



WIDER Working Paper 2018/62

We need land first

Identifying local needs for sustainable recovery after the 2015 Gorkha earthquake, Nepal

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June 2018

Abstract: The aim of this study is to identify needs for recovery from people's perspectives under a localized context following the 2015 earthquake in Nepal. A qualitative approach was applied to collecting and processing data which consist of 114 semi-structured interviews with earthquake-resettled households, six focus group discussions, interviews with community leaders and government officials, and participant observations. Data suggest that recovery needs at local communities are sustainable because the affected population is more concerned about productive living and development issues rather than physical reconstruction. While building new houses appears to be the most urgent task, people wish to have permanent ownership of land at a different place for reconstruction, and to gain employability for overseas job-hunting. These needs are interlinked, and the interlinkage is manifested in the reliance on the central authority to take action. These findings imply that comprehensive recovery from the earthquake calls for reconstruction in multiple sectors.

Keywords: post-disaster needs assessment (PDNA), sustainability, community recovery, resettled households, earthquake, Nepal

JEL classification: Q54, H12, Y80

Acknowledgements: The author would like to thank UNU-WIDER for its support in completing this working paper. The author is greatly indebted to the interview participants for volunteering in the survey, and to the villagers in the study areas who received her in a country she visited for the first time. This research would not have been completed without the support from them. The author would also like to thank officials from the local government for their assistance in the fieldwork, and her supervisors Jonathan C. Aitchison and Karen Hussey at the University of Queensland and mentor Rachel Gisselquist at UNU-WIDER for their valuable comments during the writing of this paper.

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This study has been prepared within the UNU-WIDER Visiting PhD Fellowship programme.

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ISSN 1798-7237 ISBN 978-92-9256-504-6 <https://doi.org/10.35188/UNU-WIDER/2018/504-6>

Typescript prepared by Ans Vehmaanperä.

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The Institute is funded through income from an endowment fund with additional contributions to its work programme from Finland, Sweden, and the United Kingdom as well as earmarked contributions for specific projects from a variety of donors.

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The views expressed in this paper are those of the author(s), and do not necessarily reflect the views of the Institute or the United Nations University, nor the programme/project donors.

1 Introduction

Natural hazards increasingly militate against people in poorer countries and render them more vulnerable and at greater risk (Noy, 2009; Smith, 2013; World Bank and United Nations, 2010). Sendai Framework states that under-developed countries, landlocked developing nations and small island states are disproportionately susceptible to natural hazards and thus require special attention (UNISDR, 2015). Recent years have witnessed large-scale disaster incidents in numerous developing nations: the 2004 Indian Ocean tsunami and earthquake killed 280,000 people, affecting 14 countries including Indonesia, Sri Lanka, India, and Thailand. In 2008, a 7.9 magnitude earthquake in SW China claimed 90,000 lives, displacing 18 million people. In 2010, a 7.3 magnitude earthquake struck Haiti, claiming more than 200,000 lives and rendering millions homeless (World Bank, 2010). In 2010, a massive flood struck Pakistan and swept all properties and infrastructure on its way, causing 2,000 deaths and affecting 20 million people. In 2015, a 7.8 magnitude earthquake struck Nepal, which took more than 8,000 lives and deprived 2.6 million people of their homes (IDMC, 2016). Very recently, the 2017-18 volcano eruptions in Bali evacuated thousands of people while inducing long interruption in normal life. Whereas the occurrence of natural hazards is rapid and short, their influence is enduring and recovery from them takes years or decades. Assessing recovery needs following disaster events is critical to these countries as it provides reference for tailoring the disaster aid to the most pressing issues among the affected population. As Freeman (2004) states, the allocation of reconstruction resources should be arranged in an efficient manner to promote long-term recovery, which is particularly conducive to post-disaster development in poor countries.

Malilay *et al.* (1996) suggests that post-disaster needs assessment (PDNA) involves providing accurate population-based information on reconstruction and recovery to decision makers. Early empirical studies have broadly applied PDNA to investigate health needs among affected populations (Korteweg *et al.*, 2010), in which questionnaire interviews are a common means to collect information. This approach has been used for a *rapid* assessment of health needs following the 1992 Hurricane Andrew, with the consideration of household demographic characteristics and infrastructure availability (Centre of Disease Control, 1992). Malilay *et al.* (1996) use the quantitative cluster-sampling for a rapid needs assessment following natural disasters. Their model considers disaster damages, the number and categories of specific needs, and housing units in the assessment estimation. Chen *et al.* (2016) adapted this cluster-sampling technique into the community needs assessment (CNA) and morbidity and mortality surveillance (MMS), to investigate health needs as a response to the 1999 Chi-Chi earthquake in Taiwan. These models largely consider population data and infrastructure conditions at the quake areas. Another tradition of PDNA is the assessment at the government level which refers to a top-down path from government to communities to decide the distribution of reconstruction resources. According to UNDP (2011, p. 7), PDNA approaches feature the procedure of preparation, data collection, reviewing and result-formulating stages. Consistently, Guha-Sapir *et al.* (1986) state that an effective disaster recovery programme should be based on information for action, and they propose that the information system includes the procedure of data-collection, processing, evaluation and goal-setting. World Bank (2010) suggests the integration of HRNA (Human recovery needs assessment) and DALA (Damage and loss assessment) into the PDNA approach. This integrated approach has been applied to the needs investigation following the 2010 Haiti earthquake. In the aftermath of the 2015 Gorkha earthquake, the Nepal government decided on the recovery needs by examining the damage in social, productive, infrastructure and cross-cutting sectors (Government of Nepal, 2015, p. 18). Reflecting on the literature review, we develop a conceptual framework for PDNA which illustrates that assessing recovery needs requires

information regarding three aspects at community-level: the disaster impacts and ex-post challenges, local capacity and anticipation for external needs (Fig.1).

Figure 1. Conceptual framework for post-disaster needs assessment.



Source: Adapted from World Bank (2010).

