, fire, flood, and landslide events and their impacts on urban poor communities in Kathmandu Valley. These loss and damage datasets, collected by Kathmandu-based organisations, will be analysed using a systematic approach such as content analysis in NVivo. The comparison between the DesInventar Sendai and loss and damage datasets will assess to what extent it is possible to disaggregate these data by social groups within the urban poor, and whether these data sources can present a nuanced account of multi-hazard impacts.