Localization in recovery planning has long been studied in disaster literature. Oliver-Smith (1990) states that post-disaster reconstruction should trickle down to the stricken population's concerns about continuity and development of social equity. Berke *et al.* (1993) claim that the success of recovery planning is based on a bottom-up policy process, which features the consideration of local capacities and meeting the needs of disaster-affected populations. Mileti (1999) notes that a plan reflecting local needs will enhance community involvement in the recovery process. Berke *et al.* (2006) accentuate the significance of high-quality local recovery plans as they embed resiliency into recovery praxis and help to avoid scattershot mitigation efforts. Consistently, Smith *et al.* (2007) stress the significance of post-disaster recovery planning at community level as they consider that communities are the fundamental social units to spend recovery efforts and address problems inherent in geographically confined localities following disaster events. In reviewing sustainable post-disaster recovery, they propose that the identification of local needs is a facilitator for sustainable community recovery from natural hazards. Chandrasekhar *et al.* (2014) suggest that recognizing local needs in disaster-affected areas is critical to stimulate stakeholder participation in designing and implementing recovery plans. Consistently, Sovacool (2017) argues that greater community involvement can help to build fair, sustainable communities long after disaster events, and hence the necessity to design a recovery plan reflecting people's needs at afflicted communities.

In terms of sustainability in recovery planning, the inclusion of development strategies is a hot topic. The popular critique is illustrated in the work by Anderson *et al.* (1989) who claim that despite the catastrophic influence, it is still possible to *rise from the ashes following disasters* if a balance between immediate relief tasks and long-term development is maintained. In their book, they argue that the post-disaster relief programme should not exploit resources for social and economic development. To achieve this goal, capacities and vulnerabilities among the affected population need to be assessed in order to understand people's strengths and weaknesses. Similar critique was proposed by Crisp (2001) who noted that the assistance provided to settlements in poor countries should be used for development activities to bring long-term benefits to refugees. Consistently, Oliver-Smith (1990) suggests that it is important to address chronic social problems in the process of reconstruction and recovery in order to achieve development in years after the occurrence of disasters.

To echo the call of engaging local communities in designing and practicing post-disaster recovery, this study seeks to assess the recovery needs with a qualitative approach under a localized context after the 2015 Gorkha Earthquake in Nepal. Founded on the premise that community participation will be stimulated if the strategies are answering to people's needs, this study draws on people's perspectives to demonstrate an assessment approach at community level. Information was collected by visiting an earthquake-affected area and interviewing relocated households 10 months after the disaster event. Our data suggest that recovery needs at local communities are of sustainable nature because the affected population is more concerned about productive living and development issues than visible reconstruction (*e.g.*, rebuilding houses), and therefore it is imperative to integrate development strategies in designing reconstruction and recovery policies. This study contributes to the disaster literature by (i) examining the recovery needs assessment at the community level instead of government level; (ii) suggesting that there should be a balance between relief aid and development strategies in the face of natural disasters; and (iii) answering how to design sustainable recovery strategies in local communities. This research can be used as a reference for recovery needs assessment at community level in countries prone to natural hazards.

The remaining part of this article is structured as follows. The country profile of Nepal and the tradition of disaster management are presented in Section 2. Section 3 includes the methods of collecting and processing data, whereas the results of the needs assessment are reflected in Section 4. Section 5 discusses local needs features, Section 6 provides policy recommendations on disaster governance in under-developed countries, and Section 7 concludes.

2 Context

Internationally, Nepal is recognized as a third-world country with its human development index at 0.558 (UNDP, 2016). The country has largely relied on international aid to maintain slow development (BBC News, 2018). Domestically, Nepal is a landlocked country located by the Himalayan plateau. Based on north-south topography, it is divided into *mountain*, *hill* and *Terai* regions. Its population density is 180 persons/km², rendering a great number of people at risk of disasters. For centuries, Nepal's socio-economic context has been largely associated with natural resources (MoHA, 2013), of which land has been the mainstreaming livelihood asset (Adhikari, 2006). Land-cultivation and livestock-raising have long been the primary livelihoods, with the environment-based tourism emerging in recent years as a significant revenue source. Arable land in Nepal is in great shortage, resulting in paltry holdings among households, which witnessed constant decrease in past years with the increasing population (MoHA, 2013). The overall distribution of land is skewed to an enormous extent — some have surplus while some hold zero land. Consequently, landlessness and the absence of secure access to land generate impoverishment and inequality in rural regions. Another noticeable social characteristic in Nepal is its caste system which determines ethnic identities of individuals, creating nation-wide hierarchy and inequality (Levine, 1987). Moreover, the caste affiliation restricts job options among people at large with the separation of higher-caste and lower-caste jobs (He *et al.*, 2018). Politically, there has been a decade-long Maoist insurgency and the abolition of monarchy in Nepal (BBC News, 2018), resulting in institutional dysfunctions and a lower level of development in the country (UNDP, 2016).

Nepal is a hotspot of natural hazards such as landslides, earthquakes, floods, thunderstorms, avalanches and GLOFs (UNDP, 2009). With the occurrence of 300 disaster events annually, Nepal witnessed 28,000 lives lost between 1971 and 2012 (MoHA, 2013). A remarkable fact regarding natural disasters in Nepal is that their influence is inextricably linked to the human context. In most cases, vulnerability among people particularly intensifies the impacts of disasters (UNDP,

2009), leading to a perverse cycle of immature recovery from previous disasters and ill preparedness for future ones. Meanwhile, the vulnerability of the population can be perpetuated due to recurring natural disasters, asset damage, livelihood interruption and population displacement (He *et al.*, 2018). It is against such a background that a large volume of policy and regulatory frameworks on disaster risk management has been passed in Nepal since the 1990s, indicating great emphasis from the government (MoHA, 2013, p. 16). However, these documents fail to bring desirable outcomes in disaster risk reduction in the nation for two major reasons: first, it is challenging for these plausible frameworks to reach communities as they hardly address local needs, thereby failing to stimulate community participation or create sustainable disaster management at community level (MoHA, 2013). Second, in the context of political transition, the administrative structure for implementing these measures is too weak, resulting in inefficient disaster governance throughout the country, which is quite well known by researchers as a contributor to perpetuating vulnerabilities (Sharma, 2006).

The magnitude 7.8 Gorkha earthquake struck one of the most densely populated areas in Nepal, destroying almost all houses in its affected areas, interrupting livelihood activities, rendering numerous settlements unsafe to live in, and inducing large-scale homelessness and displacement (Government of Nepal, 2015). Following the earthquake, the central government provided cash reimbursement to the affected households for early relief: NPR 140,000 for a member losing life in the earthquake, NPR 50,000 if the family has a member serving in the Nepal army, and NPR 7,000 for a widow family. About one year after the earthquake, the central government adopted an instalment reconstruction program in the affected areas, under which the first instalment (NPR 50,000) is allocated for building the house foundation, the second instalment (NPR 100,000) for building the main structure, and the third (NPR 50,000) is for completing the remaining parts of the house. The prerequisite of receiving the next instalment is to complete the previous reconstruction task. Meanwhile, many countries promptly reacted with generous cash donations to the Nepal government and humanitarian assistance to the afflicted areas, among which the UK, China, EU, and Australia are the largest donors (Regan, 2015; World Bank, 2017). The donations were targeted at sectors of rescue, emergency response, shelter construction and the recovery process. International organizations such as the UN and the Red Cross provided the major relief support varying from daily food to construction materials¹. Under such circumstances, most of the affected population, especially those in remote areas lived on food provided by NGOs long after the earthquake.

3 Methods

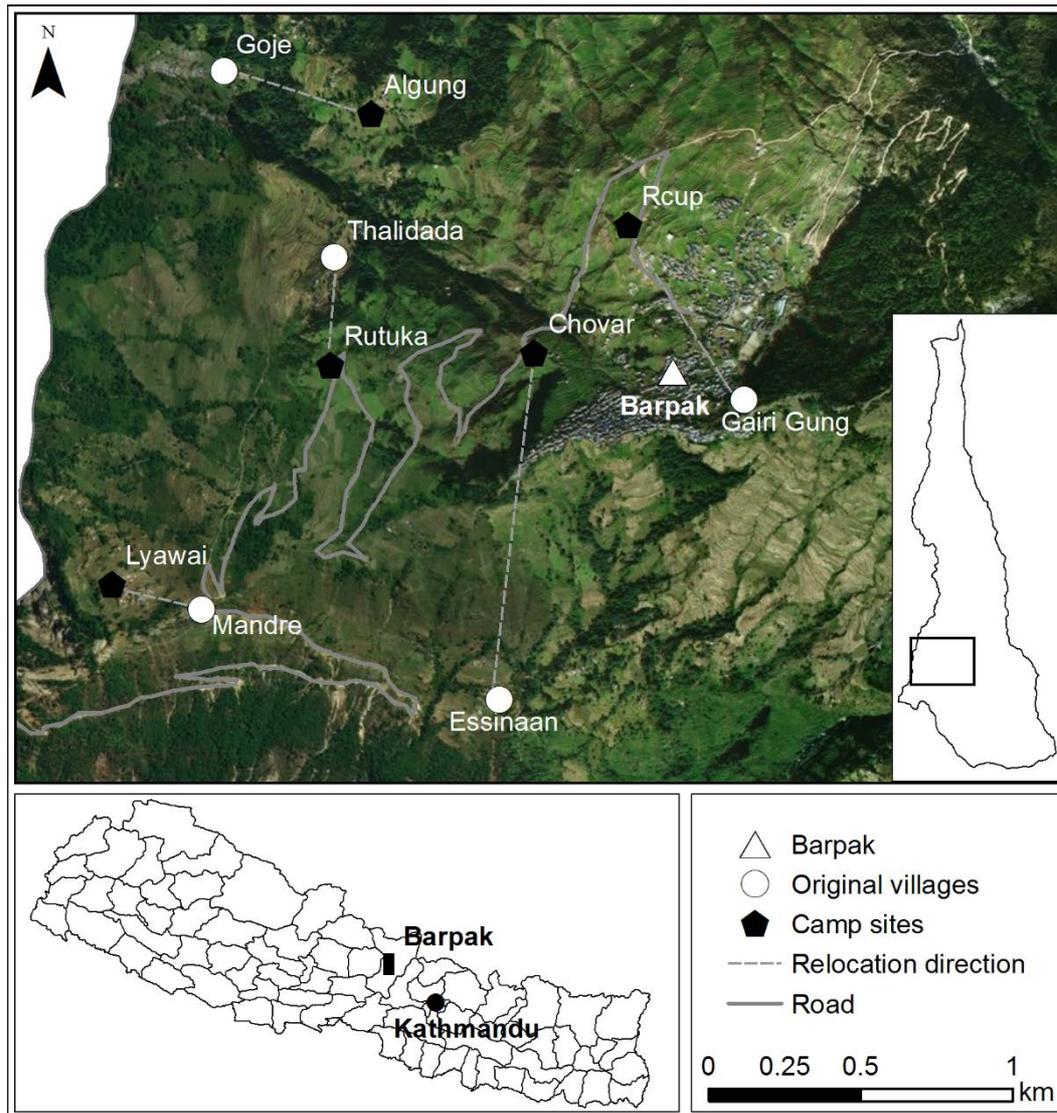
3.1 Case-study villages

This study selected six villages from Barpak Village Development Committee (VDC) in Gorkha District for observation (Figure 2), among which Sorta is the bazaar place with facilities such as a secondary school, power-generating station, health post, grocery market, shops and hostels. Garigung has 46 households, Chovar 43, Rutuka 26, Lyawai 50, and Alung has 28 households. The choice of case-study villages was based on the following criteria: first, these villages experienced massive earthquake damage. All houses collapsed in the earthquake while livestock and other assets were destroyed. Second, many households in the villages evacuated from their

¹ The support included: food (rice, dal and noodles); construction materials (corrugated iron sheets, tent cloth); winter warmth supply (blankets and quilts); equipment (water pipes, solar board/lights and water tanks); and production assets (vegetable seeds).

settlements immediately in the afternoon following the earthquake as there was high risk of landslides and falling boulders. Except Algung, all resettlement sites are in vicinity of the major road to Sorta and have easy access to transport. Third, these villages offer a miniature of the social context of the country: despite the presence of non-agricultural jobs, farming is the staple livelihood, and households are with different-level caste affiliation, which were anticipated to provide representative evidence on the influence of the earthquake on remote rural areas.

Figure 2. Observed villages in Barpak VDC.



Source: Authors' work based on ArcGIS.

3.2 Mainstreaming interview topics

This study values people's perspectives and experiences, for which a set of questions was designed to investigate their viewpoints regarding demands for recovery in three steps. The first step was to collect people's perception regarding the earthquake impacts on their family and their current challenges for recovery. The second step was to assess the local capacity, *i.e.*, what actions people would be able to take to overcome the challenges and commence reconstruction. The third step was to identify resources that people are hopeful of and discuss institutions' roles to meet these needs. Several of the topics overlapped to some extent in order to cross-investigate people's

opinions and offer an opportunity for them to reflect on their remarks. These questions were used to cue respondents to share their opinions and start the discussion. All questions were present in Nepali on a piece of paper to respondents during interviews.

Table 1 Example of interview questions

A	
What is your plan for reconstruction in the coming year?	
Is there anything more that you think the government could have done to help the community for reconstruction and recovery?	
Are you aware of any further government plans that will be implemented to help the community in the future?	
What changes has the earthquake brought to your life?	
Are you confident that the government will offer help in reconstruction and recovery?	
B	
What are the most significant challenges for your family right now? (Add, select and rank)	
● Decreased/ceased income (<i>incl.</i> crop harvest)	● Poor living conditions (<i>e.g.</i> , lack of basic bathroom and toilet)
● Unsafe living place	● No money for reconstruction
● No land to build new house	● No jobs (<i>incl.</i> farming activities)
● Increased living expenditure	● Lack of infrastructure (<i>e.g.</i> , hospital, school)
● Uncertain relocation	● Other (please specify):
What aid/support do you expect most from the government? (Add, select and rank)	
● Job opportunity	● Further relief support
● Financial aid for reconstruction	● Farming land
● Safe place to build new house (land for reconstruction)	● Improvement in facilities (<i>e.g.</i> , hospital, bathroom/toilet, road)
● Other (please specify):	
What will your family most likely do if the government does not offer help?	
● Move back to our original village	● Buy the land here and build new house
● Continue to live here (renting the land)	● Continue plea to the government
● Turn to NGOs for help	● Other (please specify):

Source: Author's fieldwork design.

3.3 Data-collection

This study applied multiple approaches to collecting data at the survey community through interviews with key informants, in-depth household interviews with a semi-structured questionnaire and focus group discussions. The fieldwork was conducted in January and February 2016, 10 months after the earthquake. This time point was considered suitable for investigating recovery needs among the affected households as they already experienced the disaster while recovery was yet to commence. The fieldwork team was comprised of an author speaking English and a field assistant speaking Nepali and English. The assistant was a graduate from a university in Kathmandu and also a local resident from the earthquake areas. Prior to the trip for Barpak, we visited Gorkha District Government to obtain permission for the fieldwork. Two officials in charge of post-earthquake reconstruction in the district were interviewed in order to collect data concerning government policies on reconstruction and recovery. We also visited the VDC bureau to interview the Secretary and collect documentary data on households.

In Barpak, at each shelter site, the village chief was interviewed first. Village leaders are spontaneously elected by villagers to represent them and make collective decisions. They are earthquake victims as well, and therefore they are well-informed about the local situation. Information collected via these interviews include: basic information on households, people's response to the earthquake, the overall livelihood changes after the earthquake, temporary relocation of the village (how the decision was made), and future reconstruction plans at the village level. With their consent, these interviews were recorded.

Then, in-depth interviews were conducted with the displaced households at each shelter site. While households were randomly selected, we had a chat with the family so as to identify the respondent for interview. The respondent should be well-informed about his or her family conditions and be willing to express opinions. The interview was oriented with a semi-structured questionnaire: the first part was about general demographic characteristics and employment of family members. Data in this part were reflected to gain sense of the basic socio-economic conditions of the household. The second part was about earthquake impacts (*e.g.*, property loss, livelihood interruption, relocation) on the household. The third part was comprised of open-ended questions regarding the reconstruction plan of the family.

Upon the completion of household interviews at each campsite, a focus group discussion (FGD) was conducted with 6–7 participants with the designed topics. Participants were recruited on these criteria: 1) The ages, gender and occupations of participants should vary; 2) Participants should be with outgoing personality. Participants are acquainted with each other as they are from the same village. In the discussion, they talked about each topic extensively and exchanged their opinions before moving to the next topic. Each interview was about one hour and was audio-recorded with consent from all participants.

Participant observation was applied throughout the fieldwork. The author lived at the study area for one month, and had the opportunity to observe local lifestyle of the affected households after relocation. Naturally-occurring conversations were deployed with random villagers regardless whether they were survey participants. A field diary and photography were used to record these data, which is conducive to interpreting the interview data as they were related to local culture and thought patterns among people.

3.4 Data preparation and analysis

The data collection was largely facilitated by the cooperation from local communities. In total, 114 household interviews (females = 40, males = 74) and six focus group discussions (females = 16, males = 22) were completed (Table 2). All interviews with village leaders, and FGDs were audio-recorded, except the one at Sorta which was recorded on a field note due to an equipment issue. Ranging from 20 to 60 years of age, the participants were from diverse occupational backgrounds: homemakers, farmers, sharecroppers, migrant workers returning from overseas and retired soldiers.

Table 2 Data

Participants	Survey instrument	NO. of interviews	NO. of participants	Data classification
Households	Semi-structured interview	114	114	Household-level
Villages	Focus group discussion	6	38	Village-level
Village chiefs	Semi-structured interview	6	6	Village-level
VDC Secretary	Semi-structured interview	1	1	VDC-level
District officers	Unstructured interview	2	2	Overview

Source: Author's fieldwork.

Following the fieldwork, audios of interviews and FGDs were literally transcribed from Nepali into English in Word files. Remarks by the researcher and the assistant were disregarded during the transcription process. Data from household interviews were applied to writing the story of each individual household as it was regarded as an independent case. In addition, field notes and photographs were sorted and prepared for analysis. All these documents were imported and grouped under villages into software NVivo for analysis (QSR, 2016). It is important to note that, while some data are not present in this article (photos, for instance), all of them served as important references during the analysis and interpretation stages.

The qualitative approach to analysing data in this study was adapted from the guides introduced by Corbin *et al.* (2008) and Kim *et al.* (2012). The analysis was of two levels: At surface level, software Query and Explore functions were run to generate text-based diagrams such as *word cloud* and *word tree* for researchers to be acquainted with the data. Reading and editing were applied to reflect on people's remarks and conduct thematic analysis on the data. Taken together village- and household-level data, four themes have been identified as dominant in the interviews: *Land for reconstruction*, *houses*, *jobs/income* and *government*, and each of these topics has sub-themes (Figure 3). For instance, when people talked about *land* for rebuilding new houses, they mostly mentioned the safety and ownership of the land.

At conceptual level, in-depth analysis was conducted to elicit inner concerns, perspectives and experiences of participants regarding these topics. Reiterative reading of the text around theme words was conducted to further capture participants' viewpoints. Sentences reflecting key opinions were coded under each theme and stored in nodes for future reflection. Memos were written to record our interpretation from the text data, concepts were developed from memos, and diagrams were used to demonstrate likely relationships among concepts. These procedures produced the core part of data analysis for this study. Memos and diagrams were labelled with data and titles for

retrieval purpose. All analytical results were re-examined multiple times for refinement purposes, and some information was sifted during this process. While the analysis was subject to our interpretation, we made sure our understanding was true and rational to the original data. Some excerpts from the interviews were quoted to attest our interpretation in writing this article.

Figure 3. Dominant themes in interviews.

Land for reconstruction	Safety
	Ownership
Houses	Relocation
	Land
	Money
Jobs / income	Work overseas (<i>incl. job applications</i>)
	Receive employment training
Government	Offer safe land for reconstruction
	Financial aid to build new houses
	Facilitate job applications
	Conduct safety investigation
	Reconstruct essential infrastructure

Source: Author's illustration of interview data.

4 Results

4.1 Impacts and challenges

In Barpak, the loss of homes was a vast shock for the peasant households as they spent years of hard work and savings building their houses. Further, after relocation, temporary shelters were built with makeshift conditions, rendering high risk of poor health among residents. Basic infrastructure such as private toilets, bathrooms, and a sewage system are absent at the shelter sites, which caused great extent of inconvenience for the relocated residents. Farming activities were ceased as a result of the earthquake as people were occupied with settling down at a new place. In addition, the earthquake recalled most wage workers from overseas, deterring the cash income of many households.

In the household interviews, most of the respondents indicated that the uncertain prospect of permanent relocation is the most challenging issue for their families. They moved from their villages and built shelters on others' land, but this relocation is impromptu and temporary. As a Dargung villager related, *we do not know where our home will be. We live here safely, but this land belongs to others. I am not sure how much longer my family is allowed to live here. The land owner has the right to ask us to leave at any time.* The poor living conditions and absence of infrastructure are identified as one of the biggest challenges. For example, there are only two or three public toilets for all households to use at each camp site. Many respondents mentioned that they needed a person to supervise outside when they took a bath inside. This situation was worse for females as they do not have a sense of security when using the toilets and feel embarrassed if they need to dispose sanitary pads. The lack of cash income and heavy debts are identified as the biggest challenge by some respondents. Cash income remains scarce among the study villages as there are few non-agricultural job opportunities. In many cases, landless households are not even self-sufficient in

agricultural products, and consequently they borrow money to cover their cash expense. These households tend to think that they have to pay off their debts prior to reconstruction. On the other hand, without cash income, people are unable to purchase construction materials for building new houses as the transport fare is costly.

4.2 Local capacity

We investigated what actions people would be able to take in the coming year if no external aid is offered. While the result varies between households, it is still possible to capture the overall trend. Basically, people are not able to take any constructive actions except continuing their old living patterns. Participants indicated that the most likely action is to return to their original villages to build shelters or houses on the homestead land. As a respondent explained, *it is beyond our ability to buy a plot of land at other sites for rebuilding houses. If there is no help offered to us, we have to move back to our villages. Our village is not safe anymore, but we don't have other choices.* People also consider that since they are familiar with their original villages, they would try to resume farming activities if they move back. On the other hand, some households said that they would not return to their villages under any circumstances as they consider their villages *very dangerous*. Therefore, this group is planning to rent the shelter land for a longer term and continue living there. Some households believe that they can only turn to NGOs if the government does not offer help, as a Rutuka villager recounted: *If we are in extreme conditions, I am confident that NGOs will not abandon us. As our shelter is by the main road, we are planning to show them our situation to see if they can provide materials to us for building our new houses. If not resources for reconstruction, further relief support such as food and appliances will also be a big help for us.*

Other possible actions are largely associated with *how to sustain the post-earthquake life*. Most of the male participants are considering finding some local jobs in the construction and vegetable business, so that they can earn some money while managing the reconstruction. Females tend to go back to their villages to grow vegetables and raise livestock in the hope of contributing to reducing cash expenditure of their families. These are actions that people can take in their capacity, and there are a few households planning to borrow money from their relatives so that they can send some family members overseas to work to earn money for building new houses.

4.3 Anticipation for external aid

During the household survey, most of the households said that the first resource that they need for commencing recovery is a plot of land which is ideal for constructing new houses. Some respondents mentioned that building permanent houses is the most urgent thing for them to do. In addition, non-agricultural job opportunities and financial aid from the government are also identified as indispensable resources for reconstruction. While data from FGDs are mostly in line with these results, these data suggest that the ranks for recovery resources vary between villages (Table 3). For example, while the land for reconstruction was recognized as the most pressing resource for recovery by households in Chovar, Mandre and Sorta, it was ranked as the secondary by Alging villagers who consider that constructive conversation with the government is their most urgent need as they are unable to start the reconstruction without government interventions. Since they are afraid that recovery strategies implemented by the government would not fit their real needs, they proposed a half-and-half reconstruction project, by which they hope half of the recovery work is done by the government (*i.e.*, offering land) and the other half completed by people themselves (*i.e.*, rebuilding houses at their own cost). Similarly, government intervention is considered most important for Rcup residents as the land that they squatter on belongs to the government, and people hope the government will offer that plot of land to build new houses. Rutuka households ranked permanent houses as their primary need as they perceive themselves

being homeless, and they rank cash jobs as the secondary need. Besides these needs, infrastructure, employment training and farmland are also identified as recovery needs in some villages.

Table 3 Rank of external resources

Village	Rank		
	Most pressing	Secondary	Tertiary
Algung	Constructive conversation with the government	Land for reconstruction	Permanent houses
Chovar	Land for reconstruction	Permanent houses	Improved road conditions
Rutuka	Permanent houses	Jobs	Financial aid
Rcup	Government intervention	Financial aid	Farmland and jobs
Mandre	Land for reconstruction	Safety investigation*	Financial aid
Sorta	Land for reconstruction	Hospital	Training for rebuilding houses

Note: * Sending geologists to investigate the safety at their original villages.

Source: Author's illustration based on FGDs.

5 Features of local needs

5.1 The inherent sustainability

A salient feature of local needs is its intrinsic sustainability which is manifested in the preference of reconstruction land over houses, regular cash jobs over compensations and the sub-conditions of these two aspects. First, people are more concerned that they would fail to find reconstruction land than house reconstruction *per se* as they are well aware that it is beyond their ability to obtain land while, with efforts in years, it is possible for them to build new houses on their own. As a respondent said, *It is said that the government will offer more or less cash for rebuilding our houses, but my family would rather the government offer land worth the value instead of giving us compensation. [...] Even if we had money, we cannot do reconstruction without good land.* The sub-conditions of land for reconstruction signify the sustainability. For example, people demand that the reconstruction land should be at a safe location where it is free from landslides and aftershock impacts so that they can live without worrying that disasters would threaten their lives and properties. Out of this concern, although the relocated villagers could build new houses on homestead at their original villages, few households have such plan as their villages are unsafe. A householder at Chovar told us, *we need to build our houses on safe land. If it is not safe, there is no point in building it because no matter what we build, it will be destroyed by future disasters.* A number of the respondents indicated that their tension could only be alleviated if they live on safe land. As well as safety, the demand of permanent ownership of the reconstruction land shows the foresight on post-reconstruction development among the relocated residents. While the camp sites appear to be the only available safe places for the affected households to live and most respondents expressed their wish to permanently reside there, they are loath to commence reconstruction on a plot of land that does not belong to them. As a villager

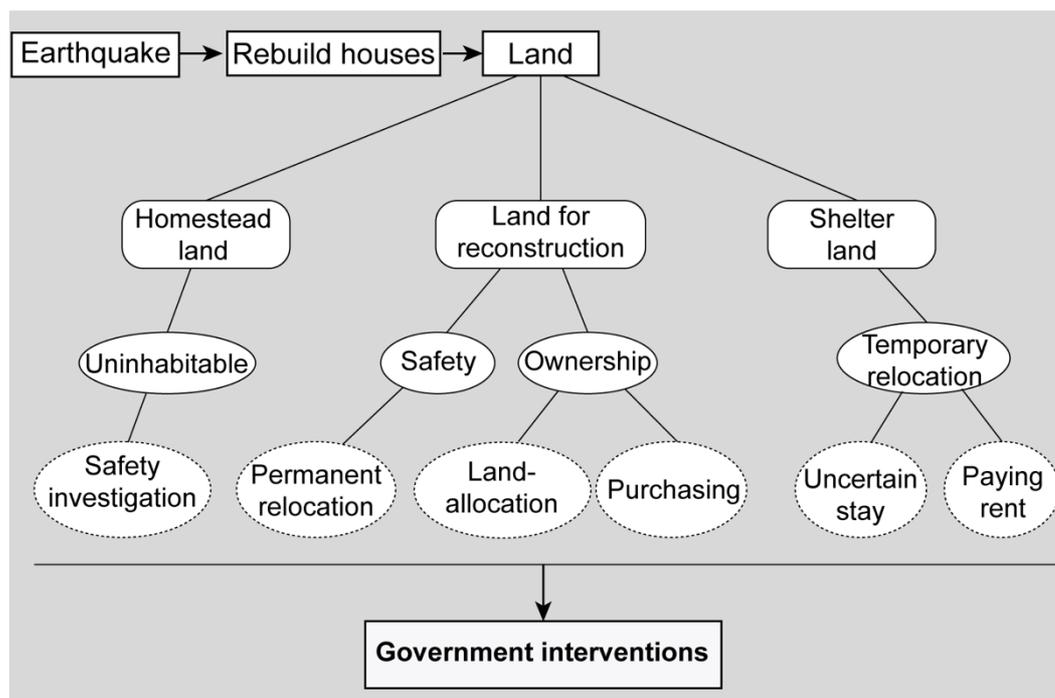
put, *we not only need safe land, but also need the land to be ours. Only in this way can we live without worrying about the land would be taken from us in the future.*

After the earthquake, taking up jobs is a significant recovery need among the relocated households as they consider that only cash income can support them to lead a better life in a long term. This demonstrates people's demand for a productive living mode and becoming self-reliant besides reconstruction in visible sectors. People hope there are jobs for them to do so that they will have regular income to support their families and maintain their post-earthquake life. As a householder related, *compensation from the government will come to an end one day, we cannot rely on it forever [...] Having jobs to do is the best thing for me. If I have a job, I could manage money to construct my house, could be able to purchase safe land, and could send my children to cities for education. With jobs, I can solve many problems on my own and my family can live peacefully.* A Rutuka villager said, *if we have jobs, we can be economically independent to some extent and can spend money to meet our needs even in front of disasters. We do not have to rely on the government to help us every time.* For Barpak households, working overseas appears to be the only feasible approach to taking up non-agricultural employment of which the monthly salary ranges from 8,000 to 25,000 rupees. Based on our understanding, when talking about jobs, people do not refer that the government should offer jobs to them. Rather, their wish to receive formal training in order to acquire employability for job-hunting in foreign countries. As they put, *we understand our country's situation, there are no jobs domestically, but we hope to have some training so that we can go overseas on our own for job-hunting. If we are equipped with better skills, we would not worry that we fail to find jobs.* A returned migrant worker mentioned in the survey, *it is not good to go foreign countries without knowing anything beforehand. There should be some trainings aimed at enhancing people's employability and equipping people with basic languages. With this, people can get most out from working overseas.*

5.2 The interlinkage between needs

Another noticeable feature of these community-level needs is that they are interlinked and cannot be addressed separately. Figure 4 illustrates an example of this interlinkage under the word *Land* which refers to three different types: new land for reconstruction, current shelter land and homestead land at original villages. Following the earthquake, the loss of houses and makeshift shelter conditions trigger the need of building new houses among relocated households. However, building new houses requires land and money at the preparation stage. In terms of acquiring land, there are two possible ways. The first is that the government intervenes to allocate land to the relocated villagers so that they can permanently live there. The second approach is that individual households buy the land from the owners in order to have the ownership, which is very unlikely as land is unaffordable for the peasant households. Therefore, whether households will have land for reconstruction depends on if the government intervenes to help or not. If households end up with failing to find land for reconstruction, they have to move back to their original villages. Thus, they hope the authority to send experts to conduct safety investigation on the original settlements to confirm if their villages are possible to reside. If people are not willing to return to their settlements while not finding other land, they can only stay at their shelter land. However, the term that they are allowed to stay is uncertain, and they are paying rent to the owner for occupying the land, which increases their living expenses. They hope the government can cover this expenditure if they have to stay longer on the land as they consider themselves *already deprived of everything* by the earthquake.

Figure 4. Demand tree under the word *land*.



Source: Author's illustration based on interview data.

5.3 The reliance on the Central Government to take actions

Figure 4 depicts that the reliance on the government lies at the end of multi-fold needs to take action. As land that is proper for reconstruction is in short supply in the study area, people consider the central government as the only *one* who can deliver real help to them, such as permanent relocation and land distribution. According to the interview data, people wish to live at their current shelter sites permanently. The most anticipated approach to obtaining the ownership of the land is via government interventions, such as allocating land, providing financial indemnity and adjusting the land price (so that most of the households can afford).

Promoting employment is the second aspect that the relocated population relies on the authority for help. The brokerage fee for applying for overseas jobs is unaffordable to most families. As a villager said, *the application process and fees should not have been that expensive. The government can do something to reduce the cost and simplify the application procedures. This will facilitate many of us to go foreign countries and find jobs.* Further, labour scams are recurring among migrant wage workers overseas. For example, most workers prefer non-reconstruction jobs as construction jobs are strenuous and non-gainful. It is a common case that while agencies promise non-construction job arrangement to applicants, some workers are forced to do construction work after arriving in foreign countries. They do not have a say in it as they barely understand local languages and therefore it is hard to find other jobs, and very often their identity documents are withheld by agencies. Despite these facts, migrant workers are not protected by their home country. If they disregard the arranged jobs, they cannot even earn flight fares to return home. Many interviewed villagers (especially young people) expressed their wish that the government would intervene to reform the labour-exporting market. As a returned migrant worker mentioned, *we are not protected by our government when staying overseas. If we are bullied, we have to swallow it up. There is no one whom we can turn to for help. Maybe the government should organise some workshops to 'educate' us of possible risks and issues when we work overseas. If people are informed, they will be better prepared and know how to react.*

Financial aid is the third aspect that people rely on the central government for help. In the interviews, respondents express great concern that purchasing construction materials for building their new houses is beyond their capacity. As Barpak is far from the district headquarter, the transportation of construction materials can be expensive. People have to hire trucks to deliver materials to the nearest station Baluwa, tractors to carry the materials to the roadside, and then potters to carry these materials from roadside to individual construction sites. Some respondents also hope the government to organize sessions to teach them techniques of building earthquake-resistant structures as they consider it necessary to know the right skills before starting to build new houses.

6 Policy recommendations

Policy implications of this study are fourfold:

First, rebuilding houses alone cannot sustain the comprehensive recovery from the disaster impacts. Our data show clearly that, besides the necessity of rebuilding new houses, people have diverse recovery needs. Excessive emphasis on housing reconstruction compromises resources that could have been invested in sectors which are more significant to development following disasters (Lyons, 2009). If all resources are guided to the housing sector while development issues are disregarded, people will still remain vulnerable to disasters in the future despite living in rebuilt houses. Therefore, development goals must be incorporated into recovery strategies following catastrophes in countries like Nepal. In this study case, we suggest that the reconstruction of farming and non-farming livelihoods must be considered and heavily invested throughout the entire recovery process. In terms of farming livelihood, we believe that adjusting the distribution of land is a feasible action to start. Based on our observation in the field, many sharecroppers wish to have their own farmland to grow vegetables and crops in order to become self-sufficient so that they can avoid cash expenditure for their daily life. In addition, essential infrastructure, such as a formal hospital with qualified doctors and a micro-credit banking system should be available at remote rural areas in Nepal where these facilities can save people's lives and alleviate vulnerability-perpetuation.

Second, it is the central government that is counted on by people to take action and meet their needs. Despite the prompt relief support from the international community after the earthquake, people do not recognize NGOs when considering their most pressing needs (shown in Table 4). This study ventures to suggest that external involvement from other countries cannot reach core issues in disaster management in Nepal, and in some cases, it might fragment initiatives of the domestic governance or contributes to corruption in the government (Cox, 2015). In reality, there are steps that can be taken by the domestic government without external resources towards a resilient risk management system. As Lee (2016) notes, strong policy direction and leadership are key components of disaster management in Nepal, and a supportive legislative framework should be enforced as a facilitating agent in order to help people to have their needs voiced. We believe that actions from the central government are of much more significant role than international interventions in promoting development at disaster-affected communities. It is assuring to see that some institutes aiming at reducing risk of natural hazards have already been founded in Nepal, such as National Society of Earthquake Technology (NSET) and National Planning Commission (NPC).

Third, the feasibility of investigating recovery needs at community level should draw on the network of local leadership. This suggestion is proposed in accordance with two observations. First, villagers trust their chief, consider him as one of them and rely on him to make group

decisions on collective relocation and reconstruction. On the other hand, the background (age and experience) of the village leader has pivotal influence on villagers' opinions. For example, the Aljung leader is a veteran retired from Indian army in which he achieved the title of captain. Under his leadership, temporary shelters in Aljung were built with best conditions among all camp sites in Barpak. People are willing to maintain their shelters as they are convinced that, with their leader, they are able to settle down on Aljung land eventually. Village leaders are able to make plans that represent most of (if not all) the villagers as he truly understands about people's demands. In saying this, we mean that village leaders are the bridge connecting the government and community. It is unviable for the authority to talk to individual households in order to understand their needs, but this is achievable via conversations with their leaders.

Fourth, as Nepal is a country with unique circumstances of enduring impoverishment and frequent hazards, there might be rare external recovery experience which is applicable to this nation. We suggest that information required for designing sustainable recovery is at local communities. When people's life is secured, government should investigate the local needs in order to guide reconstruction strategies to address real problems. As the disaster-affected people know very well about their own strength (what they can do within their ability) and weakness (what actions are beyond their capacity to take), the key to planning for sustainable recovery lies in understanding this local wisdom. While this effort may take some time, it will be paid off in years after the earthquake. In doing this, the efficacy of reconstruction strategies and the use of recovery resources can be ensured. As the coming years are critical to the success of managing challenges for recovery and development in Nepal, we call for deliberate decisions on allocating resources, designing and implementing reconstruction strategies. A combination of both compensation scheme and policy deflection facilitating recovery should be put into practice at the quake areas in this country.

7 Conclusion

This article applies a qualitative approach to drawing on people's perspectives to assess post-disaster needs for recovery at community level after a catastrophic disaster in Nepal. Findings verify the importance of conducting PDNA in resource-lacking countries following disaster events as it helps trickling down recovery support to local communities, and people can benefit at maximum from per share of the resources. Our data suggest that the affected population is more concerned about productive living mode and development issues rather than physical reconstruction. For instance, while building new houses appears to be the most urgent task which has been a common practice adopted by governments in many countries, relocated villagers wish to have permanent ownership of land at a safe location for reconstruction, to gain employability for overseas job-hunting, to have own farmland in order to become self-sufficient. These findings illustrate that human recovery needs within local communities are inherently sustainable, implying the necessity to take these demands into consideration when designing reconstruction policies. Further, the diverse needs are interlinked, and the interlinkage is especially manifest in the reliance on the government to answer them.

A limitation of this study is the lack of multiple case-study areas under different cultural domains (more villages from other districts, for example). However, due to the far distance and damaged road network, it was unrealistic for us to visit several different areas during the field trip. By revealing a method to assess recovery needs at communities, this study can be used as a reference on disaster management and recovery planning in countries where natural hazards are recurring and vulnerability of people is enduring. Future research should conduct follow-up studies at different study areas in order to acquire comprehensive understanding of the recovery process.

References

- Adhikari, J. (2006). *Land reform in Nepal: Problems and prospects*. Kathmandu: Nepal Institute of Development Studies (NIDS).
- Anderson, M. B., and Woodrow, P. J. (1989). *Rising from the ashes: development strategies in times of disaster*. Boulder, CO: Lynne Rienner Publishers.
- BBC News (2018). Nepal country profile. Retrieved from <http://www.bbc.com/news/world-south-asia-12511455> (accessed on 15 April 2018).
- Berke, P. R., and Campanella, T. J. (2006). Planning for postdisaster resiliency. *The Annals of the American Academy of Political and Social Science*, 604(1): 192-207.
- Berke, P. R., Kartez, J., and Wenger, D. (1993). 'Recovery after disaster: achieving sustainable development, mitigation and equity'. *Disasters*, 17(2): 93-109.
- Chandrasekhar, D., Zhang, Y., and Xiao, Y. (2014). 'Nontraditional Participation in Disaster Recovery Planning: Cases From China, India, and the United States'. *Journal of the American Planning Association*, 80(4): 373-384.
- Chen, K.-T., Chen, W. J., Malilay, J., and Twu, S.-J. (2016). 'The public health response to the Chi-Chi earthquake in Taiwan, 1999'. *Public Health Reports*, 118(6): 493-499.
- Centre for Disease Control (1992). 'Rapid health needs assessment following hurricane Andrew--Florida and Louisiana, 1992'. *MMWR. Morbidity and Mortality Weekly Report*, 41(37): 685.
- Corbin, J., and Strauss, A. (2008). 'Basics of qualitative research: Techniques and procedures for developing grounded theory'. *Thousand Oaks*.
- Cox, S. (2015). *Where is Nepal aid money going?* Retrieved from <http://www.bbc.com/news/world-asia-32817748> (accessed on 30 April 2018).
- Crisp, J. (2001). 'Mind the gap! UNHCR, humanitarian assistance and the development process'. *International Migration Review*, 35(1), 168-191.
- Freeman, P. K. (2004). 'Allocation of post-disaster reconstruction financing to housing'. *Building Research & Information*, 32(5): 427-437.
- Government of Nepal (2015). Nepal earthquake 2015: Post Disaster Needs Assessment, Executive summary. Kathmandu: National Reconstruction Authority.
- Guha-Sapir, D., and Lechat, M. F. (1986). 'Information systems and needs assessment in natural disasters: an approach for better disaster relief management'. *Disasters*, 10(3): 232-237.
- He, L., Aitchison, J. C., Hussey, K., Wei, Y., and Lo, A. (2018). 'Accumulation of vulnerabilities in the aftermath of the 2015 Nepal earthquake: Household displacement, livelihood changes and recovery challenges'. *International Journal of Disaster Risk Reduction*, 31: 68-75. doi:10.1016/j.ijdrr.2018.04.017
- IDMC (2016). 2016 Global Report on Internal Displacement (GRID 2016). Geneva: Internal Displacement Monitoring Centre.
- Kim, H., and Andersen, D. F. (2012). 'Building confidence in causal maps generated from purposive text data: mapping transcripts of the Federal Reserve'. *System Dynamics Review*, 28(4): 311-328.
- Korteweg, H. A., van Bokhoven, I., Yzermans, C., and Grievink, L. (2010). 'Rapid health and needs assessments after disasters: a systematic review'. *BMC Public Health*, 10(1): 295.

- Lee, A. C. K. (2016). 'Barriers to evidence-based disaster management in Nepal: a qualitative study'. *Public Health*, 133: 99-106.
- Levine, N. E. (1987). 'Caste, state, and ethnic boundaries in Nepal'. *Journal of Asian Studies*, 46(1): 71-88.
- Lyons, M. (2009). 'Building back better: the large-scale impact of small-scale approaches to reconstruction'. *World Development*, 37(2): 385-398.
- Malilay, J., Flanders, W. D., and Brogan, D. (1996). 'A modified cluster-sampling method for post-disaster rapid assessment of needs'. *Bulletin of the World Health Organization*, 74(4): 399.
- Mileti, D. (1999). *Disasters by design: A reassessment of natural hazards in the United States*. Washington DC: Joseph Henry Press.
- MoHA (2013). *Nepal Disaster Report: Focus on Participation and Inclusion*. Kathmandu: DPNepal-Nepal.
- Noy, I. (2009). 'The macroeconomic consequences of disasters'. *Journal of Development Economics*, 88(2): 221-231.
- Oliver-Smith, A. (1990). 'Post-disaster housing reconstruction and social inequality: a challenge to policy and practice'. *Disasters*, 14(1): 7-19.
- QSR (2016). NVivo qualitative data analysis software (Version 11). London, UK: QSR International Pty Ltd.
- Regan, H. (2015). 'International Aid to Nepal Ramps Up'. New York: *TIME*.
- Sharma, K. (2006). 'The political economy of civil war in Nepal'. *World Development*, 34(7): 1237-1253.
- Smith, G. P., and Wenger, D. (2007). 'Sustainable disaster recovery: Operationalizing an existing agenda'. *Handbook of Disaster Research* (pp. 234-257).
- Smith, K. (2013). *Environmental hazards: assessing risk and reducing disaster*. London and New York: Routledge.
- Sovacool, B. K. (2017). 'Don't let disaster recovery perpetuate injustice'. *Nature*, 433.
- UNDG (2011). *Human recovery needs assessment*. New York: United Nations.
- UNDP (2009). *Nepal Disaster Report: The Hazardscape and Vulnerability*. Kathmandu: Ministry of Home Affairs.
- UNDP (2016). *Human Development Report 2016: Human Development for Everyone*. New York: United Nations.
- UNISDR (2015). *Sendai Framework for Disaster Risk Reduction 2015-2030: Making the Difference for Recovery, Health and Resilience*. New York: United Nations.
- World Bank (2010). *Haiti Earthquake PDNA: Assessment of damage, losses, general and sectoral needs*. Washington DC: World Bank.
- World Bank (2017). Nepal at a Glance. Washington DC: World Bank. Retrieved from <http://www.worldbank.org/en/country/nepal/overview#4> (accessed on 19 May 2018).
- World Bank and United Nations (2010). *Natural hazards, unnatural disasters: the economics of effective prevention*. Washington DC: World Bank.